THE MAGAZINE OF THE NATIONAL COUNCIL FOR US-CHINA TRADE MAR.-APR. 1978

The China Business Review

VOL. 5 NO. 2

NEW FROM NATIONAL COUNCIL FOR US-CHINA TRADE
1050 17th Street, N.W.,
Suite 350
Washington, DC 20036 USA

DIRECTORY
of Scientific Research Institutes in the People's Republic of China

The emphasis on China's scientific research is on "uniting theory with practice," applying science to the needs of changing economic priorities. In the past seven years China's scientific and technical interaction with the world's scientific and industrial community has increased significantly.

The *Directory of Scientific Research Institutes in the People's Republic of China* is an up-to-date reference that any organization or individual concerned with China's scientific development will find indispensable.

The *Directory* is a standard reference for the following—

- Members of scientific and technical missions to the PRC.
- University science libraries.
- Companies giving technical presentations in China.
- Institutions and firms hosting scientific and technical delegations from China.
- Scientific and technical research institutes studying research in China, overall or in individual categories.
- Companies analyzing the market for scientific instruments and other laboratory equipment in the PRC.
- Companies analyzing China's scientific development in the short-to-long range as it relates to their own product areas.
- Individuals interested in learning about the state of science in the PRC.

About the Directory

In 1977-78 the National Council published the three-volume *Directory of Scientific Research Institutes in the People's Republic of China*. The 400-plus-page volumes describe research in the categories listed and provide comprehensive information about the organization and work of all known research institutes in China through 1977-78. The 1,400-page *Directory* has been prepared by Susan Swannack Nunn.

The *Directory* contains the following data where known: name and address of each institute, in English and Chinese, date of establishment, organization, staffing, research divisions, subsidiary facilities, affiliates, biographical information on staff, present and past research and publications, recent research and activities (including abstracts of work published) and known equipment installed.

The cost of the three-volume *Directory* is $300. Individual volumes are $125 each. Postage and handling are additional.

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(May 1977)
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Soils
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Pharmaceuticals
Plastics
Synthetic fibers
Construction
Cement
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Foundation and soil mechanics
Structure

VOLUME III
(April 1978)
Energy
Coal mining and processing
Natural gas
Nuclear energy
Petroleum
Power generation
Electronics, electrical
Components
Computers
Consumer electronics
Electrical
Medical equipment
Precision instruments
Telecommunications
Light Industry
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SPECIAL DISCOUNT for Academic and Other Nonprofit Institutions

The *Directory of Scientific Research Institutes in the People's Republic of China* is available at a reduced price of $200 to academic and other non profit institutions. The discount applies to the purchase of the set of three volumes only. Postage and handling are additional.

Volume 5—Number 2—March-April 1978

The China Business Review

EDITOR: NICHOLAS LUDLOW · ASSISTANT EDITORS: STEPHANIE GREEN AND HOWELL JACKSON

Design **Louise Levine**

TABLE OF CONTENTS

Front Cover. Pipa players of Shanghai Children's Palace, regular stop for foreign tourists and businessmen. See story on tourism, page 5.

The CHINA BUSINESS REVIEW is published bimonthly by the National Council for US-China Trade, 1050 17th Street, N.W., Suite 350, Washington, D.C. 20036 USA. The National Council is a non-profit organization incorporated under the laws of the District of Columbia. The CHINA BUSINESS REVIEW is published principally for members of the National Council. Application to mail at controlled circulation rates is pending at Washington, D.C. The magazine is available for subscription in the US and Canada at $60 per year; elsewhere at $75 a year including airmail postage.

The National Council for United States-China Trade is grateful to His Excellency Huang Chen, formerly Chief of the Liaison Office of The People's Republic of China in Washington, for the calligraphy on the front cover of the China Business Review.

China Trade Events

CHINA, April 2 to April 14, 1978
The NCUSCT Consumer Products-Handicrafts Delegation traveled to China for consultation with PRC officials on marketing Chinese goods in the US. Escorting the delegation was Stanley Young, vice president of the National Council.

WASHINGTON, DC, April 6 to April 26, 1978
The National Council is hosting the Chinese Oceanographic Research Vessel Delegation. The eleven-member delegation is headed by Tseng Cheng-kuei, deputy director of the Tsingtao Institute of Oceanology.

WASHINGTON, DC, April, 1978
In association with the National Council, the CHINATEX mission on cotton greige goods and silk piece goods is visiting old customers in New York, Chicago, and Boston.

KWANGCHOW, CHINA, April 15 to May 15, 1978
The 43rd Chinese Export Commodities Fair will take place. Vice President Stanley Young, Howell Jackson, and John Kamm of NCUSCT will be on hand to help US businessmen at the Council business office.

CHARLOTTESVILLE, VIRGINIA, April 17, 1978
The University of Virginia will present a conference on East Asian business. Contact Dr. Gilbert Roy (804) 924-3350.

ST. LOUIS, MISSOURI, April 19, 1978
Dr. Allen Whiting of the University of Michigan will speak on "Future of the Sino-Soviet Dispute." Write St. Louis Council on World Affairs, 212 N. Kingshighway, St. Louis, MO 63108.

WASHINGTON, DC, April 25 to April 26, 1978
A conference on "Asia: Market Forecast for US Business," cosponsored by the School of Advanced International Studies (SAIS) at Johns Hopkins University and the International Management and Development Institute, will be held at SAIS, 1740 Massachusetts Avenue, NW. National Council President Christopher H. Phillips will address the conference; Council directors Julian Sobin and Walter Surrey will also give presentations. For details, contact Jayne Booker (202) 785-6800.

WASHINGTON, DC, May 1 to May 21, 1978
The National Council will host the Petrochemical Fiber Technical Survey Delegation from China National Chemical Fibers Construction Corporation. Delegation escorts will be Suzanne Reynolds-Bennison and Richard Glover.

PEKING, CHINA, May 19, 1978
The NCUSCT Agricultural Machinery Delegation will visit China. John Kamm, NCUSCT representative in Hong Kong, will be delegation escort.

WASHINGTON, DC, May 23, 1978
The Bureau of East-West Trade of the Department of Commerce will hold a seminar on "Doing Business with China." Presenting the latest in marketing techniques and up-to-date information on China's economy and trade, the seminar will be of interest to both the new China trader and the old China hand. For further information and reservations contact Ian MacFarlane of the China Desk, (202) 377-5527.

HOT SPRINGS, VIRGINIA, June 8 to June 9, 1978
The Chase World Information Corporation will present a weekend seminar on "Training Strategies for Third-World Countries," at The Homestead, Hot Springs. There will be a segment on training programs in the PRC. Contact Dr. Alice Haemmerli (212) 552-3238.

WASHINGTON, DC, June 14, 1978
The National Council will hold its fifth Annual Meeting at the Mayflower Hotel, Connecticut Avenue and M Street, NW. Details on speakers and agenda will be mailed to members in the near future.

HONOLULU, HAWAII, July 30 to August 1, 1978
A. A. Meyerhoff will speak on "The Petroleum Geology of the People's Republic of China" at the second Circum-Pacific Energy and Mineral Resources Conference. Write 1978 Circum-Pacific Conference, c/o AAPG, P.O. Box 979, Tulsa, OK 74101.

YOUR MAN IN HONG KONG

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YOUR MEN IN PEKING

The US Liaison Office staff in Peking will be happy to assist you; please feel free to call them when you are in China's capital.

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Photo: Chase Pacific

IH truck at Shengli Oilfield.

SELLING A SYSTEM

How International Harvester Found a Need in China

American companies have used many strategies to try to gain access to the Chinese market for their products. Some of these methods have let them just inch in the door, some have swung it wide open, and some have led to a number of repeated sales. International Harvester (IH) has made five sales to the PRC as of March, 1978: three directly and two through foreign subsidiaries. But it is the latest and largest one, concluded in May, 1977, that could prove the harbinger of a new approach to the heavy machinery market in China. IH sold a "complete system" of oil rig moving equipment, designed to fit a particular need in the Chinese context.

"There is a difference between selling a system and just selling a truck," pointed out E. M. Christl, Manager, Corporate Development, Washington, DC, office for the $6 billion sales/year company. "In the system, the equipment is supplementary. The accompanying information on how to make use of it makes the package unique."

The IH contract consummated the Chinese purchase of three packages of equipment, including eight Paystar heavy-duty trucks and one Scout utility vehicle for the purpose of moving oil drilling rigs from one location to another. The main contract was worth $2.5 million, with an additional contract for spare parts in the amount of $350,000. About 40 percent of the equipment involved was manufactured by a supplier in Salem, Illinois, the Dickirson Equipment Corporation.

A History of Interaction

Looking behind the company's latest success, one can see a substantial history of interaction with the Chinese, which reflects effort, perseverance, and a little bit of luck—usually the main ingredients of any successful dealings with the PRC.

Through its foreign subsidiaries, IH has exhibited equipment at three major exhibitions in China since 1972: sowing machines at the Canadian Industrial Exhibition, August, 1972; earth-moving equipment and components at the French Industrial, Scientific and Technical Exhibition in May, 1974; and motor trucks at the Australian Industrial Exhibition in October, 1974. It will also display machinery at the upcoming multinational agricultural equipment exhibition in Peking next fall through a subsidiary.

Various International Harvester facilities around the US have played host to Chinese visitors, notably two delegations from the China Council for the Promotion of International Trade (CCPIT) in 1975 and 1977, sponsored by the National Council for US-China Trade; and a party from the Chinese Liaison Office in Washington, DC, headed by its then chief, Ambassador Huang Chen, in 1974.

In 1976 IH's former head of China activities, R. J. McMenamin, Vice President, Special Operations, visited China with the Mid-America Committee; and IH will be represented on the National Council's agricultural mechanization delegation to Peking in May.

IH has further sought aid in its China business through the retaining of agent companies, currently, C. J. Wang of International Corporation of America. The company gives Wang a great deal of the credit for its latest sale.

The first of the company's sales was in 1973, when IH negotiated a contract with the Chinese—entirely by telex—for towing tractors. The next was via a Japanese joint venture, and another was completed through its subsidiary in Great Britain. In addition, the company purchased a French firm just as it was

selling over a hundred hydraulic excavators to the PRC. The most recent sale was the oil rig system.

While these contracts involve a fair number of vehicles, the company estimates that the total number of heavy-duty International Harvester trucks sold to China is far more. As explained by Paul Johnson, Director of Corporate Development, "We probably have several hundred trucks in the PRC, since a great deal of equipment purchased by China, mostly petroleum-related, has been mounted on IH vehicles. So our trucks are known in China and are used at most oil fields." The company is currently conducting a survey of the overall number of IH trucks supplied to China through other companies. At this point, it has a running count of at least 132 from 1974 to 1977.

Saga of the Systems

The "systems" saga began in late 1976, at the Fall Canton Trade Fair. Keeping in mind the fact that so many of its heavy-duty trucks had already been sold to the Chinese in connection with other companies' contracts for oil exploration equipment, IH felt the time was ripe to try to sell such trucks directly. "Perhaps there [would be] other opportunities to use our trucks," McMenamin said in a taped interview with Julian Sobin of Julian M. Sobin Associates, Inc. (on the China Trader Audiocassette program).

IH learned that the effective use of a Chinese oil drilling rig was limited to only six or eight weeks a year and began to sense that perhaps there was a problem in moving the rigs without damaging them, thereby reducing the time that they could be utilized. "If you're using [a rig] only six or eight weeks out of the year, somebody can come along and say, look, I can get that to six or eight months, and you can see the fast payback that results," noted McMenamin. He and his colleagues also carefully studied a Chinese-published booklet describing Taching, China's largest oil field, and asked the Chinese many questions about the situation in their oil fields (few of which were answered).

Sell to the Need

Based on the information gathered on China's particular conditions and the equipment already in use, executives put together a proposal for a system of trucks with the proper hoists and winches to move oil rigs in the PRC's fields. "We coincidentally hit upon this method and approach," commented Christl, "and the more we talked about it, the better we felt about it. The Chinese did not tell us if they had problems in the moving of rigs, but because they did buy our package, they probably do. Perhaps they did not even realize that a system could be developed for this purpose." IH had used the approach before; one such occasion was to sell a system for corn production and harvesting to Hungary.

McMenamin defined the approach as follows: "It is really very aggressive marketing in a simple way: You try to find out what the needs of your customer are, and you sell to the need, rather than to the product."

After International Harvester sent six copies of its initial proposal to China, it learned from Dr. Wang, who was in Peking at the time, that these had been snapped up immediately and more were needed. They sent the additional copies and two months later, in March, 1977, were invited to China's capital to give technical presentations.

McMenamin, accompanied by two technical experts, went to Peking in May. Technical discussions began May 10 with officials of MACHIMPEX and the Ministry of Petroleum and Chemical Industries, who varied in number from 7 to 10 each day. The movies that were shown had been translated into Chinese. After four days of such talks, commercial negotiations got underway. Completed in four and a half days, they were a track record, according to Dr. Wang. The price negotiations actually took only three or four hours.

The contract, concluded in dollars, calls for three sets of equipment, each making a complete system. The system includes two long-wheelbase cargo trucks, three truck-tractors with oil field trailers, three winch trucks with fold-over fifth wheels, and a Scout utility vehicle. Each of the eight Paystar trucks is designed to move a different part of the dismantled rig, including the derrick. All parts are moved at once and then reassembled at a new location.

The vehicles, destined for three Chinese fields (unidentified as of this writing), were scheduled for shipment in three installments: the first package in February, 1978, the second in May, and the third in July. An irrevocable L/C was opened through Barclays Bank, New York, with terms FOB New Orleans. All have been or will be offloaded at the port of Hsinkang (Tientsin). The first package arrived in mid-March.

The contract stipulates that thirty days after arrival of the equipment at Hsinkang, five IH technicians will visit Chinese oil field sites to provide assistance in assembly, operation, and maintenance. They will remain up to six weeks in China.

A supplementary parts contract was negotiated two months after the main document. The Chinese also requested two-way radio equipment for use in each package and a reserve supply of tires.

International Harvester has not yet signed any new contracts with the Chinese. It has, however, been represented in Peking by C. J. Wang and has received a number of inquiries from the Chinese. The company sees itself as being in an advantageous position now that it has signed a direct contract for trucks. "I think we have found a good approach for China's agricultural mechanization program," judged Christl.
—SRG 完

Mao Tse-tung's birthplace at Shaoshan in Hunan Province is popular tourist attraction for Chinese and foreign visitors alike.

TOURISM:
New Chinese Industry on the Rise

If every seat is filled on present flights to Peking with two-week travelers spending $50 a day, China could net $250 million annually from its new tourist industry. Include visitors entering from Hong Kong and off ocean liners and that figure could amount to $500 million a year in foreign exchange earnings for the PRC. China claims to have hosted 340,000 foreign visitors in 1977. This year may see 400,000 visitors to China and next year 500,000, all eager to sample the new China. Nevertheless, according to one Chinese official, US tourism to the PRC will increase only modestly until normalization of political relations. This report tells what's going on behind the scenes.

From the Middle Ages until the present, China has always been the mysterious Middle Kingdom, exotic Cathay—far, far away and, for most travelers, unapproachable. Those who had been beyond the bamboo curtain were considered a special breed.

This year may change all that—by bringing China more into the mainstream of tourism than ever before. It appears that the thaw toward things Western—music, books, industrial equipment—may now include people. Reflecting the need for foreign exchange to make more technology purchases, China is significantly widening the crack in the door for tourists, especially the money-spending American variety.

The evidence is overwhelming. As one representative from the travel business said, "Every time I turn around I hear about another tour to China." A Chinese tourism mission now in the US has indicated that the number of American visitors to the PRC this year may be more than double that of last year—up from about 4,000 to 10,000, and may double again to 20,000 in 1979. According to China Travel Service (HK), the total number of foreign visitors to China in 1977 was 340,000. The situation changes daily.

Keys to the Kingdom

Pan Am, which sent its first 120-person tourist group to the PRC November 30, has received permission to

LATEST HOTEL RATES IN CHINA*

Hotel	Rates in RMB (date)	Comments
CHANGSHA		
Hunan Guest House	19.00(12/77)	Medium sized single room with two twin beds, balcony
HANGCHOW		
Hangchow Hotel 3-story CT	14.00(12/77)	Large single room with standard furnishings, bathroom with tub, balcony overlooking the West Lake
KWANGCHOW		
Tung Fang Guest House	25.00(12/77)	Single room with two twin beds, chairs, bathroom
KWEILIN		
Banyan Tree Lake Hotel Old, 3-story building	15.00(12/77)	Small single with two twin beds, bathroom with tub
Li Chiang Hotel New high-rise B	20.00(11/77)	Small single room with standard furnishings
PEKING		
Mindzu Hotel	15.40(11/77)	Single room
C	22.40(11/77)	Suite consisting of bedroom with standard furnishings, small adjoining meeting room
	37.40(11/77)	Large suite with a bedroom, large adjoining meeting room
SHANGHAI		
Ching Chiang Hotel CT	17.00(12/77)	Large single room with standard furnishings, walk-in closet, spacious bathroom with showerhead
	18.50(12/77)	Large single with balcony
	36.00(12/77)	Large suite consisting of bedroom with standard furnishings and adjoining meeting room; all rooms are charged 15% extra for heat
SHENGLI		
Shengli Guest House New, utilitarian 2-story building	18.00(12/77)	Small single room with standard furnishings, bathroom with tub
TSINAN		
Tsinan Hotel	12.00(12/77)	Single rooms of different size, some with balconies
Old, 2-story structure	16.00(12/77)	Suite consisting of bedroom with adjoining meeting room

T—Telex Facilities
B—Banking and Exchange Facilities
C—Cable Facilities
* Based on travelers' reports in November and December 1977

bring in over 2,000 more this year; the US-China People's Friendship Association is escorting about 2,680 tourists; Pakistan International Airlines will take in 1,000, including about 500 from this country; Iran Air will have over 500; Japan Airlines, in conjunction with its tour operators, will escort over 600 to China. Canadian Pacific Air and Northwest Orient are arranging tours for American groups. In addition to airlines, tour operators are getting in directly. Lindblad Travel, Inc., of New York is escorting 900 American tourists to the PRC, and the Mid-America China Exchange, Inc., of Chicago is escorting 400. Two British travel agencies are booking 3,000 tourists; Americans can join these tours.

Those who prefer cruises can spend several days in Shanghai, Peking, Kweilin and Canton on round-the-world voyages. And Americans who can make it to Hong Kong will find it very easy to slip into one of the now-regular 4-day trips to Kwangchow or 7-day trips to Kwangchow and Kweilin, operated by China Travel Service, Ltd. (HK), by Thomas Cook Travel, and by JAL.

Not only are the numbers astronomically higher than before, but the range of Chinese cities now possible to visit on an ordinary tourist junket has expanded considerably. Previously, tourists were largely limited to a north-south routing including Peking, Shanghai, Nanking, Hangchow and Canton. Now some regular

tourists will have the chance to see Taiyuan, Yangchuan, Shihchiachuang, and Tsinan—hardly the normal bill of fare.

Learning Foreign Methods

In order to take the fullest possible advantage of these exchange-toting foreigners, the Chinese for the first time are issuing travelers checks in renminbi (RMB) in denominations of 50 and 100. Plans are on the books to issue denominations of 200 and 500 later on. These will be obtainable at over 140 locations in Hong Kong, including the Bank of China and its agent banks and their branches. The checks may be cashed at more than 400 centers in China: branches of the Bank of China and designated branches of the People's Bank, hotels, shops, and airports. There are eight locations in Peking and over 300 in Kwangtung Province. Some Hong Kong-based and foreign banks have indicated their willingness to serve as commissioned agents, according to a February New China News Agency report.

And for tourists and businessmen who have already gone, but have comments on China's arrangements or accommodations, there is more good news: A delegation from China International Travel Service (CITS) arrived in the US March 30 for a three-week tour, in order to "get a feeling of how things are handled in this country," according to Art Rosen, president of the host organization, the National Committee on US-China Relations in New York. The delegation is visiting New York; Philadelphia; Washington, DC; Houston; the Ozark region of Arkansas; the Grand Canyon; Los Angeles; Yosemite National Park; and San Francisco. Arrangements have been made for meetings with the Assistant Secretary for Tourism of the Department of Commerce, Fabian Chavez, Jr.; National Parks officials; travel industry leaders; and local leaders in all areas. Headed by Yuan Chao-chun, the 15-member group includes CITS officials not only from Peking, but from several provinces and municipalities around China.

Preparing Internally

Underscoring the PRC's desire to expand tourism, a "National Work Conference on Tourism" was held in Peking at the end of January. Chairman Hua Kuo-feng received the conference delegates, and Li Hsien-nien, vice premier of the State Council, issued as yet unpublicized "important instructions" to them.

An NCNA broadcast describing the event pointed out that "conditions for developing travel and tourism service in China are now very favorable" and that the country is ready to build more tourist centers and to conduct special tours to scenic spots to accommodate the increasing number of foreign tourists. According to the report, tourists from more than 60 countries have visited China.

Another conference promoting overseas Chinese tourists, held at about the same time, noted that reception facilities were to be improved, hotels and other construction projects undertaken, formalities for getting visas to China simplified, and transportation streamlined. As part of the media blitz within China on tourist topics, a February report in the *Liberation Daily* lauded a Shanghai hotel's staff for the good quality of its service to foreigners.

Ta Kung Pao recently reported that a spokesman for the CAAC (Civil Aviation Administration of China) disclosed that there are now more domestic air routes open in China. Tickets for China's domestic air services can be obtained at the Hong Kong office of the China National Aviation Corporation. China also has recently given permission to Air New Zealand to use Canton as an alternate to Hong Kong on long nonstop flights from Auckland.

Pan Am's New World

It looks as if Pan Am's world has permanently expanded to include the People's Republic of China. The airline has received permission to sponsor 20 groups going into China via Hong Kong from March through December, but skipping the periods of the Canton Trade Fairs, April 15–May 15, and October 15–November 15. There will be 13 120-person groups staying 12 days and 11 nights in the PRC, and 7 74-person groups staying 6 days and 5 nights.

Cities on the various itineraries include Canton, Peking, Hangchow, Shanghai, Suchow, Nanking and Wuhsi. Also included are two days in Hong Kong or Tokyo during arrival and departure. Tours leave from New York, San Francisco, and Los Angeles. For the first tour, February 27, 120 people entered Canton from Hong Kong, went to Hangchow, Shanghai and Peking, and departed from China's capital to Tokyo.

Arrangements for these trips were agreed on following the success of Pan Am's first attempt last November 30, which had the same itinerary as the first 1978 trip. "We feel CITS handled everything very professionally," said John Shumaker of Pan Am's New York office. "A great deal of friendship and understanding was created on both sides." The November trip had been arranged the previous July.

Because of the overwhelming demand for Pan Am's tours, the trips thus far have been limited to members of its "Frequent Travelers" program—people who fly at least six times per year internationally. For Frequent Travelers, access to the trips is on a "first come, first served" basis. Over 5,000 people are already on the list for the 2,000 places open this year.

The price tag for the November 30 tour was $1,265 for the land portion, based on sharing a twin-bedded room, making a total cost of over $2,400 from New York and over $2,260 from the West Coast. 1978 costs average $2,600 from New York, and $2,400 from the West Coast. Charges vary, of course, with the scope of a particular itinerary.

CHINA ISSUES GROUP TOURIST VISAS: AN EXPERIMENTAL FIRST

The Liaison Office of the People's Republic of China has begun issuing group tourist visas in an experimental attempt to streamline tour procedures for admission to China and minimize paperwork. Only the leader of an incoming tourist group will actually have a PRC visa stamped onto his passport; he will bear with him a list of group members, on an official Chinese form, which includes the name, sex, profession, nationality, date of birth, and passport number of each person. Following are excerpts from the Liaison Office's "Notes on LIST OF TOURIST GROUP":

1. The tour leader (or organizer) should fill out four copies of the LIST OF TOURIST GROUP, have them stamped by this Office and take three copies to the PRC. Two copies of them should be submitted to Chinese frontier guards for inspection when the group enters and leaves China; the remaining copy to the China International Travel Service.
2. . . . the tour leader is requested to put the same serial number on the front cover of the passport of each member of the group as it is given in the LIST OF TOURIST GROUP.
3. A group visa will be granted on the passport of the tour leader . . .
4. . . . please check the validity of all passports of the group before filling out the LIST.
5. No change may be made after the issuance of the group visa except under special circumstances.
6. In view of the great number of visa applications, the completed LIST, visa applications (etc.), must be sent to this Office one month before departure.

Friendship Pays Off

All over China one can see signs saying, "We have friends all over the world." The signs have particular meaning for the US-China People's Friendship Association, which was granted an increase in its China tourist quotas from 384 last year to 2,680 this year. In addition, it is sending some active-member and special-interest groups amounting to up to 176 persons. "It's clear that the Chinese have decided to increase tourism," observed Anne Perry, National Tour Coordinator for the USCPFA. "Their main purpose is to promote friendship among the world's peoples."

Most of the increased numbers are participating in a brand-new program called "China Study Tours," for which it is not necessary to be a USCPFA member. In order to join one of the 22 groups of 100 people each, interested parties can apply through local USCPFA chapters and regional travel offices, or through organizations and institutions which are being invited to bring in "clusters" to the groups.

"These trips are definitely for ordinary tourists," noted Perry, "but we do try to group the applicants according to their particular interest areas so that they can have more visits of interest to them." The 19-day China Study Tours, departing from February through December except during the Canton Fairs, visit varying combinations of four cities, almost all including Peking and Canton. One interesting new trip goes to Canton, Changsha with a side trip to Shaoshan, Kweilin, and Nanning; and another to Peking, Changchun, Harbin, and Kwangchow.

A smaller number of travelers are journeying to the PRC as part of the ongoing "Friendship Study Tour" program. Twenty groups of 24 people each are participating in 23-day, five-city tours. Most of them are USCPFA members, although a few are selected because of their work in other community outreach programs. Both types of tours cost about $2,400 to $2,500, varying somewhat from region to region. USCPFA flies the groups on several different airlines.

Persistence Pays Off

"We've been working on trying to get China trips for years," laughed a representative of Pakistan International Airlines' Washington office. "We finally got approval in January."

PIA has been authorized to take 1,000 tourists from Europe and the United States into China during the first six months of 1978; about half are from this country. There will probably be ten groups of fifty, with the first departure last month. At the present time, CITS is requiring that the tours consist of special interest groups, such as doctors or educators.

PIA has been granted perhaps the most exotic list of destinations for its travelers: besides the basic Peking, Shanghai, Canton, Hangchow, Suchow, and Nanking, visitors will have the opportunity to opt for selections from a more unusual roster including Taiyuan, Yangchuan, Shihchiachuang, Tsingtao, Tsinan, and Sian. Most of the trips are 15 days in length, leave the US from New York, and enter and exit China from Peking. A few go into Peking and depart from Canton. The 15-day package has a land cost of $700-900.

Iran Air, JAL, Northwest

Iran Air's agreement is similar to PIA's: a quota of 1,000 persons divided between the United States and Europe (55% from the US), and a requirement for special interest groups at this time. "But we hope that in 1979 we will be sending regular tourists," said Michael Shamilzadeh of Iran Air's New York office.

The 11-day Peking-Hangchow-Shanghai package is combined with two different trips to Iran. The shorter trip, which costs $2,700, includes three days in Teheran on the way from New York to Peking; the longer $3,500 version stops at additional Iranian tourist spots. There are two or three departures each month.

A JAL delegation returning from Peking in mid-March brought with it allocations for 600 tourists to combine 11-13 day tours of China with short stops

in Hong Kong and Tokyo. Among the 24 cities in 12 itineraries are Harbin, Loyang, and Nanning. In addition to these, the airline is offering a four-day visit to Canton either as an extension of its 21-day tours of Asia, or separately, for groups of over 15 persons. "These are for ordinary tourists, although we are offering them through organizations," explained George Shallhoub, Manager of Tour and Group Marketing, the Americas, in JAL's New York Office.

JAL is working with Venture Tours of Minneapolis and the Japan Travel Bureau International, which are working through their land operators in Hong Kong, who in turn have received offers from CITS. Americans must be in Hong Kong for at least three days prior to entering China in order to have their visas processed. The tours leave every Saturday except during the periods of the Canton Trade Fairs. JAL will also have two combined air/sea package tours to Shanghai during the spring.

After being approached "out of the blue" by CITS last October, Northwest Orient received an early February letter confirming its request to have three fifty-person tours in May-July. "Now we've asked for more space in the fall," commented Larry Martin, Manager, Tour Sales.

Going with Travel Agencies/Tour Operators

Besides travel agencies allotted tickets by airlines, others have dealt directly with CITS. Lindblad Travel, Inc., an international organization based in New York that received CITS authorization for 1,200 tourists, three-quarters from the US, is combining its tours with Japan, Hong Kong, and for some, the People's Republic of Mongolia. Three hundred of the total are being sold through PIA and Ethiopian Airlines. The 28 tours, varying in size from 25 to 100, began last month and continue to the end of the year.

Each tour contains 20 days in China, with five, six, or seven locations, including Peking, Shanghai, Canton, Linhsien, Wuhsi, Kweilin, Suchow, Hangchow, Changsha, and Shaoshan. Total land cost for China and other Asian stops is around $2,000. "CITS is a very well-organized tour operation, and the Chinese have been extremely cooperative in issuing visas," commented Lars-Eric Lindblad, president. "We are already beginning discussions with them for next year's tours."

Thus far servicing America's Midwest, the Mid-American China Exchange, Inc., a newly formed operator obtained 400 tourist visas in January. Its 13- to 14-day trips, which have a total price tag of between $2,865 and $2,975, run from June through November and include, among others, such tantalizing destinations as Tachai, China's model production brigade; Harbin; Changchun; Chengchow; Taiyuan; Shenyang; Nanking; Talien; and Shihchiachuang. One of the agency's co-founders, Walter L. Keats, said he also expect to have "additional tours next year."

By Way of Hong Kong

Americans who have other reasons to be in Hong Kong can now apply for one of the regular four-day visits to Canton currently being arranged by China Travel Service, Ltd (Hong Kong). Also available is a seven-day tour to Kweilin and Kwangchow, and in the offing a possible extension to include Nanking. The first Kwangchow visit left January 7, and the first Kweilin visit January 8.

The Kwangchow group consisted of 73 persons from the US, Britain, France, Japan, Australia, New Zealand, Yugoslavia, the Philippines, Norway, West Germany, Italy, and Switzerland. Among the members was an "elderly American couple," according to the January 12 issue of *Ta Kung Pao,* a PRC-oriented newspaper published in Hong Kong. The couple had come to Hong Kong to visit their daughter. Hearing of the tour, they immediately applied.

Thomas Cook Travel, which has 600 offices worldwide, is offering a group of tour packages almost identical to but completely separate from those of China Travel Service. Following a visit of two of the agency's chief executives to China in December, Thomas Cook was granted authorization to bring 2,000 tourists from around the world into the PRC this year, all from Hong Kong. Although its Hong Kong office is handling most of the arrangements, interested Americans can contact Thomas Cook offices in this country to get on the "first come, first served" list. Like China Travel Service, Thomas Cook has already begun running a four-day tour to Canton and a seven-day tour to Canton and Kweilin. In addition, it is operating a seven-day trip to Canton, Kweilin, and Nanning. The Canton-only price tag is HK$840, and the Canton-Kweilin cost, HK$1620.

"This is only the beginning of China tour programs to be marketed by Thomas Cook," commented Ari Drbal, Vice President of Operations for North America.

Ship to Shore

For those who prefer a leisurely cruise there are several cruise lines docking at Chinese ports this year, most for the second or third time. In March, passengers aboard the *Queen Elizabeth II's* Great Pacific and Orient cruise had the opportunity to see Kweilin, which has just been opened as a cruise ship tour destination, and Canton and Peking. The Norwegian America Line's *Sagafjord* arrived at Canton on February 19. Passengers could either remain in the Canton area or take a longer trip to Kweilin. The Holland America's *SS Rotterdam* is also offering a visit to Kweilin and others to Canton and Peking. The *Lindblad Explorer,* owned by Lindblad Travel, also will stop in Shanghai and Canton for ten days. And Perci Tour cruises are taking passengers on a three-day tour of Shanghai.—SRG. 完

DISPUTE SETTLEMENT

Japan's Experience with Imports from China

Alistair Wrightman

For every importer of Chinese products, dispute over details of goods bought is a hazard of the business. In this note from CBR's *Tokyo correspondent, the efforts of one segment of Japanese importers to create a dispute settlement environment with the Chinese on an "equal" footing are described, and a moral drawn.*

Commercial disputes arising out of Japanese imports of Chinese goods have so far been settled chiefly through Japanese concessions. But efforts are now being made in Tokyo to rectify this unequal state of affairs. The Japan-China Association on Economy and Trade (JCAET) emphasizes that although Japan is party to the 1923 Geneva Protocol on Arbitration Clauses and the 1927 Geneva Convention on the Execution of Foreign Arbitration Awards, China is party to neither of these international agreements. Ways of settling commercial disputes between the two countries are provided for, however, in a bilateral trade agreeement which was concluded in January, 1974.

In the Japanese experience, for settlements of business claims to take place properly with China, it is obviously necessary to insert beforehand a clause providing for arbitration in each contract. This can thus be invoked when disputes arise. If this is not done, the parties must reach agreements for settlement after disputes have broken out. The two parties must also agree in advance on the specific organization to which such arbitration applications should be submitted, the actual rules of arbitration, and even the exact place of the arbitration itself. From this point of view, the Japan Commercial Arbitration Association recommends insertion of the following standard clause into all contracts with foreign firms (including those of China):

"All disputes, controversies, or differences which may arise between the parties, out of or in relation to or in connection with this contract, or for the breach thereof, shall be finally settled by arbitration in Tokyo, Japan, in accordance with the Commercial Arbitration Rules of the Japan Commercial Arbitration Association and under the Laws of Japan. The award rendered by the arbitrator(s) shall be final and binding upon both parties concerned."

The Sino-Japanese dispute settlement provisions of the Sino-Japanese Trade Agreement (Art. 8), provide for the following:

(1) In regard to disputes arising out of or in relation to commercial contracts concluded between juridical persons or natural persons in Japan and the foreign trade organs of the People's Republic of China, the two nations should first of all encourage the parties to settle them through friendly consultations.

(2) In the event a dispute cannot be settled through consultations, the parties may submit the case to arbitration in accordance with the arbitration clause. The arbitration clause is to be provided for by the parties to a contract in the contract itself or in a separate agreement related to the contract.

(3) The two countries will encourage, by all possible means, utilization of the arbitration organs of the two states by the parties concerned.

(4) The two nations assume the obligation to ensure the execution of an award of arbitration, in accordance with the terms provided under the law of the country which is required to execute it and by the organs concerned.

The JCAET pointed out that this particular article is more or less abstract and imposes only moral obligations that commercial disputes between the two countries should be settled conscientiously. This has led to a situation in which many contracts with the Chinese over the years, especially those involving imports of goods from China, are turned in favor of Peking as far as the clause for settlements of disputes is concerned.

This stems from the present trade agreement between Japan and China, which provides for reviews of the bilateral trade, at least once a year, alternatively in Tokyo and Peking, to examine problems of enforcement of the agreement and other two-way trading problems. Japanese officials have been asking the Chinese at each of these trade reviews to rectify this situation where settlement of commercial disputes is involved.

The Association reports that the China side, however, has been taking the position that governments should not intervene in commercial contracts which are concluded through agreement of private parties to contracts. If a contract is considered unequal, why did the Japanese party sign it in the first place? This is the question the Chinese always ask.

One of the reasons for the development of such a situation is that Japanese traders are engaged in stiff competition with each other for import of Chi-

nese goods or for Chinese markets, explains the Association. For instance, demand for soybeans, jelly fish, mushrooms, abalone, shrimp and many other products has been increasing in Japan for years, and China has become a major source of supply for these products.

This poses a problem: If a Japanese importer actually refuses to accept insertion of an arbitration clause that is considered unequal, the Chinese offer the contract to another Japanese trader instead.

The National Federation of Miso (bean paste) Producers, otherwise known as Zenmiren, a major importer of Chinese soybeans, reports that its contracts with the Chinese Cereals, Oils, and Foodstuffs Import and Export Corporation (CEROILS) provides for the following inspection procedures:

(1) The soybeans the association imports from the corporation should be inspected by a Chinese inspection body at the port of shipment in China as to quality and weight. The costs of inspection are to be borne by the Association.

(2) The certificates issued by the Chinese inspection body should be made the basis for payment of the Association to the corporation.

(3) The Association should have all imported soybeans inspected by a Japanese inspection organ at the Japanese destination port immediately after arrival of the shipment to determine its quality and weight. The costs of such inspection again should be borne solely by the Association.

(4) If results of the inspection by the Japanese body should turn out to be different in any degree from the certificate resulting from the Chinese inspection, the Association may ask the corporation for damages within a period of thirty days.

(5) The corporation in China will not be responsible for changes in quality or weight of the shipments that have occurred due to natural causes during transportation or for those matters that fall within the area of insurance of ship operations.

The contracts also include the following procedure for arbitration:

(1) All disputes that may arise out of execution of the contract or concerning the contract should first of all be submitted for settlement through friendly consultations between the parties.

(2) If a dispute cannot be settled through consultations between the two parties, the dispute should be submitted to arbitration by an early date. The dispute, however, should not be submitted to arbitration by an ordinary court of justice.

(3) Arbitration should be made in the country where the defendant resides.

(4) If arbitration is made in Japan, it should be made by the Japan Commercial Arbitration Association in accordance with its rules of arbitration.

(5) If the arbitration is made in China, the Foreign Trade Arbitration Section of the CCPIT should conduct the arbitration in accordance with its own arbitration rules.

(6) The award of arbitration shall be final and binding upon both parties.

Authorities of the JCAET disclose that if a Chinese organ that is not much experienced in matters of this kind conducts arbitration, the result most likely will be unfavorable to the Japanese. But Chinese officials claim that all bodies in China involved in arbitration are completely independent and perfectly capable of arriving at fair awards.

Zenmiren authorities reveal there have been several cases in which they had told CEROILS of the existence of coal dust and other impurities in Chinese soybean shipments—apparently resulting from failure to clean hatches of ships properly. The Chinese usually in such cases have taken note and promised to be more careful in the future. Yet there have been only a few cases in which business claims for damage payments have been made due to such failures. At any rate, according to Zenmiren, there have been no cases in which the arbitration clause had to be invoked.

Zenmiren officials disclosed, however, that there was a case in which the Chinese corporation said the moisture content of a Chinese crop was about 19 per cent because of floods in Northeastern China. A maximum of 17 per cent was provided for in the contract. The Chinese showed a sample to members of a Japanese mission in Peking who said on the spot that the crop would not be accepted by Zenmiren. A test conducted by Zenmiren on a sample the mission brought back to Japan also justified this attitude.

As a result, the Chinese corporation consented to Zenmiren's position and sold part of the problem crop to smaller Japanese trading houses which were considered politically friendly to China at that time. It was later reported that some of these trading firms made excellent profits from the arrangement, apparently because the Chinese substantially reduced prices.

JCAET considers that the situation concerning arbitration clauses may be even worse for smaller Japanese importers of Chinese goods, particularly including buyers of buckwheat, ordinary beans and peas, and possible tung oil as well. The Association believes the Chinese have traditionally been very good at business negotiations and can now take advantage of the unusually strong competition among Japanese companies, as well as between Japanese and Western importers. The Association also suspects that the Chinese are giving considerably better deals in arbitration clauses to Western importers, since they may be in a stronger position to bargain with China.

The Japan External Trade Organization (JETRO), a semi-official trade promotion body, is convinced the main reason there have been no cases of actual formal arbitration in trading between Japan and China is that both sides appear eager to settle problems of this type in a friendly way. 完

Council Activities

In the early part of the year the National Council assisted the Department of Energy in making the arrangements for the delegation of the Petroleum Corporation of China (PCC), in the US at the invitation of Secretary of Energy James Schlesinger. The head of the mission, Sun Ching-wen, president of the PCC, on his return to Peking was appointed China's minister of Chemical Industry, a new post following the splitting of the PRC's Ministry of Petroleum and Chemical Industries. Perhaps the most significant event in terms of Sino-US trade developments was the letter from the CCPIT to the National Council received March 13, 1978, in which the Chinese announced that it is now possible for US trademarks to be registered in the PRC. The National Council's talks with the CCPIT regarding trademarks were initiated in November, 1973, by Walter Sterling Surrey, Council board member and head of the Council's legal committee. The Council's first light industry delegation to China arrived in Peking on April 2, hosted by the CCPIT; and before spring officially arrived, the Council was arranging to host three more delegations from China, including an oceanographic research vessel group, a piece and greige goods marketing mission, and a group from a newly emerged Chinese entity, the China National Chemical Fibers Construction Corporation.

US FIRMS MAY NOW REGISTER TRADEMARKS IN THE PRC

The CCPIT has informed the National Council, in a letter dated March 4, 1978, that the Chinese government has decided to permit registration of foreign trademarks in the PRC as of January, 1978, "on the principle of reciprocity." Previously, foreign trademark registration was possible in China only via bilateral agreements with foreign countries, according to Article 12 of China's trademark regulations, which were promulgated in April, 1963.

According to the CCPIT, which acts as the PRC's agent for foreign trademarks, the decision by the Chinese administration was taken as a step towards conforming with the requirements of "international trade development." The letter states that if a copy of domestic registration is not required for registration of foreign marks in the US (it is not), the PRC will not require home registration of American marks in China.

The CCPIT made reference in their letter to discussions concerning Sino-US trademark registration held with the Chinese by Walter Sterling Surrey of Surrey, Karasik and Morse, a board member of and counsel to the National Council. These were initiated with the CCPIT during the National Council visit to Peking in November, 1973.

In October, 1976, a National Council delegation handed US documents to the Chinese in Peking indicating that registration of Chinese trademarks in the US was possible under US law. Mr. Surrey continued the discussions of this issue in meetings with the CCPIT in 1977.

Chinese trademarks have been registered in the US since July 9, 1974, when Sobin Chemicals registered the PRC's "Good Health" logo for human acupuncture models on behalf of a Chinese organization. China's light industry corporation later filed a trademark for "Great Wall" shoes.

Trademarks may be registered with the Central Administrative Bureau of Industry and Commerce in China via the Trademark Registration Agency, China Council for the Promotion of International Trade, Peking, People's Republic of China. Further details can be obtained from the National Council.

PETROLEUM MISSION VISITS US, HOSTED BY DOE

Finding "more than ten additional Tachings" was identified by President Sun Ching-wen of the Petroleum Corporation of China, at the close of his delegation's visit to the US, as his major responsibility. The 19-member mission, hosted by the Department of Energy, was the first Chinese petroleum delegation to visit the US at the invitation of a US government agency. Secretary of Energy James Schlesinger personally extended the invitation to the Chinese to visit the US. The National Council assisted in making the group's arrangements under contract to DOE.

Senior adviser to President Sun was Li Jen-chun. Tien Yu, first secretary of the PRC Liaison Office (PRCLO) in Washington, DC; Lo Kai-fu, PRCLO commercial official; and Yu Min-sheng, chief correspondent of Hsinhua, New York, also accompanied the group. The mission visited Houston, Beaumont, New Orleans, Dallas, Bartlesville, Oklahoma City, the Los Angeles area, Bakersfield, and Washington, DC.

Dr. Schlesinger, who met with the Chinese at the White House, and other DOE officials attended the farewell banquet for the delegation given at the Liaison Office by Acting Chief of PRCLO Han Hsu. The National Council's Petroleum Committee hosted a banquet in Houston attended by over two hundred industry representatives. Ambassador George Bush, ex-head of the US Liaison Office in Peking, welcomed the

Chinese to his home for dinner during the group's stay in Houston.

The delegation's interests included instruments and equipment used in geological research, core sampling equipment, oil and gas development technology, techniques and equipment for enhancement of recovery ratios of sand and limestone oil fields, oil and gas field treating facilities, latest condensate gas field technologies and equipment, natural gas gathering systems, turbo-expanders, cryogenics, oil field construction equipment, reservoir evaluation, and the latest in secondary and tertiary recovery methods. Also of interest to the group were catalyst and additive applications, hydrocracking processes, and lubricating oil manufacture and blending.

The delegation saw offshore drilling and production facilities in the New Orleans area, including delta marsh land drilling and production, and offshore oil and gas gathering systems. They asked to see major drilling locations onshore, offshore, and in desert areas. Bad weather caused half the delegation to make an overnight stay on the rig "J. Storm VII," 120 miles offshore from Beaumont. Visits were also arranged to a number of oil fields including East Texas, Panhandle, Oklahoma City, Elk Hills, THUMS, and Wilmington, plus Katy and Hugoton gas fields.

In addition, the Chinese went to drilling bit and oil tool factories and research laboratories, as well as to shipyards and plants manufacturing rigs and platforms. The group looked at drilling technology and equipment, including coring, mud, electric logging, cementing, well testing, and drilling tools.

In closing discussions with Council President Christopher H. Phillips and Vice President Stanley Young, Mr. Sun and Mr. Li stated that the Petroleum Corporation will welcome invitations for specific delegations both to and from China under the auspices of the National Council.

According to the PCC's senior officials, China may consider service contracts with foreign firms but not production-sharing agreements. The Chinese expressed interest in the technology of other forms of energy, such as geothermal.

Priscilla Rope was the National Council's project coordinator, working closely with DOE's John Manelis. Stanley Young, Eric Kalkhurst, May Li Phipps, and Roy Tsung of the Council accompanied the group, together with Richard Chen. A list of the delegation members is given in Exporter's Notes.

THE CCPIT'S TRADEMARK LETTER TO THE NATIONAL COUNCIL

March 4, 1978

Dear Sirs,

Your Council [has] had several discussions with this Council regarding the filing of trademark applications between China and the United States. Now we wish to inform you that in order to meet the requirement of the international trade development and considering the specific situation of international trademark registration, our Government has made the decision that the implementation of Article 12 of the Regulations Governing Trademarks concerning the signing of agreement on reciprocal trademark registration and the filing of copy of home registration shall, as from January 1978, be based on the principle of reciprocity.

The documents handed to this Council by the delegation of your Council visiting China in October 1976 stated that registration of trademarks of the People's Republic of China in the United States is already permitted under applicable United States law. So according to the principle mentioned above, we now inform you that registration of United States trademarks is also permitted in the People's Republic of China as from January 1978.

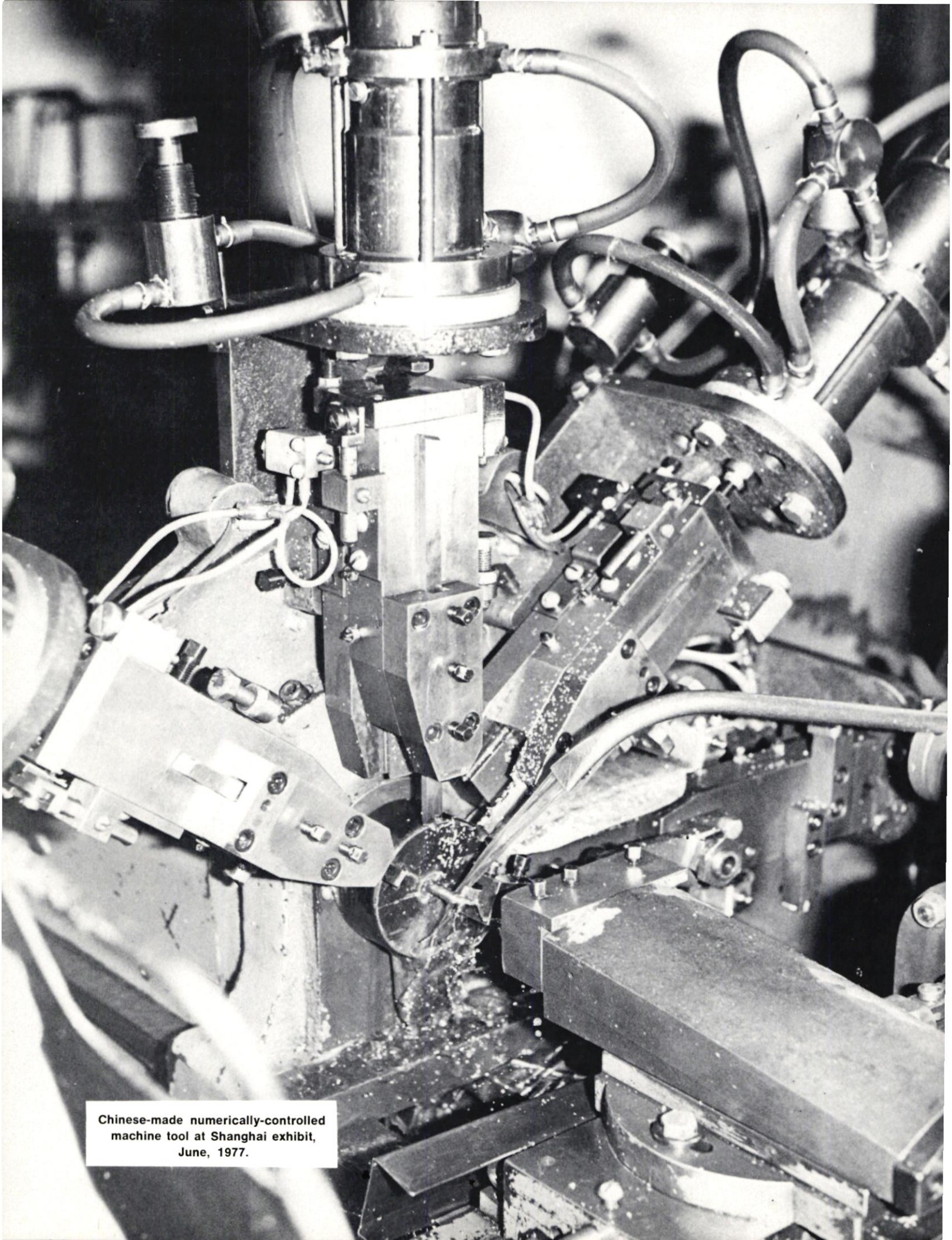
Besides, if you can confirm that copy of home registration is not required on registration of trademarks of our country in the United States, then the said certificate will not be required on registration of United States trademarks in the People's Republic of China. We are looking forward to your reply in this respect.

The China Council for the Promotion of
International Trade

NEW COUNCIL MEMBERS

The National Council is pleased to welcome the following companies as new Council members since January 1, 1978:

Airborne Manufacturing Company
Amoco Research Co.—Affiliate of Standard Oil Co. (Indiana)
Atlantic Richfield Company
CMI International
The Carborundum Company
Cathay's Imperial Jade & Fine Jewelry
China Herbs Import & Export Co.
Electronic Associates, Inc.
Fiat-Allis Construction Machinery
Fur Design Interiors
Galveston-Houston Company
International Air Service Company, Ltd.
Kohler Company
McKee Corporation
Medrad
The Minster Machine Company
NL Petroleum Services
Nissho-Iwai American Corp.
Pennzoil Company
Sante Fe International Company
Technicon Company
The John D. Walsh Company, Inc.
George H. White, Inc.



Chinese-made numerically-controlled machine tool at Shanghai exhibit, June, 1977.

INDUSTRIAL STANDARDIZATION IN THE PEOPLE'S REPUBLIC OF CHINA

Erik Baark

China is embarked on a Grand Plan to modernize that will need and harness the nation's technological capabilities as never before. Markedly endorsed by Chairman Hua Kuo-feng at the National People's Congress in February of this year, the import of foreign technology will also assist in the new construction. A key element of modernization of industry is the development of standards that serve to create a more efficient and productive economy. Although few outside the PRC are aware of it, China does have industrial standards—over seven thousand of them—and their quality is high in international terms. How do China's industrial standards relate to those in the US and elsewhere? How does China develop its standards? Who is responsible for these standards? For the exporter of machinery to China, wondering how the other side's industry operates, and for the importer of Chinese products, often frustrated by the lack of knowledge of what standards apply to products he is buying—and promised new quality controls by Hua's administration, this article will provide considerable insights into an important, little-known facet of China's economic development.

"The machine building industry, which has the vital task of equipping all branches of the economy, should be organized in accordance with the principle of coordination between specialized departments. It should come under a unified plan, do a good job in standardization, serialization, and general utilization of its products . . ."

Chairman Hua Kuo-feng
to the National People's
Congress, February 26, 1978

As modern technology has developed, standardization has become an important factor in raising the level of production and improving the quality of industrial output. China has published standards since 1950: By 1975, more than 7,000 were in use throughout the country. This article addresses the questions: How were these standards established, to what industries do they apply, and to what degree do they conform to international standards?

Standardization Policy

Standardization is commonly recognized in modern industrial nations as an efficient means for making

THE BASIS OF THIS ANALYSIS

The analysis presented in this article is based on a collection of Chinese industrial standards that is part of a library of Chinese works on science and technology owned by the Research Policy Program at the University of Lund in Sweden. The collection has been obtained with the assistance of the Swedish Academy of Sciences, Stockholm, and the author is grateful to the Academy, as well as to the Research Policy Program, for permission to use it.

While Chinese books on science and technology have been described in a catalog titled "Survey of PRC Literature on Science and Technology," published in December, 1977, by the University of Lund's Research Policy Program, China's industrial standards remain uncataloged.

The collection of standards consists of two parts: A group of pamphlets, comprising about 1,000 individual standards, and a number of books in which standards in certain subject areas have been collected. These books are listed elsewhere in this article.

Neither the collected volumes, containing some 1,200 standards in all, nor the pamphlets cover more than a fraction of the total number of standards issued in China. They may, however, be quite representative in some fields; for example, three collected volumes cover all the standards issued for the petroleum industry.

production economical. The International Organization for Standardization (ISO) has defined the aims of standardization as: 1) Simplification of the growing variety of products and procedures in human life; 2) Communication; 3) Overall economy; 4) Safety, health, and protection of life; 5) Protection of consumer and community interests; and 6) Elimination of trade barriers.[1]

As developed industrial nations have come to realize the advantages of standardization, the field of standards has expanded nationally and internationally over the last fifty years. Developing countries are becoming increasingly interested in building up national standardization bodies.

In India, national standardization has been integrated into the work of industrial development since the founding of the Indian Standards Institution in 1947. With 18 years of experience in standardization, S. K. Sen of the Indian Standards Institution stated in 1966: "In a developing country, the prime need [for standardization] is to help industries from the earliest stages of planning and design, through erection, production, and distribution. It is thus as much an instrument of direction as coordination. However, the directive role of standards is often an overriding feature of standardization in a developing country." [2]

Socialist countries have always considered standardization an element of key importance in their technological policy. In 1966, L. A. Balykov, a representative of the USSR State Committee on Standards, Measures, and Measuring Instruments said: "The function of standardization in the USSR, as an integral part of single technical policy, is to bring about growth in the productivity of labor and to improve the quality, reliability, and durability of output. It is carried out on a basis of state planning and compulsory application of standards in all branches of the economy, because standardization in the USSR is the legal basis of all production." [3]

The Soviet Union plainly put great stress on simplification and overall economy in its standardization policy, but communications is what distinguishes it from standardization in the market economies of the West. Standards are regarded by the Soviets as a way of making full use of the latest achievements of science and technology; and in addition to their directive role, standards are intended to spread the knowledge of results within scientific research, thereby raising the technological level of the country.

The Chinese have seen the work on standardization in this same light. In an article in *Kwangming Jihpao* in 1963 this viewpoint was expressed: "Socialist production and construction are a concentrated and unified form of planned economy which is closely coordinated and developed in a planned manner according to different types of production. Therefore, when production is arranged and developed, we must, on the basis of linking techniques together, take the whole viewpoint of technical economy as the point of departure. Standardization is an important measure which helps to sum up and unify the different aspects of technical economy." [4]

The article also expresses the need to economize production and to guarantee the quality of products; the arguments presented for standardization in a socialist economy in the developing stage are clearly comparable to those adduced by the International Organization for Standardization.

Conspicuously lacking, though, is an expressed need to eliminate trade barriers; until recently the Chinese have considered standardization a purely domestic problem. Although China and Japan unofficially agreed in 1973 to exchange information on their national standards for industrial products and quality-control systems to help step up bilateral economic cooperation and trade expansion, China, unlike Japan, has never been a member of ISO.[5]

Erik Baark is a China studies graduate from Copenhagen University. He has done some part-time work for Jon Sigurdson and the Research Policy Program at Sweden's University of Lund. Mr. Baark is grateful to Jon Sigurdson and Donald B. Wagner of the Scandinavian Institute of Asian Studies in Copenhagen for their assistance.

On the other hand, as China becomes increasingly involved in the activities of the United Nations and international trade generally, it may eventually join the ISO. In any case, China has always promoted the use of the metric system, and the regulations of the "Système International" (SI) have recently been translated into Chinese by the PRC.[6]

The Development of Chinese Standardization

Chinese standardization was begun shortly after the founding of the People's Republic of China. In the beginning Chinese standards followed those of the Soviet Union to a large degree. In 1956 a state organization, the Bureau of Standardization of the Scientific Commission, was established to exercise central control over the work on standardization in China. During the Great Leap Forward (1958–1960), a national organization was built up to formulate and promulgate a great number of standards.

In 1962, for example, the railways of China were subjected to a major standardization process; and, after great improvements and economies were made on the railways, a conference was held in Peking during the summer of 1963 that resulted in a big boost in standardization. Among other things, it introduced a new system for classification codes.

There are two types of Chinese standards: national standards and ministerial standards. The national standards affect all industries and are concerned with weights and measures, test regulations, and other general classifications. They are often revised ministerial standards, created to replace the older ministerial classifications. Ministerial standards are adopted by the industrial ministries; each applies only within the field that the particular ministry administers. Table 1 lists the individual ministries, the codes used for their standards, and the number of standards in each.

Each standard is designated with a code number; for instance, GB 763–74. In this example the letters indicate that it is a national standard (GB = *Guojia biaozhun*, national standard), and the numbers consist of a serial number followed by the year of publication, in this case 1974.

Authorities Involved in the PRC's Standardization

National standards were accepted and issued in final form by the Committee of Science and Technology of the People's Republic of China until 1974, when the committee was renamed the Bureau of Measures and Standards of the People's Republic of China. A standard is proposed to the Bureau by the ministry for the industry to which the standard pertains and is drafted either by the ministry itself or by factories or scientific committees in different parts of China.

For example, National Standard GB 763–74 (on overheating of high-voltage electrical AC instruments) was drafted by the Shenyang High-voltage Vacuum

TABLE 1
INDUSTRIAL STANDARDS ISSUED IN THE PRC, 1958–1975*

Type	Code	No. of Items
National standards	GB	1,200
Metallurgy	YB	829
Chemistry	HG, HGB	1,050
Petroleum	SY, SYB	258
Mining	MT	5
Building construction and materials	JC	133
Forestry	LY	23
Electric machinery, instruments and agricultural machinery	JB, JZ, JB/Z, NJ	1,793
Shipbuilding	JT	85
Medical instruments	WS	203
Light industry	QB, SG	522
Textiles	FJ, FJ/Z, FJ/C	351
Food		35
Trade	SB	10
Soil	DJ	16
Hydroelectricity	SD	15
Railways	TB	485
Telecommunications	YD	7
	TOTAL	7,058

*Adapted from: *Guojia Biaozhun He Bu Biaozhun Mulu*, index to national and ministerial standards Peking, 1975.

Serial production—Nanking Radio Factory, 1977.

Tube Factory, proposed by the First Ministry for Machine Building, and issued by the Bureau of Measures and Standards.

Ministerial standards, as opposed to national standards, are issued by the ministries concerned and are generally drafted and proposed by factories, companies, or scientific institutes.

A survey of 100 standards from the Ministry of Metallurgical Industry indicated that 27 different bodies were involved in drafting and proposing the standards. Three organizations were very active, the Metallurgical Bureau of Shanghai being responsible for 27 standards, the Iron and Steel Company of Anshan for 16 standards, and the Institute for Iron and Steel Research for 14 standards. Fifteen factories proposed one standard only, while the rest proposed from two to six standards.

The Development and Maintenance of Standards

The standards do not indicate when the drafting was carried out, but one may assume that they were drafted just before they were submitted to criticism. On most of the standards the date criticism was begun and date of final publication are indicated.

An examination of three categories of standards—national standards (GB), ministerial standards for the petroleum industry (SY), and ministerial standards for the metallurgical industry (YB)—shows that the time spent on criticism averaged seven months for GB and YB standards but only four and a half months for SY standards. In comparison, in India the average times required for circulation of a draft standard and the final revision before its publication were nine months and five months, respectively.[7]

COLLECTIONS OF CHINA'S INDUSTRIAL STANDARDS
at the Research Policy Program at the University of Lund, Sweden

Cement

Shuini Biaozhun Huibian. Peking, 1973. 90 pp.
Collection of standards for cement.
10 National standards + 7 Ministerial standards

Chemistry

Wuji Yan Chanpin Biaozhun Huibian. Peking, 1972. 169 pp.
Collection of standards for inorganic salt products.
1 National standard + 29 Ministerial standards
Jiben Youji Chanpin Biaozhun Huibian. Peking, 1972. 128 pp.
Collection of standards for basic organic products.
2 National standards + 21 Ministerial standards
Huaxue Feiliao Biaozhun Huibian. Peking, 1971. 36 pp.
Collection of standards for chemical fertilizers.
1 National standard + 6 Ministerial standards
Nongyao Biaozhun Huibian. Peking, 1971. 174 pp.
Collection of standards for agricultural pesticides.
8 National standards + 27 Ministerial standards

Electronics

Gaoya Dianqi Biaozhun Huibian. Peking, 1972. 148 pp.
Collection of standards for high-tension electronic instruments.
4 National standards + 13 Ministerial standards
Diya Dianqi Biaozhun Huibian. Peking, 1972. 260 pp.
Collection of standards for low-tension electronic instruments.
2 National standards + 13 Ministerial standards + 20 Branch standards
Dianci Biaozhun Huibian. Peking, 1974. 143 pp.
Collection of standards for electrical insulators.
10 National standards + 6 Ministerial standards

Instruments

Liangju, Renju Biaozhun. Peking, 1973. 402 pp.
Standards for measuring and cutting tools.
8 National standards + 67 Ministerial standards
Guojia Biaozhun. Jingujian Youxuan Huibian. Peking, 1974. 115 pp.
Collection of National standards for selected fasteners.
91 National standards

Machinery

Lixinji Biaozhun. Peking, 1974. 51 pp.
Standards for the centrifuge.
8 Ministerial standards
Qudong Wei Dianji Biaozhun Huibian. Peking, 1973. 113 pp.
Collection of standards for miniature electric drive motors.
11 Ministerial standards

Metallurgy

Yejin Chanpin Biaozhun Huibian. Shiyan Fangfa. Peking, 1974. 2 vols.
Collection of standards for test methods for cast-metal products.
25 National standards + 34 Ministerial standards
Heise Jinshu Chanpin Biaozhun Huibian. Peking, 1975. 7 vols.
Collection of standards for ferrous-metal products.
• 1. *Shengtie Ji Tiehejin*. Cast-iron and iron-alloys.
12 National standards + 43 Ministerial standards

It appears that in China there exists an organization for standardization that can function just as efficiently and quickly as those of other countries. China has established a national organization with a large staff of specialized engineers; and as with most countries, the PRC seems to draw heavily on technological committees and research institutes for the preparation of standards. The survey mentioned above showed that in the metallurgical industry over half of the standards were proposed by technological and research institutes; but at the same time a considerable number of factories had personnel competent to work on standardization.

All standards are published by the Publishing Company for Technological Standards in Peking. They are distributed through the Hsinhua Bookstore in Peking and the branch stores in the provinces. (See photo of National Standard GB 267–74 accompanying this article.)

Standards are supplied to many fields in the Chinese economy (see Table 1). The maintenance of standards is compulsory in China, and large factories should not find it difficult to follow the standards within their particular fields.

On the other hand, the policy of "walking on two legs" has made local industries in China flourish, especially during the Great Leap Forward and the Cultural Revolution. Quite possibly, local industries have not been obliged to follow standards strictly, for lack of standardization engineers and specialized test instruments or other reasons. Consequently, the Chinese authorities have recently initiated new movements for the popularization and maintenance of standards.

COLLECTIONS OF CHINA'S INDUSTRIAL STANDARDS
at the Research Policy Program at the University of Lund, Sweden

- 2. *Gangpi Ji Xinggang*. Steel ingots and structural steel.
  3 National standards + 32 Ministerial standards
- 3. *Gangtie Chanpin Paihao Biaoshi Fangfa Ganghao He Jishu Tiaojian*. Brand-labeling of steel products, grades of steel and technical conditions.
  3 National standards + 11 Ministerial standards
- 4. *Gangban*. Steel plate.
  8 National standards + 31 Ministerial standards
- 5. *Gangguan*. Steel tubing.
  39 Ministerial standards
- 6. *Gangsi*. Steel wire.
  8 National standards + 30 Ministerial standards
- 7. *Gangdai*. Steel tape.
  1 National standard + 15 Ministerial standards.

Youse Jinshu Chanpin Biaozhun Huibian. Peking, 1975. 5 vols.

Collection of standards for nonferrous metal products.

- 1. *Xiancai*. Wire.
  13 Ministerial standards
- 2. *Guancai*. Pipe.
  16 Ministerial standards
- 3. *Bangcai*. Rodding.
  16 Ministerial standards
- 4. *Bo, Dai*. Foil and stripping.
  17 Ministerial standards
- 5. *Tiao, Ban*. Strips and plates.
  23 Ministerial standards

Paint

Tuliao Jianyan Fangfa. Peking, 1973. 143 pp.
Collection of standards for test methods for paint.
73 Ministerial standards

Petroleum

Shiyou Chanpin Biaozhun Huibian. Peking, 1973. 280 pages.
Collection of standards for petroleum products.
45 National standards + 107 Ministerial standards
Shiyou Chanpin Shiyan Fangfa. Peking, 1972. 708 pp.
Collection of standards for test methods for petroleum products.
45 National standards + 108 Ministerial standards
Shiyou Benlei Chanpin Ji Shiyan Fangfa. Peking, 1974. 24 pp.
Collection of standards for benzene products in petroleum and their test methods.
8 Ministerial standards

Plastics

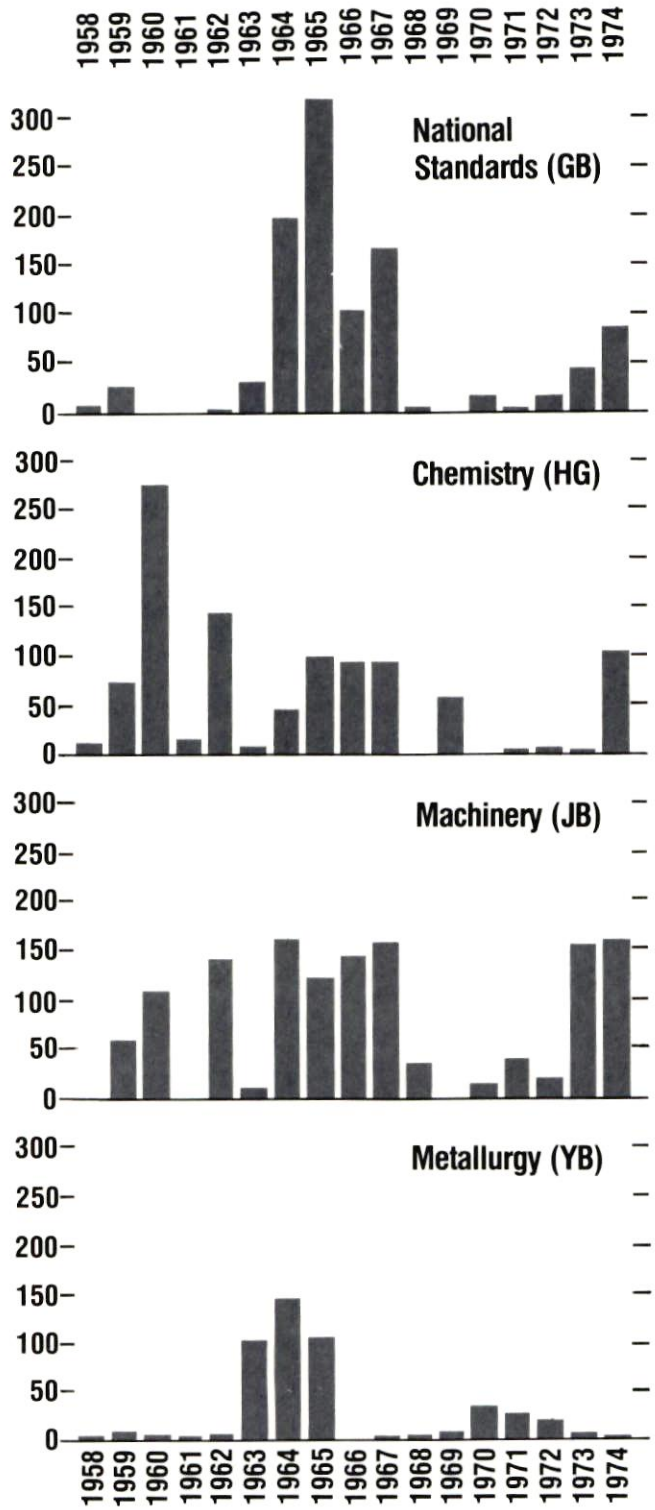
Suliao Jianyan Fangfa Biaozhun Huibian. Peking, 1974. 123 pp.
Collection of standards for plastic testing.
14 National standards + 15 Ministerial standards

Rubber

Xiangjiao Gongye Xiangjiao Zhipin Biaozhun Huibian. Peking, 1973. 472 pp.
Collection of standards for rubber products in the rubber industry.
9 National standards + 56 Ministerial standards
Xiangjiao Gongye Xiangjiao Wuli Shiyan Fangfa Biaozhun Huibian.
Collection of standards for physical testing of rubber in the rubber industry.
11 National standards + 47 Ministerial standards

Figure 1

Numbers of Industrial Standards Issued Yearly in PRC 1958-1975



Source: Adapted from: Guojia biaozhun he bu biaozhun mulu "Index to National & Ministry Standards," Peking, 1975.

Note: Some 100 standards issued in 1958-1959 were revised in 1966-1967, and they are consequently included in the figures for 1966-1967.

中 华 人 民 共 和 国

国 家 标 准

石油产品闪点与燃点测定法

（开口杯法）

GB 267－74

北 京

1974

Distribution of Standardization—A Stress On Heavy Industry

Whether the volume of Chinese standards corresponds to that of other countries is an interesting question. Table 1 shows the number of items issued in each of the 18 categories mentioned in a comprehensive index of Chinese standards published in 1975.[8] The total number of standards issued, 7,058, seems reasonable in view of the ISO recommendation of 6,000–10,000 standards for a fully industrialized country. (By 1976, ISO had published 3,786 international standards; a total of 1,200 national standards shows that the Chinese are keeping up in standardization.)

The distribution of ministerial standards issued during the period 1958–1975 also indicates the Chinese policy on industrialization. There is a noteworthy stress on heavy industries, such as metallurgy, chemistry, and machinery, which reflects the importance the Chinese attach to the development of these fields. The figures for machinery and chemistry may reflect the importance of mechanization in agriculture and the fertilizer industry. There is still a relatively small number of standards for the petroleum industry, but this industry is in a state of expansion and an increase in the figure can be expected.

In Table 2 and Figure 1 the dates of publication have been used to show how many standards were issued each year. Generally, it appears that Chinese

standardization has not developed steadily; the different lines in Chinese policy on industrialization are clearly reflected in the figures.

The figures generally, and for national standards in particular, lead to the conclusion that Chinese standardization reached a peak in the period 1964–1967, dropped to a minimum during the Cultural Revolution and its aftermath in 1968–1972, and is now on its way to a new maximum. The drop caused by the Cultural Revolution can be explained by the very structure of modern standardization. The preparation and criticism of a standard are tasks that require great expertise and which are usually carried out by specialists from technological institutes and standardization committees. During the Cultural Revolution, the staffs of these institutes were criticized, and their attention was shifted to popularizing technological knowledge.

The "handbooks" that have been published in large numbers since the Cultural Revolution often include explanations of standards and even the standards themselves. One example is the *Handbook of Practical Data on the Testing of Mechanical Properties of Metal,* issued in April, 1973.[9] It contains a detailed explanation of the methods for tensile testing of metal that corresponds to National Standard GB 228–63, "Methods for Tensile Test of Metals" published in 1963. There may have been a definite policy of promulgating technical literature comprising simple, detailed explanations, rather than using standards to spread technical knowledge.

In 1972 a campaign for the improvement of product quality was initiated in which it was argued that quality control would reduce consumption of raw materials, lower production costs, and raise labor productivity. Consequently, though standardization per se was never mentioned, the campaign plainly boosted the interest in regular work on standardization and the application of standards and resulted in a new increase in the volume of standards issued.

In this connection it is interesting to note that the figures for machinery show a steady output of standards in comparison with other fields. This may be explained by the consistent policy on development of the mechanization of agriculture, which has never been subjected to large-scale criticism.

Table 2 shows that the main bulk of Chinese standards were issued during the period 1964–1967. Approximately 80 percent of national standards issued date from that period. Thus, the Chinese standards in use around 1975 were quite often some ten years old, and one wonders whether this may affect the application of standards in China today.

Comparison of Chinese and International Standards: Petroleum, Metals

The Chinese seldom use the same titles as ISO or ASTM; and, because the classification systems are different, it is difficult to establish an exact correspondence table for Chinese and foreign standards. For comparison, a few Chinese standards with ISO counterparts are discussed here.

A comparison of GB 267–74 on the tests of flash and fire points of petroleum products with the corresponding ISO standard, ISO 2592, "Petroleum Products—

TABLE 2

NUMBER OF STANDARDS ISSUED IN THE PRC FOR EACH YEAR, 1958–1974 [1]

Year	National (GB)	Chemistry (HG)	Machinery (JB)	Metallurgy (YB)
1958	7 [2]	10	0	1
1959	28	73	68	8
1960	0	277	110	5
1961	0	15	0	1
1962	4	147	141	5
1963	31	8	10	102
1964	199	49	162	145
1965	321	100	121	106
1966	102	97	143	0
1967	167	97	156	1
1968	2	0	36	2
1969	0	58	0	4
1970	16	0	14	34
1971	2	2	39	27
1972	13	5	20	18
1973	46	2	152	3
1974	83	103	157	1

[1] Adapted from: *Guojia Biaozhun He Bu Biaozhun Mulu,* index to national and ministerial standards, Peking, 1975.
[2] Some 100 standards issued in 1958–1959 were revised in 1966–1967, and they are consequently included in the figures for 1966–1967.

CHINESE AND INTERNATIONAL STANDARDS COMPARED*

CHINESE STANDARD GB 267–74

Determination of Flash and Fire Points for Petroleum Products: Open Cup Method.

Published by: The Bureau for Standards and Measures.

Proposed by: The Ministry for the Fuel and Chemistry Industry.

Drafted by: Lanchou Fuel-oil Refinery. Adopted 1/3/74.

The lowest temperature at which the vapors from petroleum products heated according to the regulations in this standard are ignited into a flash by contact with a flame is called the flash point by the open cup method.

The lowest temperature at which the vapors from the petroleum products heated according to the regulations in this standard are able to burn not less than 5 seconds after being exposed to contact with a flame is called the fire point by the open cup method.

The present standard is used when determining the flash and fire points by the open cup method of lubricating oil and dark petroleum oil.

ISO STANDARD ISO 2592-1973 (E)

Petroleum products—Determination of flash and fire points—Cleveland open cup method

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method, using the Cleveland open cup apparatus, of determining the flash and fire points of petroluem products. It is suitable for all petroleum products except for fuel oils and products having an open cup flash point (determined by this method) below 79°C.

2 PRINCIPLE

The test cup is filled to a specified level with the test portion. The temperature of the test portion is increased rapidly at first and then at a slow, constant rate as the flash point is approached. At specified temperature intervals a small test flame is passed across the cup. The lowest temperature at which application of the test flame causes the vapour above the surface of the liquid to ignite is taken as the flash point. To determine the fire point, the test is continued until the application of the test flames causes the oil to ignite and burn for at least 5 seconds.

* Summaries only. Texts of both standards may be obtained from the National Council.

Determination of Flash and Fire Points—Cleveland Open Cup Method," published in 1973 (which is a slightly revised version of ASTM Standard D 92–66) leads to the following conclusions. (See box.)

The outlines of the two standards correspond closely. Each recommends the same procedure for the test, with approximately the same apparatus. Most of the differences between the standards are not significant; for example, the Chinese standard specifies an inner and outer crucible, whereas ISO specifies a metal cup and heating plate.

In two sections, however, the differences may be significant. Paragraph 8 of the Chinese standard requires that the test flame be passed across the surface of the heated test oil for 2–3 seconds. ISO recommends one second. The Chinese method might result in a slightly lower flash point, caused by longer exposure of the heated test oil vapors to the flame. The other difference is in the correction for atmospheric pressure. The Chinese standard operates with the mercury column as the standard measurement, with 760 mm Hg as normal pressure and with an elaborate calculation on the basis of two equations and a detailed table; ISO gives only values of correction for three intervals of barometric pressure lower than 953 mbar.

In general, one may infer that the Chinese standard for tests of flash and fire points of petroleum products is so similar to the international standard accepted by ISO that it can be considered reliable. On the other hand, the apparatus it specifies may be somewhat old-fashioned, as may be the use of the mm Hg unit for atmospheric pressure. It was suggested earlier that Chinese standardization has not been brought fully up to date yet, but it is obvious that in some fields

TABLE 3
COMPARISON OF PARALLEL SPECIFICATIONS FOR A HEXAGONAL SOCKET HEAD SCREW

ISO R 861			GB 70–66		
d		4	d		4
D	max	7	D	nv	7
	min	6.78		tol	±0.20
k	max	3	H	nv	4
	min	2.86		tol	±0.24
S	nv	3	S	nv	3
	max	3.02		tol	±0.12
	min	3.12			
t	max	2	t	nv	2.5
	min	2.4		tol	±0.20

nv = nominal value
tol = tolerance
All dimensions in mm.

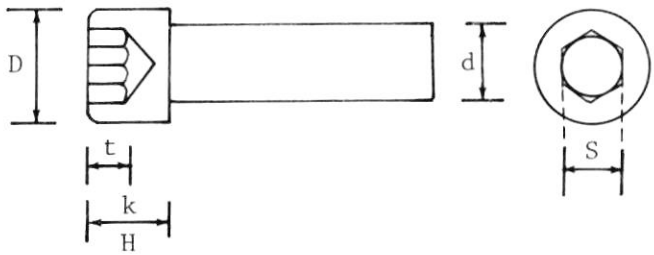


TABLE 3

standards are not outdated so quickly that quality control is likely to be negatively influenced.

In contrast to the standard on flash and fire point tests, national standard GB 228–63, "Method for Tensile Test of Metals," is very different from its counterpart, ISO 82, "Steel—Tensile Testing."[10] The structure of the Chinese standard differs from that of the international standard, partly because GB 228–63 is more detailed on the calculation of, for example, yield point and yield stress, calculating on the basis of equations as well as diagrams. ISO 82 has based its determination largely on the observance of load/extension diagrams produced by the testing machine. The selection of samples and the testing procedures, however, are generally quite similar, although the same subjects are discussed in different ways under different headings.

Another difference is that the symbols used in GB 228–63 are Greek letters, whereas ISO 82 uses Roman letter symbols. In addition, the Chinese use the kilogram as a unit for gravity, while ISO uses newtons. These differences again lead to the inference that Chinese standards are somewhat outdated but nevertheless of a high technical quality.

Chinese standard GB 70–66, "Cylindrical Hexagonal Socket-head Screws," corresponds to ISO R 861, "Hexagonal Socket Head Cap Screws, Metric Series."[11] Table 3 presents a comparison of parallel specifications for a screw with a diameter of 4 mm, copied from the Chinese and ISO standards. The similarity is obvious in this example; but, of course comparison of a series of standards would be necessary to determine how often Chinese and ISO standards correspond as closely.

Conclusion

The intention of this article has been to show that Chinese standardization has reached a high level in terms of both quantity and quality. Though Chinese industrial standards are still produced with the domestic economy in view, the standards are often equivalent to international standards; and the recent change in Chinese policy on science and technology is likely to amplify Chinese standardization and bring it into touch with international standardization.

The government of China is indeed very concerned with the development of standardization as an interview with Chu Tzu-chien, minister of the First Ministry of Machine Building, in January, 1978, shows.[12] Chu stated: "We must do a good job of standardization, generalization, and serialization. The disorderly production of some farm machines must be stopped. The problem where parts for farm machines of identical model numbers are not interchangeable must be solved. Only in this way can we organize the farm machinery industry for mass production, raise the quality of products, cut the production costs, and make operation and maintenance of farm machinery easy in the countryside." 完

INDUSTRIAL STANDARDS IN THE US—ASTM AND ANSI

In the US, industrial standards are coordinated by the American National Standards Institute (ANSI) established in 1918. ANSI's complete set of American National Standard costs $10,250 and requires 23 feet of shelf space (available from the Institute at 1430 Broadway, New York, NY 10018).

ASTM, the American Society of Testing and Materials, established in 1898, is the primary management system in the US for standards development, with 26,000 members from industry, government, and academia, 128 technical committees, 1,700 subcommittees and sections, and over 5,700 standards under copyright published in a 48-volume set.

ASTM, at 1916 Pace Street, Philadelphia, PA 19103, is the most prominent and prolific of over 400 standards-writing organizations in the US, concerned with everything from gaskets to aerospace industry methods.

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2. *United Nations Inter-regional Seminar on Promotion of Industrial Standardization in Developing Countries: Complete Collection of Papers Presented at the Seminar* (Copenhagen, 1966) Vol. 1., p. 202.
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4. Translated in: *Survey of China Mainland Press*, No. 3112, p. 9.
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10. *Jinshu Lali Shiyan Fa.*
11. *Yuanzhu Tounei Liujiao Luoding.*
12. BBC: *Summary of World Broadcasts, The Far East*, 7 January 1978 (FE/5707/BII/7).

THE CRUCIAL YEARS

Chairman Hua Reports to the People

China's Charman Hua Kuo-feng, in his address to the Fifth National People's Congress on February 26, 1978, outlined the PRC's development goals in one of the frankest and most detailed statements made in China in years. The vision of China industrialized by the end of this century—so strongly portrayed throughout this speech—will affect all major political and economic decisions in the decades ahead. Among the priorities outlined by Hua are the establishment of nuclear power stations, expansion of steel output to 60 million tons by 1985 (requiring creation of additional capacity of five million tons annually for the next seven years), and production of 400 million tons of grain by 1985. In addition, Hua projects a "big increase in foreign trade," again suggesting that a new era of trade expansion is upon the PRC. The three-and-a-half-hour speech, excerpted below, is an elaboration of themes first developed by Hua and other Chinese leaders in December, 1976, and May of last year (see CBR *4:1, 4:4, and 4:5).*

The Last Three Years—The Struggle and the New Period

• Our beloved Premier Chou passed away in January, 1976. About this time, the "gang of four," in their anxiety to seize all power in the party, the government and the army, mounted a ferocious counterattack.

• Chairman Mao wisely and resolutely took emergency measures at the end of January, 1976 . . . Tempered in the Cultural Revolution, large numbers of cadres, people and PLA commanders and men demonstrated a high degree of awareness . . . They put up all forms of resistance.

• As a result of the "gang's" interference and sabotage between 1974 and 1976, the nation lost about 100 billion yuan ($50 billion) in total value of industrial output, 28 million metric tons of steel, and 40 billion yuan ($20 billion) in state revenues, and the whole economy was on the brink of collapse.

• In September, 1976, our great leader and teacher Chairman Mao left us forever . . . At this moment, when everything hung in the thread, the Central Committee . . . smashed the "gang of four" in one stroke on October 6, 1976. The whole nation was jubilant.

Economic Construction—Accelerate Production

• Premier Chou, acting on Chairman Mao's instructions, put forward a grand concept for the development of our national economy which calls for the all-round modernization of agriculture, industry, national defense, and science and technology by the end of the century so that our economy can take its place in the front ranks of the world.

• The ten years from 1976 to 1985 are crucial for accomplishing these gigantic tasks. In the summer of 1975, the State Council held a meeting for an exchange of views to deliberate on a perspective (sic) long-term plan . . . After the "gang's" downfall, the State Council revised and supplemented the outline.

The Ten-Year Plan (1976–1985)

• According to the plan, in the space of ten years we are to lay a solid foundation for agriculture, achieve 85% mechanization in all major processes of farmwork, see to it that for each member of the rural population there is one mou (.0667 hectare) of farmland with guaranteed stable high yields irrespective of drought or waterlogging, and attain relatively high levels in agriculture, forestry, animal husbandry, sideline production, and fisheries.

• The plan calls for the growth of light industry, which should turn out an abundance of first-rate, attractive, reasonably priced goods with a considerable increase in per capita production.

• Construction of an advanced heavy industry is envisaged, with the metallurgical, fuel, power, and machine-building industries to be further developed through the adoption of new techniques, with iron and steel, coal, crude oil, and electricity in the world's front ranks in terms of output, and with much more developed petrochemical, electronics and other new industries.

• We will build transport and communications and postal and telecommunications networks big enough to meet growing industrial and agricultural needs, with most of our locomotives electrified or dieselized and with road, inland water and air transport and ocean shipping very much expanded.

• With the completion of an independent and fairly comprehensive industrial complex and economic system for the whole country, we shall in the main have built up a regional economic system in each of the six major regions; that is, the Southwest, the Northwest, the Central South, the East, the North and the Northeast, and turned our interior into a powerful strategic rear base.

• According to the ten-year plan, by 1985 we are to produce 400 million metric tons of grain and 60 million tons of steel. In each of the eight years from 1978 to 1985, the value of agricultural output is to increase by 4 to 5 percent and of industrial output by over 10 percent.

• The increase in our country's output of major industrial products in the eight years will far exceed that in the past twenty-eight years. In these eight years, state revenues and investments budgeted for capital construction will both be equivalent to the total for the past twenty-eight years.

Developing the Basic Industries

• In the next eight years, and especially in the next three years, our existing enterprises must be the foundation for the growth of production . . . Meanwhile, the state plans to build or complete 120 large-scale projects, including 10 iron and steel complexes, 9 nonferrous metal complexes, 8

coal mines, 10 oil and gas fields, 30 power stations, 6 new trunk railways and 5 key harbors.

• The completion of these projects added to the existing industrial foundation will provide China with 14 fairly strong and fairly rationally located industrial bases.

• Strengthen the basic industries and exert a special effort to step up the development of the power, fuel, and raw and semi-finished materials industries and transport and communications . . . In developing the basic industries, we must endeavour to strengthen our work in geology and in the opening up of new mines so that geological surveying and the mining industry will meet the needs of economic construction at a high speed.

• The machine-building industry which has the vital task of equipping all branches of the economy should be organized in accordance with the principle of coordination between specialized departments. It should come under a unified plan and do a good job in the standardization and general utilization of its products.

• The national defense industries should turn their production capacity to good account . . . Serious efforts should be made to implement the policy of integrating military with nonmilitary enterprises and peacetime production with preparedness against war.

• We should explore and open up more sources of raw materials, try to increase the supply of agricultural raw materials, substantially increase the ratio of such petrochemically produced raw materials as chemical fibers and plastics to all raw materials used in light industry, greatly expand the production of textiles, sugar and paper and other light industrial products.

• There should be a big increase in foreign trade . . . We should build a number of bases for supplying industrial and mineral products and agricultural and sideline products for export. We should earnestly sum up our experience in foreign trade and, in accordance with the principle of equality and mutual benefit, handle our business transactions flexibly and successfully.

Management Goals—Accountability and Efficiency

• All enterprises are required to reach their previous peak production levels in terms of economic and technical norms before the year is out, and those that have already done so should strive to catch up with or surpass domestic and world advanced standards.

• A strict system of personal responsibility must be set up at all levels . . . We shall commend those who fulfill their plans satisfactorily and shall hold the leading cadres responsible where the plan is not fulfilled because of their poor work and bureaucracy. In the case of serious failures, necessary disciplinary action will be taken.

• The principle of transferring the management of certain enterprises to localities should be adhered to . . . Key enterprises and research and designing institutions that have a bearing on the economy as a whole should be put under dual leadership.

• All provinces, municipalities and autonomous regions must utilize local resources, strive to make a success of medium-scale and small coalfields, small power stations, mines, cement and chemical plants, strengthen and improve medium-scale and small iron and steel and nonferrous metal enterprises, and try to produce more chemical raw materials.

• All medium and small enterprises should come under the plans, get their raw materials from local sources and work hard to improve production and management techniques. Where they compete with the large enterprises for supplies of raw and semi-finished materials or for fuel or power, the matter must be given overall consideration and properly solved to ensure that the needs of the large enterprises are met.

Education and Science—A Role to Play

• Scientific research should be comprehensively planned, with due attention to both short- and long-range targets and in light of the needs of our national construction and the trends of modern science and technology.

• They should make contributions towards the technical transformation of the industrial departments, towards prospecting for and discovering more mineral resources and, in particular, towards rapidly transforming the weaker links in our economy; that is, fuel, electricity, raw and semi-finished materials industries, and transport and communications, so as to put our industries on an advanced technological basis as early as possible.

• We must strive to develop new scientific techniques, set up nuclear power stations, launch different kinds of satellites, and step up research into laser theory, and its application, attach importance to the research on genetic engineering and, above all, research on integrated circuits and electronic computers and their widespread application.

• All localities and departments must keep abreast of current developments in technology at home and abroad, work out plans and measures for employing and popularizing new techniques, strive to learn advanced science and technology, domestic and foreign, and increase technical exchanges.

• By 1985, in the main, eight-year schooling should be made universal in the rural areas and ten-year schooling in the cities.

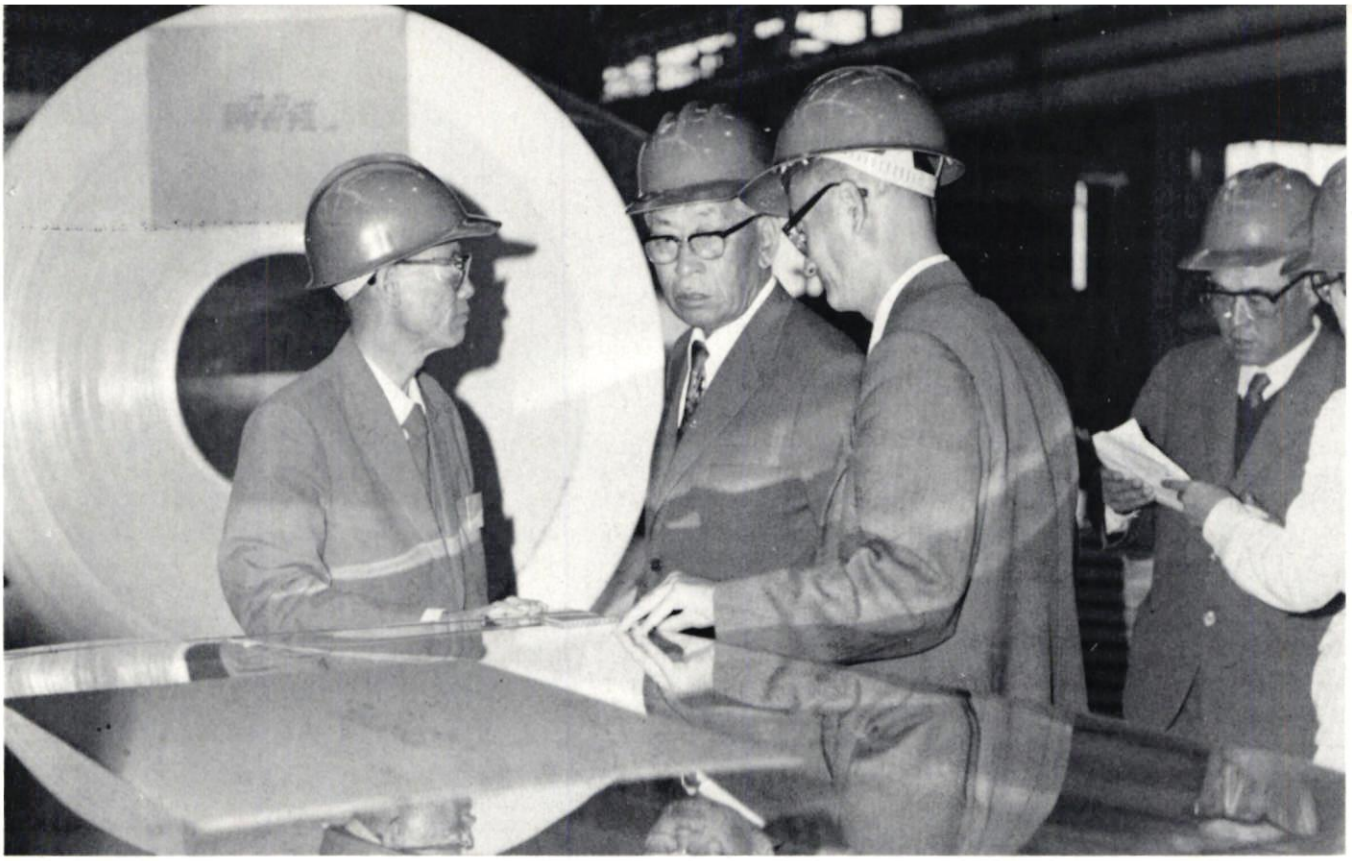
Sino-US Relations—Increased Contacts

• China and the United States differ in social system and ideology, and there are fundamental differences between them. Yet the two countries have quite a few points in common on some issues in the present international situation. The Sino-US Shanghai Communique issued in 1972 has brought a new turn in the relations between the two countries. These relations will continue to improve provided the principles laid down in the Communique are seriously carried out.

• At present, the attitude of the US Government towards the question of Taiwan is the obstacle to the normalization of Sino-US relations. The Chinese people are determined to liberate Taiwan. When and how is entirely China's internal affair, an internal affair which brooks no foreign interference whatsoever.

• If the relations between the two countries are to be normalized, the United States must sever its so-called diplomatic relations with the Chiang Clique, withdraw all its armed forces and military installations from Taiwan and the Taiwan Straits area and abrogate its so-called "mutual defense treaty" with the Chiang Clique. This is the unswerving stand of the Chinese Government.

• The people of China and the United States have always been friendly to each other. We are willing to increase contacts between the people of our two countries and promote mutual understanding and friendship. 完



Wang Yao-ting, CCPIT chairman, and other members of 1977 CCPIT mission to US at Alcoa plant.

CHINA'S ALUMINUM INDUSTRY AT THE CROSS ROADS

The aluminum sector of the PRC's economy seems to have all the markings of an industry on the verge of development. While China has massive, though lower-quality, bauxite reserves, the country's aluminum output apparently falls considerably short of domestic demand, perhaps because of the large amount of energy required for production. Consequently, aluminum imports are perennially one of China's most costly foreign expenditures. At the same time, the demand for aluminum is fast growing inside the country, especially with the electrification, transportation, and defense programs to be emphasized in the future.

Modernization and increased use of aluminum products go hand in hand. In the US, where aluminum is a staple of the industrial economy, sizable portions of the country's output are used in building and construction (22.6%), transportation (17.2%), and electrical applications (12.2%). These three sectors probably account for even higher percentages of the PRC's aluminum consumption since consumer-oriented demands in household durables and packaging are virtually nonexistent in the Chinese economy. While China's auto production—a major US use—is relatively low, aircraft production could be a significant up-and-coming aluminum end-use in the PRC.

As the PRC presses for industrialization by the year 2000, improved transportation, expanded electrification, and massive construction will require more and more aluminum products. This demand will in all likelihood grow at over 10% per annum, almost certainly outstripping planned industrial growth. Such an expansion will cause immediate strains on China's ability to produce the metal, as well as on its resources to finance imports to supplement domestic production shortfalls. At some point in the next decade, China will most probably turn to the West for its advanced know-how in bauxite mining, alumina reduction, and aluminum smelting.

A constraint on the development of China's aluminum output continues to be the heavy energy demands of the industry. Some 17,600 kwh/mt are needed to reduce alumina to aluminum. The total energy demand of aluminum smelting in the PRC in 1975 was about 6.3 billion kwh or over 5% of China's electrical power generation.

Aluminum Reserves—A World Leader

Almost all experts agree that China is richly endowed with aluminum resources, although estimates vary as to the absolute level of those reserves. A Hungarian authority has placed China's reserves at 1.25 billion tons, or over 8 percent of world reserves. Observers at the US Bureau of Mines concur that China's bauxite resources may top one billion tons but also contend that the quantity of workable reserves is only somewhat over 100 million tons. CIA estimates put China's workable reserves slightly higher, between 150 and 350 million tons. With any of these estimates, China must be considered a world class source of bauxite.

According to work done by the Australian geologist, A. B. Ikonnikov, China's bauxite reserves are in three distinct

categories. The first are equable bedded deposits in depressions, located primarily in Honan, but also found in Liaoning, Shantung, and Shansi. These deposits contain long lenses of bauxite surrounded by clay layers, which form extensive beds of uniform thickness. The ore in these deposits, particularly in Honan, is of fairly high quality (Al_2O_3: 60–73%; SiO_2: 6–17%; and Fe_2O_3: 2%), although its average alumina/silica ratio, 5.78:1, is high for Chinese reserves.

Secondly, China has disrupted deposits in depressions, which are best represented by thick, horizontal beds in Kweichow's Hsiuwen district but are also known to exist in Shantung and Yunnan. This variety of bauxite, easily exploited through open-cast mining, has an average composition of 70% alumina, 11% silica, 2% ferric oxide, and 2.9% titanium oxide, thus giving China's highest alumina/silica ratio of over 6:1.

A third type of weathered basalt deposits exists in the Chinese province of Fukien, Changpu district. These deposits are of uneven richness and boast an average alumina/silica ratio of roughly 2.12:1, with an alumina content of approximately 47.6%. In addition to bauxite, China claims two types of alunite deposits: one from hydrothermal metasomatism by acid and intermediate extrusions found chiefly in Chekiang, Anhwei, Liaoning, and Hopeh; and one from weathering found in Shansi, Kansu, and Szechwan.

Five Characteristics—High Silica Content

In his work in this area, Ikonnikov formulates five generalizations on China's bauxite reserves. • All known deposits are of platform origin. • Deposits are primarily Carboniferous and secondarily Permian. • Diaspore is the major ore mineral. • Most bauxites in China contain industrially usable quantities of gallium, germanium, and occasionally even uranium. • China's bauxites, while low in iron, generally have a high alumina/silica ratio, which hampers efficient refining.

The high level of silica in China's reserves is considered the weak link in China's aluminum industry. Much of the aluminous shale and alunite used as raw materials for China's aluminum industry must be refined through the soda-lime sinter or calcium aluminate method rather than the traditional Bayer processes. Roughly five tons of bauxite or aluminous shale are needed to produce every ton of Chinese primary metal.

Using this figure, one can estimate China's annual bauxite/aluminous shale production. Accepting the CIA's calculation that China produced 375,000 tons of aluminum in 1976 and assuming that 80% of China's bauxite is consumed by the aluminum industry with the remainder being diverted to refractory and other industrial uses, one can project the PRC's 1976 bauxite output at 2.344 million metric tons. With an assumed workable bauxite reserve of approximately 250 million tons, China's industry appears to have a comfortable 100 years of supply left at current production levels.

An excess supply of Chinese bauxite serves to mollify somewhat the foreign exchange drain China's aluminum industry creates. Since 1971, China's bauxite exports to the industrialized West have increased almost fivefold, from slightly over $2.1 million in 1971 to $10 million in 1976. The Shantung Branch of MINMETALS advertises three grades of calcined bauxite for export: refractory grade (Al_2O_3, 80% and 85%), abrasive grade (Al_2O_3, 44%), and welding grade (Al_2O_3, 50%, 60%, and 70%).

CHINA'S ESTIMATED PRIMARY ALUMINUM PRODUCTION

Year	Amount (metric tons)
1955	10,000
1960	80,000
1965	125,000
1970	188,000
1971	192,000
1972	238,000
1973	286,000
1974	316,000
1975	357,000
1976	375,000

Source: CIA, 1978.

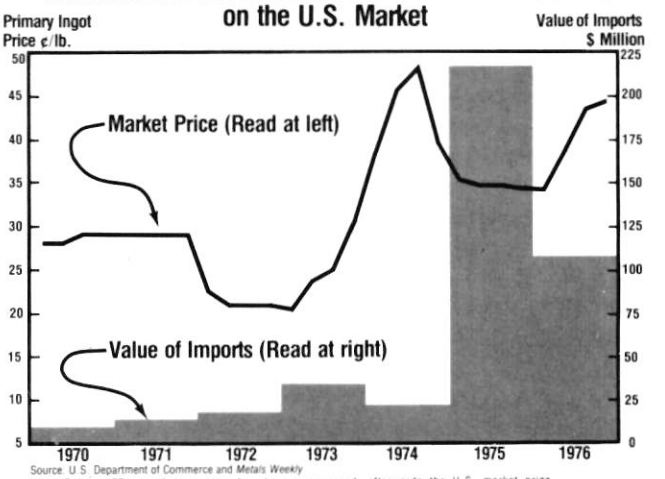
Aluminum Production—Sustained Growth, Decentralized

Although a chronic lack of official Chinese information on the country's aluminum products precludes definitive analysis of the nation's output, most observers have discerned continued growth in the industry throughout the PRC's history. Since the first facility was constructed at Fushun, Liaoning, with Russian assistance in 1954, this sector of China's industry has received continuous support from Peking, growing meteorically between 1955 and 1960, then stalling shortly during the economic retrenchment and Cultural Revolution of the 1960's, only to be revived again through the first half of the 1970's.

The industry apparently enjoyed a disproportionately high average annual increase of 51.6% during the late 1950's, followed by more moderate yearly growth of 9.3% during 1960–1965 and 8.5% during 1965–1970. Between 1970 and 1976, the industry expanded at an average annual rate of 12.2%, according to CIA estimates, reaching a peak capacity of 375,000 metric tons in 1976, equivalent to less than 10% of America's aluminum production during the same year, 3.9 million metric tons.

Table 1

Dollar Value of Chinese Aluminum Imports from the Industrialized West and Aluminum Price Fluctuations on the U.S. Market



Source: U.S. Department of Commerce and *Metals Weekly*
Note: Before 1971, producers' price for aluminum is used; afterwards the U.S. market price

CHINA'S ALUMINUM SMELTING FACILITIES

Location	Annual Capacity (metric tons)
Fushun, Liaoning	100,000
Lanchow, Kansu	25,000
Taiyuan, Shansi	18,000
Chiaotso, Honan	16,000
Wuhan, Hupeh	16,000
Baotou, Inner Mongolia	16,000
Changling, Kirin	16,000
Tsingtao, Shantung	16,000
Changsha, Hunan	15,000
Kunming, Yunnan	15,000
Nanning, Kwangsi Chuang	—
Kweiyang, Kweichow	—
Changtien, Shantung	—
Sian, Shensi	—

Source: US Bureau of Mines.

With the exception of the original aluminum smelting facility in Fushun, where in 1976 approximately 100,000 tons of primary aluminum, or over a quarter of the nation's output, was smelted, the Chinese industry is characterized by decentralization. This lack of centralization is due to three factors: political pressure to minimize the national economy's vulnerability to attack, the scattered nature of China's bauxite reserves, and an effort to place smelting facilities close to locations with hydroelectric potential.

Most of the major Chinese smelting units in the West and South operate on hydroelectricity, while those in the Northeast rely upon thermal power generation. The US Bureau of Mines has identified thirteen Chinese aluminum smelting units, with a total estimated capacity of 253,000 metric tons per year. Those units are listed below.

China's Aluminum Technology—Little-known

Detailed analysis of China's aluminum technology is almost impossible due to the absence of available official information. The Chinese have been particularly inhibited in letting foreign visitors tour their aluminum plants (although they have toured foreign plants), and no firsthand reports of China's facilities are available at the present time.

It is known that the Fushun reduction plant, built with Soviet assistance in the 1950's, employs horizontal Soderberg cells, producing 450 kilograms of aluminum per day per cell. The facility is thought to have two potlines in each of its two workshops, with 160 pots per line. The Fushun plant uses acid-spar from Taolin.

The Nanting plant in Shantung has "four big rotary kilns and corresponding chemical facilities," according to Bureau of Mines expert K. P. Wang. Elsewhere, on the Sanmen Gorge, along the Shansi-Honan border, a 100-cell aluminum plant has been reported. One of the few recent Chinese press accounts referring to aluminum production announced a technique developed in Harbin to cast and roll aluminum sheets directly from liquid aluminum.

Little is known about China's research in aluminum production. In 1967, Liaoning's Shenyang Institute of Metals published a paper on aluminum-magnesium alloys, but no work in this area has since been cited. Other Chinese research units, specifically institutes under the control of the Ministry of Metallurgy as well as the Chinese Metals Society, would appear to have interest in aluminum research, although no reports of such activities have surfaced since at least the mid-1960's.

While China's own aluminum industry has remained a mystery to the West, the Chinese for their own part have gone to considerable effort to keep abreast of the latest international developments in the industry. A delegation from the Chinese Metals Society toured European aluminum facilities in 1977, and during September of that year, a high-ranking delegation from the China Council for the Promotion of International Trade, including representatives from the Metals Society, visited Anaconda's Sebree plant near Louisville, Kentucky, where Alcoa technology is employed.

According to Americans present during that visit, the Chinese seemed particularly interested in learning how outdated aluminum facilities could be outfitted with the latest aluminum technology, indicating that the Chinese might be considering refurbishing some of their aluminum plants with more sophisticated know-how.

China has apparently avoided importing aluminum equipment from the West in recent years. Aside from equipment and technology provided to China through Soviet assistance programs during the 1950's, few direct foreign inputs to the Chinese industry have been reported. All of the major aluminum companies (Alcoa, Kaiser, Alcan, Alusuisse, Pechiney, and others) have maintained contact with Chinese trade officials, but the focus of most recent interactions is thought to have revolved around the sale of ingot to China.

At least one such company, Efim-Alsar of Italy, has reportedly tied the sale of aluminum ingot and forgings with a collaboration agreement to build aluminum plants with China. According to an early 1978 report, the agreement provides for Alsar to "make an offer of technology needed to build plants in China for working aluminum." In 1976

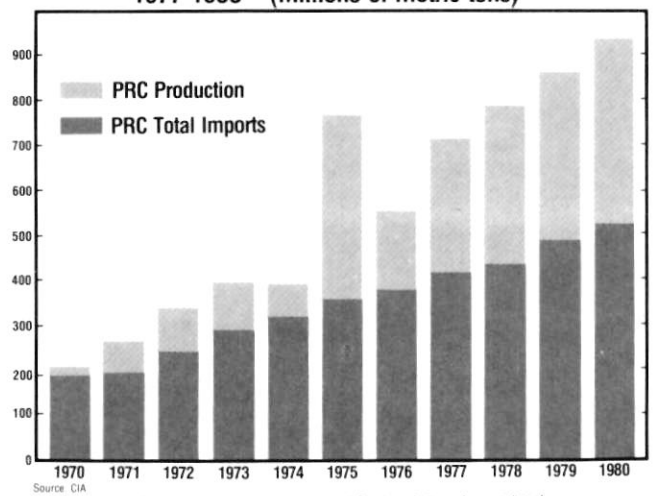
CHINA'S ALUMINUM INDUSTRY'S CONSUMPTION OF ELECTRICITY (billion kwh)

Year	Aluminum Industry Consumption [1]	China's Total Electricity Output	Consumption as a % of Electricity Output
1957	0.18	19.3	0.1
1960	1.41	31.0 [2]	4.5
1965	2.20	42.0	5.2
1970	3.31	72.0	4.6
1975	6.28	121.0	5.2
1976	6.60	129.0	5.1
1977*	7.34	145.0	5.1
1978*	7.96	175.0	4.5
1979*	8.57	205.0	4.2
1980*	9.17	235.0	3.9

[1] Assuming 8 kwh per pound produced.
[2] Output for 1961 used.
* Projected.
Source: National Council.

Table 2

China's Primary Aluminum Consumption: Domestic Production and Total Imports, 1970-1976, With Projected Consumption, 1977-1980 (Millions of metric tons)



Source: CIA

Note: Projections for 1977-1980 are based on linear regressions of China's production and consumption of aluminum during 1970-1976

one American company (Hunter Engineering) did sign a contract with China for the sale of specialty aluminum rolling equipment, but the shipment of this equipment to China was delayed by the lack of US government approval for an export license. This equipment is used to level aluminum sheets and includes a computerized control unit.

Electrical power—How Much Can The Circuits Bear?

It has become a truism that a country's aluminum industry is a bane and a boon for its electric power generation. On the one hand, the aluminum provides an essential raw material for many pieces of electrification equipment, such as power lines. On the other hand, every pound of aluminum smelted requires between 6 and 8 kwh. For China this represents a major portion of its power output, as can be seen from the following table:

These figures show that aluminum production in China has been a major consumer of Chinese electricity, draining five percent of electrical output during most of the 1970's. But, based on recent trends, one can foresee the aluminum industry accounting for a smaller percentage of that electric power in the coming years as more generating facilities come on line. By 1980, the percentage could drop below four.

So while China has imported an average of 138,000 tons of aluminum ingot between 1970 and 1976, the country has thus saved an average of 2.4 billion kwh per year. In the future, however, as electric power becomes more abundant in China, it may well become more practical to produce the aluminum domestically.

Aluminum Imports—A Heavy Price

China is best known in the world aluminum industry as a sporadic, but often major, buyer of aluminum ingot. That reputation was reinforced when Chinese foreign trade officials entered a weak aluminum market in 1975 and bought over 400,000 tons of the metal, representing 6.4 billion kwh of power or more electricity than China used to produce its entire domestic output that year. China was, in effect, buying energy.

This foray did much to bolster China's image as a crafty observer of international commodity price trends, because most experts agree that much of the 1975 purchases must have been stockpiled.

Between 1970 and 1976, China bought close to a million tons of primary ingot from abroad, an annual average of some 138,000 tons. Besides buying from the major industrialized powers, China has also bought aluminum ingot from the Soviet Union, Czechoslovakia, Poland, Hungary, Venezuela, and Guyana. The bill for aluminum China has purchased from the major industrialized powers between 1970 and 1976 came close to $400 million, more than half of which was in 1975. But, as can be seen from Table 1, China's purchases of aluminum have been inversely related to fluctuations in the price of the metal on world markets, thus economizing the country's foreign exchange expenditure.

Future Developments—Aluminum Deficit Will Increase

For the immediate future, China seems likely to remain a sizable importer of aluminum. Most observers agree that China's annual aluminum imports through the end of the decade will average over 100,000 tons.

In fact, through a linear extrapolation of China's production of aluminum and internal demand, one could project that China's aluminum deficit will actually increase during the next few years, requiring increased imports to fill the gap. Current trends indicate that China will require perhaps as much as 200,000 tons of imported aluminum annually by the early 1980's (see Table 2).

The burden such purchases would place on foreign exchange coffers, as well as the sustained Chinese interest in Western aluminum technology, supports the contention that China will indeed purchase some foreign equipment or know-how in this area during the next eight years.

In a July, 1977, issue of the *Peking Review*, a report on a recent national conference of geological departments described China's aluminum resources as "rank[ing] among the world's richest." And the more recent national conference of Chinese metallurgists heard Metallurgy Minister Tang Ko draw up plans for the development of China's aluminum and other mineral reserves:

> We are determined to develop the metallurgical industry at top speed and quality and strive to catch up with or surpass the United States in production of iron and steel and nonferrous metals by the end of this century. First of all, big progress should be made in output, quality and variety of iron and steel and nonferrous metals, in consumption of power and in technical standards by 1985 so as to end the backward state of the industry. (NCNA 1/9/78)

If the Chinese do seriously intend to approach US aluminum production by the end of the century, a feat which would require more than a tenfold increase, the adoption of some modern technology seems absolutely essential. It seems most logical that the initial introduction of Western technology will come between now and 1985 as part of Minister Tang's "big progress . . . in technical standards." The task of meeting these ambitious goals for China's aluminum industry will be onerous.—HJ 完

Exporter's Notes

Briefly:

- ***Chinese officials say US firms being beaten off the mark by competition in Europe and Japan.***
- ***US licensing negotiations with Peking pick up via third countries; plant sales in making.***
- ***US sales to PRC may rise 45–75% in 1978, but US still residual supplier.***
- ***TECHIMPORT enters mining business.***
- ***Chinese group may buy $20 million worth of US machine tools.***
- ***Offshore surveying vessels bought.***
- ***End-users may be contacted directly now.***

THE FUTURE OF TRADE

Two months into 1978, American exporters to China are optimistic about the growth of Sino-American trade, perhaps overly so. Bolstered by the sprightly 27% increase in American sales to China in 1977, most observers seem confident that such growth will continue through the end of the decade and beyond. Preliminary projections for 1978 place total US exports to China at between $250 and $350 million, 45–75% above last year's level. Such estimates include roughly $70 million worth of US petroleum-related equipment, $70 million worth of American farm produce (chiefly cotton), as much as $50 million worth of US raw materials (polyester fiber, fertilizer, and aluminum ingot, primarily), plus another $60–110 million worth of miscellaneous exports. While such estimates seem reasonable for the current year, the long-term development of Sino-American trade is still undetermined without considerable improvement in the two countries' political relationship. A review of 1977's US exports indicates that eight of the top ten products shipped to the PRC were commodities of one sort or another. For almost every one of these categories, from cotton to aluminum, China came to US suppliers only after all other international suppliers were either sold out or priced out of the market. Over the long run, if the US is seen only as the supplier of last resort, these commodities will not provide a solid backbone for Sino-American trade. In the trade categories of "manufactured goods" and "machinery and transportation equipment," American sales to China slipped significantly in 1977. Although the renewed interest in US petroleum equipment will most likely reverse this trend in the immediate future, over the long term Chinese trade officials may choose to buy even these high-technology goods from countries less politically recalcitrant than the United States. China's disenchantment with American manufacturers may even be exacerbated if US suppliers continue to suffer long delays in receiving export approvals and contradictory refusals to sell certain products to the PRC. As Peking's 1977–1978 buying program gathers speed, American selling teams are active along with those from the rest of the world; but the time may come when their portion of the PRC pie dwindles.

US COMPANIES SHOULD TRY HARDER IN THEIR CHINA MARKETING EFFORTS

As the Peking-bound travelers find it harder to obtain seats on jets to China and the stakes rise in the fast-growing China business, US companies are learning that the competition from Europe and Japan is beating them to the punch. Chinese officials, saying that China really wants to buy technology from the US, are concerned that US firms are not responding quickly enough to Chinese requests and are not being thorough or serious enough in their preparations for visits to China's trade organizations. With China ready to buy billions of dollars worth of foreign equipment, this is hardly a time for US firms to be reticent with the Chinese. Chinese officials reiterate, too, that the first impression a firm makes on the Chinese is very important, especially when a number of foreign competitors are making presentations on the same types of items.

REACHING GRASS ROOTS

Western marketing executives, so long frustrated by China's policy of insulating provincial leaders and plant managers from foreign influences, may be due for some relief. Britain's Edward Heath, former prime minister, learned during a trip to the PRC late in 1977 that China now invites foreign companies to make technical proposals directly to regional and local authorities. While Western businesses are still confused about exactly how they can contact these new potential clients, the era of direct-mail marketing in China may be just around the corner.

PICTURES WORTH A THOUSAND WORDS, MAYBE MORE

The China Council for the Promotion of International Trade (CCPIT) is now accepting videotape promotional presentations from foreign firms. The tapes, which can be used to introduce new foreign products or technologies, will be played on two Japanese videotape machines presented to the CCPIT by East Asiatic, a Danish trading house, and a Japanese firm. Material sent to China on videotape is likely to be reviewed by top trade officials, according to Chinese sources, rather than the technical personnel that normally receive printed literature.

Japanese ad on Peking TV. While leading cadres view foreign technical films, the Chinese people are seeing Western advertising on prime time. Broadcast following the Peking evening news on 3/17/78, a promotional film on the Honda F-28 collapsible tractor played for fifteen minutes. Showing the tractor in every phase of operation against a Japanese rural scene, the film segment ended with a dramatic close-up of the Honda trademark.

GENERAL

TECHIMPORT dons new hat. A series of correspondence from the China National Technical Import Corporation (TECHIMPORT) suggests that China's high technology purchasing arm may be assuming an expanded role in the country's foreign trade. At least three American companies have recently received requests from TECHIMPORT to submit quotations on single pieces of equipment, two of them manufacturers of mining equipment and the third a petroleum equipment supplier. In the past, TECHIMPORT had limited its business to complete plants, foreign technology, and upon occasion sophisticated machine tools. This emerging interest may signal a decision in Peking to import machinery for

these industries in complete packages rather than piece by piece as has been the case in the past. **Expanded correspondent banking relations** were established by the First National Bank of Chicago with the Bank of China, according to a January 28 FNBC press release. The Chicago bank, which was already one of a handful of American banks to have regular correspondent banking relations with the BOC, can now handle commercial letters of credit, payments, collections, and foreign exchange transactions for its customers in the United States and around the world, report bank spokesmen. The bank's vice president in charge of international banking, William J. McDonough, pointed out that his bank would "structure all transactions in such a way to insulate them from 'foreign claims/frozen assets' litigation potential." FNBC is the first American bank to establish such a relationship with the PRC. **Investment opportunities in the PRC?** It may soon be possible for overseas Chinese to invest in manufacturing facilities inside the continental Chinese provinces, according to a February 4 report in the Hong Kong *Standard*. The proposed investment scheme would entail overseas Chinese putting up capital to be used by PRC workers on domestic raw materials. As "a first step towards the eventual establishment of export processing zones," such a program would represent "a sign of marked policy changes," according to the Hong Kong journal. **Politician and pig put out for Peking.** US Congressman Paul Findley (D-IL) set out for China, on March 20, 1978, at the head of an Illinois agricultural delegation with one champion hog in tow. The swine, of Yorkshire lineage (purebred, male), will be presented to the Chinese as a gift by Rep. Findley's group.

CHINA'S DELEGATION TO THE US, HOSTED BY DOE

Head:

Sun Ching-wen, President, The Petroleum Corporation of the People's Republic of China

Adviser:

Li Jen-chun, Senior Adviser, The Petroleum Corporation of the People's Republic of China.

Vice Head:

Chin Wen-tsai, Vice President, the Petroleum Corporation of the People's Republic of China.

Vice Head:

Chang Chao-mei, Vice President, the Petroleum Corporation of the People's Republic of China.

Members:

Li Yu-keng, Director, North-East Branch of the Petroleum Corporation of the People's Republic of China.

Min Yu, Chief Geologist, North-East Branch of the Petroleum Corporation of the People's Republic of China.

Chin Feng, Deputy Director, China Oil and Gas Exploration and Development Corporation.

Ma Wen-lin, Deputy Director, China Oil and Gas Exploration and Development Corporation.

Li Tien-hsiang, Chief Mechanical Engineer, the Petroleum Corporation of the People's Republic of China.

Yao Fu-lin, Engineering Director, North-China Branch of the Petroleum Corporation of the People's Republic of China.

Li Ching, Engineering Director, North-West Branch of the Petroleum Corporation of the People's Republic of China.

Hsueh Chi-yuan, Deputy Director, North-China Branch of the Petroleum Corporation of the People's Republic of China.

Chao Tsung-nai, Chief Engineer, North-West Branch of the Petroleum Corporation of the People's Republic of China.

Chi Yung-hsing, Deputy Director, North-China Branch of the Petroleum Corporation of the People's Republic of China.

Teng Li-lang, Deputy Director, North-China Branch of the Petroleum Corporation of the People's Republic of China.

Wang Cheng-yu, Division Chief, North-China Branch of the Petroleum Corporation of the People's Republic of China.

Hsu Wen-chao, Interpreter.

Wei Cheng-yu, Interpreter.

Chiang Shun-yuan, Interpreter.

THE BRITISH SET THE PACE—SEMINARS AND EXHIBITIONS

The UK's experience with the PRC predates America's by almost two decades. In recent months, as US companies have straggled in and out of China one by one, the British have mounted sustained marketing offensives on China through two China trade organizations, the 48 Group and the Sino-British Trade Council (SBTC). The current wave of Anglo-Chinese commercial exchanges began back in November, 1976, when the 48 Group held a Broadcasting, Radar, and Instrumentation Exhibition in Peking. In the spring of 1977, the 48 Group presented two technical lectures in Peking, which were followed by two autumn series of lectures, one in October on a a variety of topics and a second held in Hangchow in November focusing on aircraft testing equipment. The Hangchow technical seminars, which drew more than 150 Chinese technicians to this historical tourist's paradise, comprised the first known major industrial symposium to be held outside of key

urban centers such as Peking, Shanghai, and Kwangchow. The Chinese Aeronautical and Astronautical Society, which served as a host for the British seminars in Hangchow, was sufficiently impressed to invite many of the companies back to China in January, 1978, for additional technical talks. In general, British traders have been successful in establishing working relations with Chinese technical societies. In the course of 1978, the 48 Group is hoping to arrange a marine products seminar series in China with the cooperation of the Chinese Shipbuilding Engineering Society. British officials are also discussing possible 1978 exchanges with the Chinese Mechanical Engineering Society and the Chinese Electronic Engineering Society. As a follow-up to the twin aeronautics seminars held in late 1977 and early 1978, the British trade group hopes to hold an exhibition of British aeronautics equipment for the Chinese sometime in 1979. This exhibition would be in addition to that which the Scientific Instrument Manufacturers Association (SIMA) of the UK has scheduled for Peking in November, 1978. In purely numerical terms, the British have maintained a disproportionately high profile in China during the last three years. Between 1975 and 1977, the 48 Group held 61 lectures in China. Coming into 1977, the Group had 19 technical proposals in front of the Chinese and during the year prepared another 59 new technical lecture proposals. Of the total 78 proposals, the Chinese accepted 19 during the year, leaving another 59 possible topics still under consideration. Technical seminars will remain a key element of Sino-British commercial relations in the coming years.

BRITISH SEMINARS IN CHINA: 1977 AND 1978

In addition to the many American firms that have been presenting technical seminars in China recently (see page), the British have also been actively pursuing technical exchanges in China. The following 48-group companies and seminar topics were reported in the October, 1977, issue of *China Trade and Economic Newsletter:*

Spring, 1977

Rank Xerox	Xerox-Radiography for Diagnostic Purposes
Ricardo & Co.	Design and Development of Diesel Engines

Fall, 1977—General

Lucas Aerospace	The Icing Hazard to Aircraft and Its Control
Pye Unicam	A New UV-Visible Spectrophotometer System
Froude Engineering	A New Hydraulic Dynamometer for Automobile Engine Testing
Metals Research	Growth of Large Semi-insulating Crystals of Indium Phosphide
Metals Research	Growth of Large Gallium Phosphide and Gallium Arsenide Crystals using Diameter Control
Foseco Steel Mills	The Coating of Arc Furnace Electrodes
Foseco Steel Mills	Development of Hot Topping Systems to Maximize Yields
Foseco Steel Mills	The Garnex Cold Tundish System
Molins Ltd.	Up-to-date Methods of Cigarette Manufacture

December, 1977—Aeronautics Technology

Smith Industries	Testing Engine Airframe and Flight Control Equipment
Solartron	Computer-controlled Automatic Test Equipment for Guidance Systems

CHNA'S OFFSHORE SURVEYING INTENSIFIES; OCEANOGRAPHIC RESEARCH VESSELS BOUGHT

With the New Year, China has embarked upon a program of seismic vessel purchases. By the end of February, MACHIMPEX had reportedly bought four major foreign vessels to explore offshore ocean floors. Two of the ships were to be constructed in Japan, and the remaining two were used vessels, one French and the other American. On January 18, Japan's Mitsui Engineering and Shipbuilding Company announced that it had won a Chinese order for two marine geophysical survey vessels, equipped with sonobuoys and magnetometers to detect oil, gas, and other offshore natural resources. The vessels, together valued at rougly $15 million, are to be constructed at the Fujinagata Shipyard, the first to be completed in December, 1978, with the second scheduled for a February, 1979, launching. The 1,500-ton ships are designed for sound-wave probes and will have sound-wave searching equipment to survey the geological features of the seabottom utilizing reflected waves. Equipped with integrated automatic navigational devices for emitting sound waves, the two Japanese vessels will have two-engine and two-screw systems, consisting of geared diesel engines, each developing an MCR of 2,100 bhp. For maneuverability, they will be fitted with bow thrusters. At least part of the on-board equipment is thought to have been supplied by US manufacturers, and some key elements were not included in the Mitsui sale, presumably to be replaced by Chinese domestically produced instruments or equipment imported directly from abroad. A Grant Geophysical vessel, the *US Olympic* (previously owned by Dresser Olympic), was also sold to China in January, 1978. This 170-foot ship has included on board a complete marine geophysical system with Texas Instruments seismic recording equipment, Kent Satellite navigational instruments, and an Air Gun seismic energy source. The fourth vessel sold to the Chinese was owned by France's CGG, although its American marketing subsidiary,

BRITISH SEMINARS IN CHINA: 1977 AND 1978

Fall, 1977, continued

Instron	Application for Computer-controlled Testing Rigs for Large-scale Proving Tests on Prototype Aircraft
Martin-Baker Aircraft	Testing of Ejection Seats
Smith Industries	Impact of Digital Technology on Smith's SEP.10 Flight Control Systems for Feeder Liner and Executive Jet Operations
Dowty Fuel Systems	Pumping Systems Design Related to Fuel System Specifications
Dowty Fuel Systems	Gas Turbine After-burning Controls and their Future Prospects
Dowty Rotol	Nitrogen-supplemented Liquid Spring Shock Absorbers

January, 1978

Froude Engineering	Current Methods of Testing Jet Engines
Froude Engineering	Methods of Testing Turbo-shaft Engines
Instron	Vibration Testing
Instron	Use of Closed-loop Servo-hydraulic Machines for Fracture Toughness
Instron	Crack Growth and Service Simulation Life-testing
Dowty Fuel Systems	Application of Micro-electronics to Gas Turbine Engine Control
Dowty Boulton Paul	The Design of Powered Flying Controls for Civil Aircraft
Dowty Rotol	The Development of a High-speed Hydraulic Pump
Dowty Rotol	The Development of a Propeller for Agricultural Aviation
Dowty Rotol	Fuel-Flow Proportioners, their Design and Use for On-board Fuel Management
Smith Industries	(Topic Not given)

Georexport, was also involved in the sale. The French vessel is reportedly somewhat larger than the Grant ship but has comparable seismic equipment. It was purchased by the Chinese at roughly the same time as the US vessel. Both Grant and Georexport must gain export approval for equipment aboard their vessels before delivery to China can be made.

HUGHES TOOL SIGNS TWO CONTRACTS TO SEND PETROLEUM EQUIPMENT TO CHINA

The Houston-based Hughes Tool Company has sold the Chinese two sets of petroleum equipment. The first deal, signed in the late summer of 1977, called for roughly $2.5 million worth of oil field drill bits to go to China during the final months of 1977 and early 1978. After the New Year, a wholly owned Hughes subsidiary, Hughes Tool Company (Far East) Pte., Ltd., in Singapore, sold $1 million worth of locally manufactured tool joints to the Japanese trading house, Sumitomo, which plans to attach the Hughes hardware to oil field pipes scheduled for shipment to China. Hughes negotiated both contracts through its Singapore office. **US machine tools to China.** The Farrel Company, a Rochester-based division of USM Corporation, recently announced the fulfillment of a one-and-a-half-year-old contract the company signed with TECHIMPORT. During a June, 1976, visit by the Chinese corporation's representatives to the US under the sponsorship of the National Machine Tool Builders Association (NMTBA), Farrel sold a large numerically controlled turret lathe, valued at approximately $900,000. The super precision lathe was designed to accommodate workpieces over five feet in diameter and up to 18 feet in length. Using a four-position power index turret, the unit is capable of machining parts weighing up to 50 tons to accuracies within 0.0005 inches. The machine is expected to be used in the manufacture of gas turbine components, probably in the vicinity of Nanking, Kiangsu Province. Shipment of the unit to China, which was expected in March, 1978, came after a long period of extensive testing to insure maintenance-free operation in China. Farrel was also obliged to gain export approval from the Department of Commerce prior to sending the tool to the PRC. This sale was one of nearly a dozen contracts signed by the TECHIMPORT delegation during its 1976 visit to the US; combined, the sales totaled about $7 million. **Another buying trip.** As part of its ongoing exchange with China, the NMTBA hosted a second TECHIMPORT delegation in the US during the first three months of 1978. If this visit follows the pattern of the earlier tour, American machine tool builders can expect considerable additional business with the Chinese this year. TECHIMPORT's machine tool buyers are one of the few Chinese trade divisions that sign purchase contracts during the course of their visits abroad. The most recent delegation was known to be engaged in contract negotiations with several American manufacturers, and some experts predicted sales resulting from this more recent visit would reach $20 million.

JOINT VENTURES FOR CHINA SMITH INTERNATIONAL AND NL INDUSTRIES

Smith International, one of the world's leading suppliers of petroleum drilling and related equipment, has revealed to the *China Business Review* its second multimillion dollar sale to the PRC in the last twelve months. Following an initial series of contracts with the Chinese in May, 1977, the Newport Beach, California, firm signed another set of contracts in late November and December, 1977. The specialized drilling equipment involved in the two sets of contracts, valued at well into

TOP FIFTEEN US EXPORTS TO CHINA, 1977

Category	Value	Percent of Total Exports
Special purpose nonmilitary vehicles, nec,* new	$28,847,904	16.8
Soybean oil, crude, degummed	28,297,313	16.5
Polyester staple, not carded or combed, or otherwise prepared for spinning	18,967,288	11.1
Raw cotton, upland domestic, staple, 1 inch to 1 1/8 inch	14,501,671	8.5
Soybeans	14,385,752	8.3
Urea, fertilizer material	8,075,977	4.7
Aluminum and aluminum alloys, unwrought, except extrusion, ingot and billet	5,311,341	3.1
Tallow, inedible	3,689,785	2.2
Kraft container board liners, unbleached	3,397,364	2.0
Diesel engines, nec, over 1,000, not over 1,500 brake up	3,104,307	1.8
Other coal tar and cyclic chemical intermediates except acids, nec	3,102,932	1.8
Raw cotton, upland domestic, staple, 11/8 inch and over	3,017,378	1.8
Parts and accessories, nec, for instruments (except industrial processes), nec, electric, electronic, mechanical, pneumatic	2,368,421	1.4
Parts and accessories, nec, for automobiles, truck and bus engines for replacement	2,312,266	1.3
Sodium bichromate and chromate	2,080,215	1.2
TOTAL US EXPORTS	**$171,318,108**	

* nec = not elsewhere classified

the millions, was to have been shipped to China between late 1977 and March, 1978, with the bulk leaving this country during the current calendar year. The company plans to send two technicians to China to train Chinese personnel to use the advanced American equipment. As a result of the success Smith has achieved in the China market, the company announced in January, 1978, that it, along with Da Sing Corp., had established Smith Dasing, Ltd., a Hong Kong–based Chinese trading company, 60% owned by Smith and 40% owned by Da Sing. The new firm is reportedly designed to offer a comprehensive China trade program to Smith International divisions and to a broad spectrum of other industrial clients. Harned Hoose and NL Industries also announced a joint venture to do business with the PRC.

SPONSOR A MOVIE ON CHINA

The Public Broadcasting Service (PBS) is currently seeking sponsors for two film series on China. The first is a three-part BBC/KQED China film, which is to be packaged into two ninety-minute PBS programs for the service's national schedule. The second is the Joris Ivens China series of twelve programs, which may also be broadcast across the country. Both program series are complete and ready for screening by prospective underwriters. Inquiries should be addressed to Dale P. Riehl, Public Broadcasting Service, 75 Rockefeller Plaza, New York, NY 10019; telephone: (212) 489-0945.

REPORT ON CHINA'S PETROLEUM

Petroconsultants, Ltd., of Dublin, Ireland, has recently completed a nonexclusive report entitled "Petroleum Geology and Industry of the People's Republic of China," prepared by two of the West's leading experts on China's hydrocarbon reserves: Arthur Meyerhoff and Jan-Olaf Willums. With 88 figures and 25 tables, this in-depth analysis contains chapters on China's energy situation, the development of China's petroleum industry, China's petroleum geology, expected hydrocarbon potential of the PRC, offshore operating environment, offshore technology and policy, and doing business with China. The report was available at a prepublication cost of $4,000 for the full edition and $2,000 for the abridged version; after December 31, 1977, the prices were to be increased 25%. Contact Petroconsultants, Ltd., Hill Samuel House, Adelaide Road, Dublin 2, Ireland.

BOOK REVIEW
SMALL-SCALE INDUSTRY IN CHINA

Rural Small-Scale Industry in the People's Republic of China by Dwight Perkins et al. Berkeley: University of California Press, 1977. 296 pp.
Reviewed by Shannon Brown, Department of Economics, University of Maryland.

One of the great difficulties in learning about China is the absence of detailed information. In large part this is due to the practices of the Chinese press, but it is also due to the fact that very few foreign experts have been able to visit China in a professional capacity. In recent years, however, thanks to the scholarly exchanges sponsored by the National Academy of Sciences Committee on Scholarly Communication with the PRC, this situation has begun to change. This book, the report of the rural small-scale industries delegation, is one of a series of reports the Committee has published.

The small-scale industries delegation, headed by economist Dwight Perkins of Harvard University, spent one month in the PRC in the summer of 1975, visiting 52 factories and 10 communes. The purpose of the visit, as Perkins states in the introduction, was to study those industries that can be described as using greater amounts of "indigenous" as contrasted with "modern" technology, as being smaller in scale (from 50 to around 600 employees), and as largely devoting their efforts to the service of agricultural production.

Such industries are administered by either counties, communes, or brigades, but not by the national government. The delegation consisted of four economists, three engineers, two sociologists, one historian, and two others whose professional backgrounds were not given. Since seven of the twelve also spoke and read Chinese, the group was well qualified to take advantage of this rare opportunity for social science research.

The findings of the delegation are comprehensive and fascinating, and because they are based on firsthand observation, convey a sense of reality often missing in writings about China. They are presented in the book in separate chapters entitled "Socialist Administration," "Worker Incentives," "The Economies of Rural Small-scale Industry," "How Small-scale Industry Serves Agriculture," "The Impact of Small-scale Industry on Chinese Society," and "Expanding Knowledge and Transforming Attitudes." There are three technical chapters, written by the engineers, on the farm machinery, chemical fertilizer, and cement factories visited. The book is liberally provided with tables, and there are several useful appendices.

Small-scale industry, employing a relatively unsophisticated technology, has long been advocated by some Western writers on economic development, but China is one of the few countries that have actually developed such industries. Consequently, what everyone, including the delegation, wants to know is: Do they make sense? While acknowledging that it visited only a tiny fraction of all such enterprises in China, and probably the best ones, the delegation believes that they do make sense and are making a useful contribution to China's development. But how and why?

The delegation's answers to these questions are carefully developed in the chapter on the economies of rural small-scale industries, which is the heart of the book and which ties the other chapters together. Here the authors argue that such industries are reasonably efficient in two respects—first, because they possess enough technical (engineering) and economic (cost minimization) efficiency to insure that the material and labor costs of their output do not exceed the admittedly high prices, reflecting scarcity, at which they are sold. When such efficiency (one is tempted to say profitability) is combined with other advantages they possess—such as training the labor force in industrial skills and reducing rural-urban migration with its attendant costs of urbanization—it seems clear that there are net gains to society.

Furthermore, though they are less clear in spelling it out, the authors also believe that rural small-scale industries are efficient in a second sense: namely, that the manpower and resources employed in such industries would not be more profitably employed if put to some other use. Hence, as social and economic policy, the delegation believes they make good sense, but one should be careful to note the circumstances that contribute to this conclusion.

First, rural small-scale industries make only a very marginal claim on China's resources, employing perhaps five percent of the total labor force. If they were expanded, they would take labor away from more productive activities, such as agriculture. Secondly, they make sense because China still has a poorly developed marketing and transportation system. Finally, they make sense because China still has only a limited supply of skilled and experienced industrial workers. Since the latter two conditions are changing rapidly, it seems safe to predict that the kind of small-scale industries visited by the delegation will be gradually replaced by more modern and larger-scale enterprises.

The Chinese themselves appear to believe this, as is revealed by their constant efforts to expand and upgrade such enterprises. Even in Chinese eyes, then, small-scale industries are not a substitute for larger-scale enterprises employing more modern technology but are rather an additional means of achieving that end. For better or for worse, the economies of scale that seem inherent in modern technology in the West apparently exist in China as well.

SHORT TAKE

Doing time in Peking. A recent report in *Industry Week* revealed that negotiations for turnkey plants with China take a long time: Japan's JCG Corporation sent a team into China four times for a combined total of 36 days of technical talks and 72 days of negotiations before a contract for an aromatic chemicals plant was signed. Japan's Chiyoda Chemical Engineering and Construction Co. averaged three visits to China, each for between 30 and 40 days, before it could settle with Chinese officials for its three turnkey projects now underway. 完

AMERICAN EXPORTS TO THE PEOPLE'S REPUBLIC OF CHINA 1976 AND 1977, BY CATEGORY

Category	Total 1977	Total 1976	Change 1977 over 1976
Food and Live Animals	0.03	0.00	—
Beverages and Tobacco	0.00	0.00	—
Crude Materials, Inedible Except Fuels	52.35	13.02	402.1%
Mineral Fuels, Lubricants and Related Products	0.6	0.11	-45.5%
Animal and Vegetable Oils and Fats	31.99	0.00	—
Chemicals	19.60	10.44	87.7%
Manufactured Goods by Chief Materials	10.84	43.30	-75.0%
Machinery and Transport Equipment	51.58	65.12	-20.3%
Miscellaneous Manufactured Articles, Nec*	4.54	3.38	34.3%
Items and Transactions, Not Classified	0.03	0.02	50.0%
TOTAL	**171.32**	**135.39**	**26.6%**

* nec = not elsewhere classified

China Economic Notes

Briefly:

- ***Chairman Hua outlines two-stage modernization plan, aims for 10% industrial growth rate through 1985.***
- ***Eight new ministerial-rank organizations emerge at Fifth National People's Congress.***
- ***Plans revealed for 120 large plants to be developed in China by 1985, including iron and steel complexes, petroleum fields, railroad links, and power generating plants.***
- ***China to develop nuclear power plant–making capability; investigating wind, solar and sea sources of power.***
- ***Lasers, satellites, genetic engineering, and most important, computer sciences ranked as China's scientific priorities.***
- ***China may build high-speed railroad line based on Japan's shinkansen during 1980–1985.***
- ***The Petroleum Corporation of China reports to ministry, works closely with FTC's and State Planning Commission.***

GENERAL

The task ahead: Key elements in the Chinese leadership have confirmed that the country's bid for industrialization by the year 2000 will be twofold, the initial phase (1978–1985) being a drive to align the stagnant economy for the final push towards the four modernizations (agricultural, industry, defense, and science and technology) by the century's end. The January issue of *Red Flag* revealed that China's industrial production, which averaged 13.5% growth between 1949 and 1977, suffered declining rates of expansion in the Third Five-Year Plan (1966–1970), 11.7%, and the Fourth Five-Year Plan (1971–1975), 9.1%. **To counter this decline, Chairman Hua has vowed to push the industrial expansion rate up above 10% between 1978 and 1985.** But faster growth is just one facet of the emerging Hua-Teng economic line. In his speech to the Fifth National People's Congress (FNPC), Hua emphasized that Chinese managers are obligated to equal or better previous production levels in 1978 and, further, that those who fail to meet state plan targets will be subject to disciplinary action in Peking. The new Chinese economic model is highlighted by a decentralization of factory control, accompanied by increased flexibility for individual plant managers. At the same time, however, the Chairman reminded those managers that central planning authorities would be watching their progress carefully. For the small and medium-sized economic units, so much a part of the famous "walking on two legs" tradition, Hua encouraged their inclusion in the planning mechanism. Yet another message was sent as well: **Where local industry competes with large state controlled enterprises for key raw materials, the large units have priority.** This directive to favor large modern plants over small traditional units is in direct contradiction to the policies of the Cultural Revolution and marks the beginning of an era during which economics, not politics, will be in command in China. **The Chinese consumer had much to be thankful for in Chairman Hua's address on February 26.** Repeatedly, the former governor stressed the development of light industrial goods. Additional and regular wage increases were also promised by Hua, with the single omnipresent caveat: "Provided the state plan is fulfilled." Across the board, Chairman Hua made promises to every sector of the Chinese economy —the worker, the soldier, the scientist, the artist, the intellectual, and even the overseas Chinese. For the simple price of discipline and unity, China will join the ranks of industrialized nations by the year 2000. The next three years will tell if that is a price the Chinese people are prepared to pay.

CHINA UNDER NEW MANAGEMENT

As a result of the First Session of the Fifth National People's Congress, a revised list of China's 37 ministerial-rank organizations and department heads was released in a March 5 NCNA report. Eight new organizations were promoted to ministerial level including the newly created Ministry of Petroleum Industry and Ministry of Chemical Industry (formerly together in the Ministry of Petroleum and Chemical Industries). Of the thirty-seven organizations, only seven are led by the same minister placed in charge at the end of the Fourth National People's Congress in January, 1975. In only three years China has come almost completely under new management.

AGRICULTURE

Grain output planned to reach 400 million metric tons by 1985. In his speech to the Fifth NPC, Chairman Hua announced to China and the world that his administration was planning to expand China's grain production to 400 million metric tons by 1985. This target is more than 40% greater than the nation's harvest in 1977, according to US government estimates. China's chairman calculated, in his address to the country's leading political body, that an average annual increase of between 4 and 5% in the value of China's agricultural production between 1978 and 1985 would be necessary to meet this ambitious target. **Grain bases.** The new development plan for China's agriculture is centered around the establishment of twelve large grain bases to be either self-sufficient consumers of grain or else net exporters. **Mechanization of agriculture to continue.** Hua also stressed the importance of mechanizing the basic agricultural tasks, exhorting China's farmers to be 85% mechanized by the end of the Sixth Five-Year Plan in 1985. Just this past January 28, less than a month before Hua made his state of the nation address to the Fifth NPC, Yu Chiu-li, head of the State Planning Commission, called for 70% mechanization by 1980. In the intervening weeks, it may have become clear to the Chinese leadership that the earlier goal was too ambitious for China's still recovering economy and the later target became a compromise between optimism and practicality. **Outlook favorable for 1978's harvest.** The weather during the past winter has been generally favorable for China's early crops. In almost all areas, conditions have been better than those in the previous two years. Precipitation has been above normal in the all-important winter wheat belt of northern China, and the temperatures across China have been milder than usual

during the first few months of 1978. Barring serious late frosts and possible over-wintering problems, China's agricultural output should see strong growth in 1978, most likely meeting the Hua target of 4–5%. If so, this growth will be more a reflection of the below-average conditions of the past few years and less a result of increased state agricultural investment or expanded mechanization. It is, however, precisely these much-needed inputs that will in the long run determine whether or not China can reach the target of 400 million metric tons by 1985.

MANUFACTURING

The key to the industrialized country pictured in Chairman Hua's speech appears to be a series of relatively autonomous industrial bases. On the one hand, by 1985 the country will be divided into six regional economic systems. At the same time, with the completion of the 120 large-scale projects described by Hua, there will be "14 fairly strong and fairly rationally located industrial bases" dotting the Chinese countryside. Aside from the infrastructure and extractive sectors, **the metallurgical industry seemed to be one of the essential elements of the new Chinese plan.** Steel output, estimated at 25 million metric tons in 1977, is targeted to grow to 60 million metric tons by 1985, an annual expansion of roughly 11.5% or five million tons a year, an impressive goal when compared with the 5% average annual increase in 1970–1977. For the ten new iron and steel complexes to be built by 1985, much of the iron beneficiation and steel-making equipment will most likely be imported from the West. But even before this foreign machinery has been purchased, some growth will be seen in the currently existing metallurgical facilities as idle capacity is brought on-line and management techniques are improved. At the end of January, 1978, PRC press reports were boasting production increases in pig iron, rolled steel and iron ore, compared with the final months of 1977. **In general, China's industrial performance in January was considered strong,** with at least 35 of 80 major commodities setting new production records, including crude oil, nonferrous metals, coal, ammonia, insecticides, chemical fibers and timber. **Spey engine performance:** A recently released article in the Society of Aeronautics' *Knowledge of Aeronautics* magazine reported that domestically produced Spey engines (MK202M) were capable of exerting a maximum thrust of 9.3 tons, compared with 1.2 tons for the US F4E engine and 3.5 tons for Russia's MiG-21. In fuel economy (2.1) and maximum speed (Mach 2.4), the Chinese Spey engines also compared favorably with the American and Russian engines. Late in 1975, China purchased the technology to build the Spey engine from Britain's Rolls Royce.

EMULATION AND REORGANIZATION

In an effort to stimulate and rationalize China's economic structure, Peking planners have reorganized several ministries, a movement which became apparent only at the Fifth NPC. At least eight new ministries appeared at China's gala political event this winter. Most political observers conclude that the new crop of ministers are friends of Senior Vice Premier Teng Hsiao-

CHINA'S NEW CABINET

Ministry (In Protocol Order)	Leading Official
Ministry of Foreign Affairs	Huang Hua *
Ministry of National Defense	Hsu Hsiang-chien *
State Planning Commission	Yu Chiu-li
State Economic Commission †	Kang Shih-en
State Capital Construction Commission	Ku Mu
State Scientific and Technological Commission †	Fang I
Nationalities Affairs Commission †	Yang Ching-jen
Ministry of Public Security	Chao Tsang-pi *
Ministry of Civil Affairs †	Cheng Tzu-hua
Ministry of Foreign Trade	Li Chiang
Ministry of Economic Relations with Foreign Countries	Chen Mu-hua (f) *
Ministry of Agriculture and Forestry	Yang Li-kung *
Ministry of Metallurgical Industry	Tang Ko *
First Ministry of Machine-building	Chou Tzu-chien *
Second Ministry of Machine-building	Liu Wei *
Third Ministry of Machine-building	Lu Tung *
Fourth Ministry of Machine-building	Wang Cheng
Fifth Ministry of Machine-building	Chang Chen *
Sixth Ministry of Machine-building	Chai Shu-fan *
Seventh Ministry of Machine-building	Sun Jen-chiung *
Ministry of Coal	Hsiao Han *
Ministry of Petroleum Industry †	Sung Chen-ming
Ministry of Chemical Industry †	Sun Ching-wen
Ministry of Water Conservancy and Power	Chien Cheng-ying (f)
Ministry of Textile Industry †	Chien Chih-kuang
Ministry of Light Industry	Liang Ling-kuang *
Ministry of Railways	Tuan Chun-i *
Ministry of Communications	Yeh Fei
Ministry of Posts and Telecommunications	Chung Fu-hsiang
Minister of Finance	Chang Ching-fu
People's Bank of China †	Li Pao-hua
Ministry of Commerce	Wang Lei *
All China Federation of Supply and Marketing Cooperatives †	Chen Tung-kuo
Ministry of Culture	Huang Chen *
Ministry of Education	Liu Hsi-yao *
Ministry of Public Health	Chiang I-chen *
State Physical Culture and Sports Commission	Wang Meng *

* New Minister since January 1975
† New Ministry since January 1975
(f) Female

ping, the resilient pragmatist behind much of Peking's bureaucratic machinations. **Emulation Drives Announced.** One of the idiosyncracies of China's development program is the emulation campaign: Factories are pitted against factories, province against province, and now ministry against ministry. To extract increased production, China's leaders encourage "revolutionary emulation" and "friendly socialist competition." On January 21, 1978, the then six ministries—Petroleum and Chemical Industries, Metallurgical Industry, Coal Industry, Water Conservancy and Power, Communications, and Railways—announced that they would compete through 1980 to study conscientiously the new instruction of Chairman Hua and to intensify their efforts in economic construction. Similarly, on February 9, the First Ministry of Machine Building, the Ministry of Textile Industry, and the Ministry of Light Industry joined together in the sponsorship of an emulation drive.

ENERGY

China's energy industry appears in Chairman Hua's speech to the Fifth National People's Congress as one of the weak links in the Chinese economy. Fuel, extraction, and electrification were repeatedly noted as areas is which redoubled efforts were needed. Of the 120 major plants to be built in the next eight years, a disproportionately large number are in the energy field: eight coal mines, ten oil and gas fields, and thirty power stations. In January, Yuan Pao-hua, vice minister of the State Planning Commission, announced **Chinese plans to develop new sources of energy in China including nuclear plants and research into solar, wind, and sea sources of power.** Chairman Hua confirmed his administration's commitment to nuclear power development during his address to the Fifth National People's Congress. Little doubt remains that **the Chinese would like to more than quadruple their petroleum production from roughly 90 million metric tons in 1977 to approximately 400 million metric tons in 1990,** a jump which would require consistent annual increases of over 12% compared with 8% in 1977. If anything close to this scale of development is to be seen in China's petroleum industry, a large number of the planned ten new oil

SZECHWAN'S ENERGY—BIOGAS, NATURAL GAS

A delegation from the National Committee on US-China Relations to China in October–November, 1977, had an unusual opportunity to visit Szechwan Province and see two remarkable developments in China's energy—buses run on natural gas, and a commune cooking with bio-gas, an idea still in the experimental stage in the US, described here by Douglas Murray.

In Chengtu, we immediately noticed the many public buses with rubber bags for natural gas on top. We were told that there are "several hundred" such buses in Chengtu; they seemed to be in the great majority in the central city, although some others run on regular gasoline. Chengtu is the only city in China where natural gas is used to operate motor vehicles on a large scale. These buses were developed seven to ten years ago.

The natural gas comes by pipeline from a field more than 100 kilometers from the city. The bags are filled one to two times a day, and provide enough fuel to travel more than 300 kilometers (188 miles). Remarkably, it costs only five fen (about 3.0¢, US) to fill each bag.

On October 29, we visited the Tsu Chiao (Arrow Bridge) Commune, which has 27,000 people in 12 brigades and 110 work teams and includes 23,500 mou (1,567 hectares) of cultivated land. The commune's power supply has increased sharply since 1975, when the high-voltage transmission lines were expanded. Seventy-eight of the production teams have electricity, which means electric power in individual homes.

Interestingly, we learned that 70% of all commune households have bio-gas digesters, which produce both fertilizer and gas. Most of these are small units installed in each family compound. The cost of installation is about 40 yuan ($23.50), primarily for the cement. The units feed methane gas directly into each house through a small plastic pipe connected to the kitchen stove. Cooking apparently is the one use for the gas: three meals per day at roughly one hour per meal.

There are now 3,500 digesters in the commune, up from none in 1972. A crash campaign apparently has been underway, and they anticipate having 5,000 units installed by 1978.

The digesters produce 1,200 kg of fertilizer per year in addition to the cooking gas. The raw material used is two-thirds manure and one-third water, straw, and other compost. It was noted that, in addition to producing gas and fertilizer, the digesters serve to sanitize and cleanse night soil and other forms of potential contaminants.

After returning from the commune, I asked our host from the Chengtu Revolutionary Committee about the use of digesters elsewhere in Szechwan. He said he was sure that most communes have digesters; although "some have more and some have less," they are widely available throughout the province.

and gas fields will have to be brought on-line by 1985. Preliminary reports indicate that **Chinese oceanographers may have discovered two such fields in Chinese-controlled waters.** One report states that rich offshore reserves were found off Hainan in the Tonkin Gulf's Liuchow Basin where a Chinese-purchased, Western-made jack-up rig has been active in recent months. Other sources inside the PRC have rumored another field in the East China Sea, east of Longitude 124 East. China's current capacity to exploit economically such offshore deposits is doubted by many foreign observers. **Petroleum and coal industries off to a swift start in 1978.** Chinese press accounts at the end of January were praising the rapid development in China's energy industries: Petroleum production was said to be ahead of last year's fourth quarter and drilling footage in January was reportedly double the amount drilled in January a year ago. **China coal miners also boasted advances in January, claiming to be 24% above last January's production.** The First of February, 1978, saw the close of the National Conference of Heroes in the Coal Industry on Learning from Taching and Catching Up with Kailuan. The miners of Kailuan are being held up as a model for all Chinese workers since they overcame the destruction of the July, 1976, Tangshan earthquake and returned their coal mine to its previous 25 million metric tons per year output level. **Petrochemical facilities open.** The Yunnan Natural Gas Chemical Plant, under construction for the past three years, was announced completed on February 3, 1978. The plant, including equipment sold to China by Pullman Kellogg, produces 300,000 tons of synthetic ammonia and 480,000 tons of carbamide per year and also one million tons of standard chemical fertilizer yearly.

SCIENCE AND TECHNOLOGY

China to begin development of nuclear power plants. In his address to the Fifth National People's Congress in February, Chairman Hua revealed to the world that China was planning to develop nuclear power plants. In addition, **laser technology, satellite deployment, genetic engineering, and "above all, research on integrated circuits and electronic computers and their application"** were cited as key R&D goals for the next eight years. Beyond these practical scientific applications, Hua stressed the importance of basic theory, calling for investigation into "such basic subjects as **mathematics, high energy physics, and molecular biology.**" The breadth of the chairman's support was not even restricted to scientific research in general; the order was given to **China's philosophers and social scientists to develop their own plans for national study programs.** Even the artists and intellectuals were encouraged. In stark contrast to previous xenophobic, bordering on paranoic, restrictions on Western cultural or artistic influences on China, Hua Kuo-feng allowed, "We should not adopt a policy of prohibiting people from coming into contact with the false, the ugly and the hostile." **Universal education.** As part of the ten-year development program for China, Chairman Hua unveiled an eight-year plan to make eight-year schooling universal in China's rural areas and ten-year education universal in the cities by 1985. This policy statement by China's top politician came less than two weeks after the Ministry of Education announced a **unified ten-year teaching program,** including "a nationwide plan for standardized five-year primary school, beginning at age six, three years of junior and two of senior middle school." Chairman Hua's supportive comments on China's education serve as a bridge between a series of educational conferences which have been held during first two months of 1978, and a national conference on science and technology, scheduled for later this spring. Early in January the Chinese newspapers reported an **Agronomist Society Forum,** held to prepare for the national scientific conference and to plan for the society's programs for 1978. Brought together for this meeting were leading members of several Chinese societies such as the Soils and Fertilizer Society, the Animal Husbandry and Veterinary Society, the Crops Society, and the Peking Agronomist Society. Throughout China's scientific community, **societies seem to be playing a greater role.** In fact, the Presidium of the Scientific and Technical Association of the People's Republic of China decided in a meeting at approximately the same time "to make vigorous efforts to extend the activities of the scientific societies, promote academic exchanges and popularize scientific knowledge." According to the NCNA, more than 45 professional Chinese societies participated in the meeting. From January 15 to 22, the powerful State Planning Commission sponsored a National Conference to Exchange Experience in Creating Technical Innovations in Industry and Communications, in the remote seaside city of Yentai, Shantung. During that conference the Commission set forth **60 new techniques to be popularized between 1978 and 1980,** including "utilization of waste industrial heat, economizing on coal and power by thermal power plants, comprehensive use of fossil lignite and hard coal, mechanization of coal mining, continuous steel casting, a new cutting process, heat treatment, large-scale integrated circuits, and laser techniques." Elsewhere in Chinese press reports, a January, 1978, First National Explosion Mechanics Conference was held in Huangshan, Anhwei, by the Chinese Mechanics Society, which drew some 200 Chinese scientists together for the presentation of 140 academic papers on explosion mechanics. **Chinese in Space.** A Japanese Kyodo press account speculated that China may be on the verge of launching its first manned space flight. This speculation arose from an article on the problems of weightlessness and food growth in outer space which were discussed in *Navigation Knowledge,* a publication of the China Navigation Society. Just this past January 26, China sent a 3–5 ton spacecraft into orbit for four days which reentered the earth's atmosphere on January 30. The mission was China's eighth since 1970 and its third to return to earth, according to *Aviation Week and Space Technology.* **China goes visual.** Education and scientific films will play an increasingly important role in China's modernization program, stated a February 12 NCNA report. Over 1,000 such films have been produced in China to date, including such titles as "Mudflow," "Mechanizing Mines," and "Three Crops a Year." The major critical criterion for educational movies, according to Vice Minister of Culture Wang Lan-hsi, is that they be strictly scientific. **New Dictionary:** China's Foreign Language Institute has prepared a new Chinese-English Dictionary with 6,000 characters and over 60,000 entries, ac-

Members of the Petroleum Corporation of China mission, invited to the US by the Department of Energy, inspect drill bits at Reed Tool Company, Houston.

cording to a February 1 press report. The new lexicon, designed for translators, teachers, and foreign students of Chinese, was reported in the process of being released commercially.

INFRASTRUCTURE

A weaker link: China's transportation and power generation sectors were repeatedly cited by Chairman Hua as the "weaker links" in the Chinese economic chain. And, even in the first months of 1978, indications were that **increased allocations of capital and labor were being supplied to these beleaguered areas.** A late February NCNA account reported that the General Administration of Civil Aviation had already held a national conference for all departments under the civil aviation system to plan for their development drive ahead. More than 300 representatives of China's civil aviation met together for seven days in February to expand China's air network, which links eighty cities with 100 domestic flights, in addition to China's nine international flights to fifty countries. The planned development of China's aviation will not only benefit domestic travelers but also facilitate the increasing number of foreign tourists. **Railroad expansion too.** China's minister of railways, Tuan Chun-yi, recently announced that China's rail system had adopted a plan calling for **"more electric and diesel locomotives,** progress in electrification, modernization and double-tracking of major lines, building large, light and modern traincars." The new Chinese rail system, according to Tuan, will include major lines criss-crossing the country and more lines between key industrial and military bases. He concluded, "Railway enterprises . . . should learn from the experiences of other countries, adapting their advanced techniques and learning from failures." A Japanese press account, noting the visit of Chinese Vice Premier Chi Teng-kuei to Japan, revealed that China may be considering the construction of a **high-speed rail line,** based on the Japanese *shinkansen,* to be built between 1981 and 1985. In the power generation industry, Chinese workers completed several power lines in the first few months of 1978. On January 30, 1978, **a 110-kv high tension line** was reported completed between the Hsiajihkou transformer station in Hancheng, Shensi, to the Nanfengping transformer station in Hochin, Shansi. On Christmas Day, 1977, another 110-kv line, stretching 107 kilometers from Hinghsia to Tingpien, Shensi, was reportedly successfully tested. Finally, on February 16, 1978, a 46.5-km high-tension power line was completed in Sinkiang's Urumchi after a construction period of 55 days.

CHINESE PETROLEUM CORPORATION

The Petroleum Corporation of China (PCC) was established in the second half of 1977 to administer all phases of the oil industry from seismic exploration through extraction, refining, and petrochemical production. The PCC is now administratively under the Ministry of Petroleum which appears now to have been retired to a policy-making role. The PCC currently has six operating divisions in its bailiwick, although others may be added later. According to high-ranking officials, these divisions are the China Oil and Gas Exploration and Development Corporation, the Northeast Branch Petroleum Corporation (based at Taching) the North China Branch Petroleum Corporation (based at Taku) the Northwest Branch Petroleum Corporation (at Yumen), a refining corporation, and a petrochemical corporation. Although the China Oil and Gas Exploration and Development Corporation was established prior to the PCC, it is now known to work beneath the newer corporation. Being a new, still evolving entity in China, the PCC may gain additional functions in the years ahead. Presently, it is known to have a working relationship with the State Planning Commission. As for foreign trade, the PCC can make recommendations to the foreign trade corporations that make final purchasing decisions. Professional societies are also consulted before key pieces of Western equipment are selected. There may be some overlap of personnel between the PCC and other Chinese organizations. For instance, Sun Ching-wen who served as head of the PCC in January, 1978, was simultaneously holding the title of vice minister in the Ministry of Petroleum and Chemical Industries. Subsequently, at the Fifth National People's Congress, Sun was listed as minister of the new Ministry of Chemical Industry. The PCC's address is Petroleum Corporation of China, P.O. Box 766, Peking, People's Republic of China.

RECENT INNOVATIONS IN CHINA

The following technical and scientific advances were noted in recent Chinese press accounts:

Antibiotics: Following a program begun in 1972, China's agricultural authorities have expanded the application of antibiotics for fighting pests and plant diseases, using them on 1.8 million hectares of crops in 1977. Four different varieties of antibiotics are now in use. (NCNA 1/7/78)

Geothermal Power Station: A small, experimental geothermal power station

has been built in Tibet in the Yangpachan steam field, 90 kilometers northwest of Lhasa. The field, at an altitude of 4,300 meters (roughly 14,000 feet), is studded with warm and hot springs, boiling springs, fumaroles, and a 7,000-square-meter pond with a water temperature of 50°C. (NCNA 1/28/78)

Instrumentation: The Changchun Geological Institute, the Heilungkiang Provincial Geological Bureau, and the Civil Aviation General Administration of China have produced the country's first "impulse induction-type aerial electrical instrument," used to survey geophysical deposits from the air. It is reportedly especially effective in locating sulfurous minerals and minerals containing over 30% iron but can also be used to find underground water and conduct geological cartography with slight modifications. (NCNA 12/12/77)

Laser Cutting Machine: The Changchun No. 1 Motor Vehicle Plant, the Chungching Designing Institute, the Changchun Optical Apparatus Institute, and the Kirin Machinery Design Institute have built a large digital controlled laser cutting machine. (Changchun Kirin Provincial Service 2/11/78)

Locomotive: The Changchun Locomotive and Rolling Stock Plant, Kirin, has manufactured a 4,000-hp combustion turbine locomotive, "The No. 001 model of the Long March II." With a maximum speed of 105 km/hr, this new engine is the first of its kind in China and has a greater hauling capacity than the ordinary steam engine. (Peking Domestic Service 2/5/78)

Rubber Synthesizing Technique: The Peking General Petrochemical Works, along with cooperating research units, has developed a technique to produce artificial rubber, cis-1, 4-polybutadiene. In this new process, gasoline is used as the polymeric ingredient, rather than benzene, toluene, or any other chemical. (NCNA 2/10/78)

Solar-operated Buoys: The Tientsin Navigation Bureau of the Ministry of Communications developed a light buoy for the Tientsin port, powered by a 290-watt solar battery, first produced in 1976. (*Kwangming Daily* 2/1/78)

Telescope: The CAS Tzuchinshan Observatory in Nanking has announced the design and production of a reflecting mirror on its astronomical telescope to take fine photographs of the moon, Saturn, and Jupiter. (NCNA 1/5/78)

Transplant of Fertilized Eggs: The CAS Institute of Genetics has developed a technique to transplant fertilized eggs from one ewe to another. According to initial reports, as many as 11 lambs can now be born in a year from the ova of a single ewe. (NCNA 1/15/78)

Wave Carrier. The Tientsin No. 5 Radio Factory has started manufacture of the VDD-8 model transistor single-channel wave carrier, which is widely praised for its "far-reaching transmission ability." (Tientsin City Service 12/7/77) 完

RMB: DOLLAR RATES AS OF MARCH, 1978

Date		RMB/US$	US¢/RMB	RMB/US$ % Change
January 4	Bid	1.7031	58.7165	
	Offer	1.6947	59.0075	
	Median	1.6989	58.8616	−1.80
January 6	Bid	1.7287	57.8469	
	Offer	1.7201	58.1362	
	Median	1.7244	57.9912	+1.50
January 12	Bid	1.7080	58.5480	
	Offer	1.6994	58.8443	
	Median	1.7037	58.6958	−1.20
January 25	Bid	1.7011	58.7855	
	Offer	1.6927	59.0772	
	Median	1.6969	58.9310	−0.40
January 26	Bid	1.6994	58.8443	
	Offer	1.6910	59.1366	
	Median	1.6952	58.8990	−0.10
February 15	Bid	1.6892	59.1996	
	Offer	1.6808	59.4955	
	Median	1.6850	59.3472	−0.60
February 18	Bid	1.6724	59.7943	
	Offer	1.6640	60.0962	
	Median	1.6682	59.9449	−1.00
February 21	Bid	1.6523	60.5217	
	Offer	1.6441	60.8236	
	Median	1.6482	60.6722	−1.20
February 25	Bid	1.6556	60.4011	
	Offer	1.6474	60.7017	
	Median	1.6515	60.5310	+0.20
March 3	Bid	1.6440	60.8273	
	Offer	1.6358	61.1322	
	Median	1.6399	60.9793	−0.70
March 10	Bid	1.6522	60.5254	
	Offer	1.6440	60.8273	
	Median	1.6481	60.6754	+0.50
March 16	Bid	1.6721	59.8050	
	Offer	1.6637	60.1070	
	Median	1.6679	59.9556	+1.20
March 22	Bid	1.6771	59.6267	
	Offer	1.6687	59.9269	
	Median	1.6729	59.7764	+0.30

Source: Standard Chartered Bank, Ltd.

Importer's Notes

Briefly:

- ***Chinese side wins in precedent-setting case before ITC: no curbs for cotton work gloves.***
- ***Feathers, fireworks, and bristles capture top three spots in 1977 US Imports from China.***
- ***Value of US imports from China rises only slightly to $202 million.***
- ***US purchases of PRC cotton textiles drop 45% in 1977.***
- ***Problems continue for low-acid food imports, but Chinese ask for more registration forms.***
- ***All imports from China must be labeled "Made in the People's Republic of China"—"Made in China" is not enough.***

TOP TEN IMPORTS 1977

Feathers wafted into first place in US imports from China for 1977, up from the No. 3 spot the year before, while cotton print cloth shirting was pushed down three notches from a No. 1 position. The uproar about threats to domestic production accompanying zooming cotton imports from the PRC has been redirected into complaints about the astronomically high prices of feathers and down. **Down made the top ten for the first time,** slipping into the No. 7 position. The value of feathers imports increased slightly, from $11 million in 1976 to $12.5 million last year; down imports totaled over $6 million in 1977. In addition to down, **tea and cashew nuts reached the top ten for the first time**—Nos. 8 and 9 respectively—and tin, plain fabric, and raw silk dropped off. Tin imports crashed from $13 million to $4 million, and plain fabric from $7 million to $4 million. **Fireworks jumped into second place** in 1977 from seventh place the year before, rising a hefty $4 million in value. **In the third spot last year were crude bristles,** which rose in position but not in value, remaining at about $8 million. **But total US imports from China rose only slightly, from $201 to $202 million,** with the top ten imports dropping from 40% ($80 million) to 37% ($75 million) of that total.

SHUTTLE OFF TO CANTON?

British and Chinese authorities reached a tentative agreement in mid-March that may have Canton Fairgoers transported from Hong Kong to Canton via CAAC charter flights beginning in early April, according to *Newsweek*. The flight, about 30 minutes in length, should ease considerably the packed trains on which foreign buyers spend several hours to reach the city on the Pearl River.

LOW-ACID FOODS

Ng Fung Hong, the Hong Kong-based Chinese agency, has asked for 40 registration forms and 100 processing forms in order to carry out registration of low-acid foodstuffs for CEROILS. If all the forms are completed, this will mean a significant increase in the number of foodstuffs from China filed with the FDA. This promising sign follows close behind last June's filing of registration and processing forms for factories in Shanghai, Kwangchow, and Hangchow. There have been **further detainments of various canned goods by US Customs.** Recent detentions include cuttlefish, bamboo shoots, mackerel in tomato sauce, baby clams, oyster sauce, and fried dace with salted black beans. The FDA reminds **importers to make sure to indicate the factory's FCE number on the shipping manifest in order to facilitate FDA inspection.** There has been some misunderstanding as to the definition of low-acid foods. The FDA has recently evaluated the entire export list of Chinese canned goods to determine for CEROILS which are low-acid. In some cases, it was difficult for them to decide which foods may be low-acid without doing an acidity test. **The Chinese must perform the acidity tests.** Still, not enough low-acid canned food manufacturing facilities have been registered in the PRC in order for American importers to avoid problems.

TOP FIFTEEN US IMPORTS FROM CHINA, 1977

Category	Value	Percent of Total Imports
Feathers not meeting federal standards	$12,422,316	6.1
Fireworks	10,000,459	4.9
Bristles crude or processed in any way for use in brushes or other articles	8,711,542	4.3
Print cloth shirting, nec,* white cotton, not fancy or figured, not bleached or colored	8,056,633	4.0
Antiques other than furniture and silverware	7,282,434	3.6
Floor covering pile, hand inserted, valued at over 66.67¢ per sq ft	6,558,531	3.2
Downs not meeting federal standards	6,479,826	3.2
Tea, crude or prepared	5,185,544	2.6
Bamboo baskets and bags, lined or unlined	5,185,211	2.6
Cashews, shelled, blanched, or otherwise prepared or preserved	4,809,742	2.4
Tin unwrought, other than alloys of tin	4,345,340	2.1
Tungsten ore	4,255,665	2.1
Plain woven fabric, not combed, not fancy or figured, having average yarn numbers in the A, B, or C classes	4,184,714	2.1
Cassia oil	3,181,558	1.6
Hair of the angora goat and like hair of other animals, in the grease or washed, sorted	3,074,948	1.5
TOTAL US IMPORTS	**$202,661,257**	

*nec = not elsewhere classified

AMERICAN IMPORTS FROM THE PEOPLE'S REPUBLIC OF CHINA 1976 AND 1977, BY CATEGORY

Category	Total 1977	Total 1976	Change 1977 over 1976
Food and Live Animals	25.72	23.89	7.7%
Beverages and Tobacco	0.32	0.35	−8.6%
Crude Materials, Inedible Except Fuels	44.05	38.42	14.7%
Mineral Fuels, Lubricants and Related Products	0.95	0.00	—
Animal and Vegetable Oils and Fats	0.06	2.43	−97.5%
Chemicals	21.79	18.07	20.6%
Manufactured Goods by Chief Materials	49.56	67.13	−26.2%
Machinery and Transport Equipment	0.55	1.33	−58.6%
Miscellaneous Manufactured Articles, nec*	58.01	47.69	21.6%
Items and Transactions, Not Classified	1.66	1.64	1.2%
TOTAL	**202.66**	**200.96**	**0.8%**

*nec = not elsewhere classified

COTTON WORK GLOVES

An attempt to show Chinese work glove exports as the cause of market disruption in the US was resoundingly defeated (4 to 2) in the first International Trade Commission investigation under Section 406 of the Trade Act of 1974, dealing with market disruption by imports from a Communist country, the ITC reported on March 15. The case is now closed, and there will be no further action.

Following receipt of a petition filed by the Work Gloves Manufacturers Association of Libertyville, IL, the ITC investigation found that, in 1977, domestic producers shipped an estimated 21.2 million dozen pairs of these gloves and exported an estimated 630,000 dozen pairs. Imports in 1977 from all countries totaled 6.3 million dozen pairs, with only 868,000 dozen pairs from China.

Furthermore, not only were PRC glove imports not "increasing rapidly," but in 1975–1976, they amounted to less than half of comparable imports from Hong Kong.

Under Section 406, market disruption has occurred only if the imports are the product of a Communist country; like or directly competitive with a domestically produced article; increasing rapidly, either absolutely or relatively; and a significant cause or threat of material injury to domestic industry.

In a review of PRC imports, it was found that for 1972–1975, they were almost negligible. There was an abrupt increase to 966,000 dozen pairs in 1976, representing 19% of total cotton glove imports, but in 1977, the PRC share of imports declined 5%. Between 1972 and 1976, the ratio of PRC imports to domestic producer's shipments increased from under .05% to 5% and then stabilized at 3%. The Commission made "no specific conclusion" as to whether this constituted "rapid increase."

As to any suffering by domestic industry, the Commission said "there is serious question" on this issue. US producers' shipments and employment rose in 1977. Regarding any "threat," the Commision pointed out the stabilizing of imports and the steady rise in prices of the gloves. Furthermore, according to the Commission's estimates, the margins by which Chinese gloves undersell other imported gloves in the domestic market have narrowed greatly since 1976.

Interested parties may obtain the Commission's report, *Certain Gloves from the People's Republic of China* (ITC Publication 867), from the Office of the Secretary, 701 E Street, NW, Washington, DC 20436.

TEXTILES

Cotton plummets. China's exports of cotton textiles to the US plummeted from a 1976 high of 148.5 million SYE (equivalent square yards) to 81.3 million last year, a whopping 45% decline. The year-end figures confirm that the slow drop that began in late 1976 has not reversed itself. Domestic industry alarmists have largely ceased their complaints, but December imports, at 8.6 million SYE (against November imports of 1 million), suggested an upward trend. Lest too much emphasis be placed on this increase, it should be noted that US cotton textile imports from all sources in the month of December skyrocketed 15% above the same month last year, recording their highest level since April, 1976—170 million SYE. Among the places in addition to China whose exports to the US rose from November to December were Hong Kong, Japan, South Korea, Taiwan, Brazil, Colombia, Italy, and Portugal. Importers should also keep in mind that the month-by-month figures are extremely varied, ranging from a high of 13.5 to 1.0 million SYE. **Labels.** Note that US Customs regulations stipulate that the labels on Chinese imported goods read "People's Republic of China." If they say only "Made in China," they will be detained upon arrival. **Old friends.** China appears to have invited only "old friends" among American textiles importers to the Canton Trade Fair this year, due to a supply problem.

1977 US COTTON TEXTILE IMPORTS FROM THE PRC (million SYE)

January	5.3
February	8.2
March	8.0
April	4.2
May	3.5
June	5.7
July	7.4
August	9.7
September	6.2
October	13.5
November	1.0
December	8.6
TOTAL	**81.3**

Source: Textile Import Trends, American Textile Manufacturers Institute.

CHINESE CANNED GOODS REGISTERED WITH FDA

The following low-acid canned food items from the PRC have been registered with FDA and are cleared for importation to the United States. The FCE numbers should appear on the shipping manifest. CEROILS is currently registering additional items.

Branch	Factory and FCE Number	Item	Can Size*
Shanghai	Shanghai #06186	Mushrooms, whole	211 x 400 301 x 408 400 x 414
		Mushrooms, sliced	211 x 400 301 x 408 400 x 414 602 x 701
		Szu Hsien Bran Dough	301 x 401
		Longtailed anchovies, fried	511 x 315 x 106
		Stringless green beans	301 x 408
Kwangtung	Kwangchow #06188	Bitter Melon	306 x 403
		Waterchestnuts, sliced	602 x 613
		Waterchestnuts, whole	306 x 407
		Pa Pao Chai, solid pack	301 x 401
		Green peas	301 x 401 301 x 408
		Fresh Lotus root	306 x 407
		Bamboo shoots, whole	602 x 613
		Bamboo shoots, sliced	400 x 409
		Bamboo shoots, pieces	306 x 407
		Straw mushrooms	301 x 408
		String beans, cut	301 x 408
		String beans, whole	306 x 410 400 x 414 301 x 408
Chekiang	Hangchow #07091 (Maiden Brand)	Waterchestnuts, whole	307 x 407
		Fresh green beans	301 x 401 301 x 408
		Green beans, whole and cut	301 x 408 307 x 410
		Braised Bamboo shoots	301 x 401
		Asparagus spears, points, cuts & tips	301 x 405 307 x 605
		Mushrooms, whole	211 x 400 301 x 408 400 x 414
		Mushrooms, sliced	211 x 400 301 x 408 400 x 414

Source: FDA. Data as of March 1978.

* Given in inches, as follows 211 = 2 11/16, 400 = 4, 301 = 3 1/16, etc.

LATE WORD ON FDA

CEROILS is now registering fried dace, fried dace with black bean, fried file fish (Pearl River Brand, Kwangtung); sugar cane juice, guava juice (Heaven Temple, Kwangtung); fried fish (Maling, Shanghai); baby clams in clear soup, marine carp in tomato sauce (Hong Mei, Talien); water chestnuts (Elephant Mountain, Kwangsi).

NEW EXPORT DEPARTMENTS—AND NEW CECF ROLE?

Two "export departments" under the control of the head office of the new China Arts and Crafts Corporation—the Porcelain Export Department and the Arts and Crafts Export Department—have been established in Canton at the address of the Canton Trade Fair complex. The Native Produce Corporation has also created a Fireworks Export Department in the Fair buildings. Indications are that the use of the trade fair is seen as experimental; and, if it proves successful, this traditionally import-oriented location may be established as a year-round venue for China's export business.

ARTCHINA DETAILS

A detailed, four-page announcement of China's new National Arts and Crafts Import and Export Corporation, which appeared in the latest edition of *China's Foreign Trade*, published in Peking, is available to all interested importers from the National Council. The announcement lists addresses, cables or telex, and commodities handled for the head office and the fifteen branches, as well as information about the Hong Kong and Macao agents.

LIGHT INDUSTRIAL IMPORTERS DELEGATION

Members of the National Council's Light Industrial Products delegation to China in April include Charles Rostov, Trans Ocean Import Co., and Lee Sobin, Friendship International Corp., co-chairpersons; Robert Eisenberg, Clipper Industries; Melvin Nadel, Nadel and Sons Toy Corporation; Joseph Orshan, Mikasa; Lewis Shanks, WJS, Inc.; Peter Siris, Sirco International Corporation; Beulah Sung, Wing On Company; and Sidney Rich, Sidney Rich and Associates. The delegation is being escorted by Stanley Young, vice president of the National Council. 完

China International Notes

Briefly:

- ***New trade agreements with Japan and EEC focus on technology transfer and complete plant exports. Japan-China agreement could result in $12.4 billion worth of technology and service contracts for Japanese steel industry; railway, TV, synthetics plant contracts also signed or forthcoming.***
- ***New wrinkle on marketing to the PRC: three-way barter arrangement on mining equipment and coal supplies between China, Great Britain, and Hong Kong; US firm involved.***
- ***Nuclear power light water reactor station in China's future? French, West Germans, Italians, and others think so.***
- ***Oil customers line up for Chinese product; Japan, France, and Philippines asking for more.***
- ***China's top two step out; foreign trips planned for Hua, Teng in 1978.***

GENERAL

Signing of long-term trade agreements improves the position of EEC, Japanese exporters; China secures better terms for exports to EEC, guaranteed exports to Japan. Within two weeks, China signed an eight-year agreement with Japan and initialed a five-year agreement with the European Economic Community, thus formalizing relations with its first and second leading trade partners. Both treaties provide for export-import symmetry and liaison between governments to supervise the course of trade, permitting companies to plan their long-term China marketing strategies with more certainty than before. Containing explicit export targets for both countries, the Sino-Japanese agreement will have greater commercial impact in the near term than the Sino-EEC pact. Signed on 2/16/78, the PRC-Japan pact states that contracts signed in the first five years (1978–1985) will achieve a minimum value of $20 billion, approximately a 30% increase over the total level of Sino-Japanese trade in 1973–1977 in the categories specified by the agreement. On the Chinese side, the export categories are oil and coal; on the Japanese, complete plants and construction materials. Engineered by a consortium of Japanese companies, the agreement by no means limits trade between the two countries. Iron and steel construction, design, and service contracts have figured greatly in the first wave of contract negotiations under the agreement. If all press accounts are borne out, a group of companies led by Nippon Steel Corporation may win as much as $12.4 billion in contracts over the next eight years: a $3–4 billion integrated steelworks near Shanghai, two similar plants in Hopeh and Shansi cited at $4 billion each, and expansion of existing facilities for about $400 million. Steel companies were heavily represented on the planning committee, whose chairman, Yoshihiro Inayama, is also president of Nippon Steel. The Sino-EEC agreement, initialed 2/3/78 and to be signed officially in the spring, is no less of a landmark agreement, although it lacks specific trade schedules. Since the initiation of the EEC's common trade policy in 1974, imports from China and other Communist bloc countries have been governed by a set of import quotas unilaterally confirmed by EEC member countries. The agreement establishes bilateral confirmation of the quotas and holds out a promise for liberalization of certain of them. The new quotas will probably be written into the 1978 schedules, which have not yet been issued, according to an EEC spokeswoman. In addition, both parties have extended MFN treatment to the other's exports and agreed to form a joint trade committee. The texts of both agreements are printed in full in this issue.

Bargaining with the EEC for nuclear power technology. The first weeks of the Sino-EEC trade agreement, which has yet to be signed officially, saw renewed efforts by the PRC to obtain nuclear power technology from West European trading partners. By expanding the nuclear power sector, PRC planners may hope to maximize stocks of oil and coal available for export. In principle, the agreement states that all efforts will be made to expand and facilitate trade between China and European member states; but in practice, preexisting treaties may limit the extent of trade in military-sensitive technology and equipment. The Coordinating Committee for Export Controls on Strategic Goods (COCOM), a fourteen-nation treaty body, plays watchdog to sales of sensitive material to Communist countries. The type of nuclear power station sought by the Chinese falls under COCOM's veto category. Components of light water reactors (LWR's) used to drive power generators are readily convertible to drive systems for nuclear submarines. European companies that have tried to sell nuclear equipment to China in the past include Framatome (which uses Westinghouse technology), Alsthom, GEC Reactor Equipment, Ltd., and Snam Progetti, all of which have displayed nuclear products in exhibitions in China in the past five years. But sales talks have petered out in the face of COCOM opposition and the formidable problems of finance (the price tag on a 900-mw power plant, of interest to the Chinese, is approximately $1 billion—Peking is also apparently in the market for smaller 250-mw and 600-mw models), and technical maintenance; analysts estimate an on-site training program of seven to eight years' duration would be required for plant start-up. On the positive side, China is one of five nations in the world that possess enrichment facilities for uranium ore, although any refined ore for power generation would have to be diverted from the military sector. Although China has its own uranium ore reserves, indications are that Australia has agreed to provide additional supplies. In recent talks, major companies that have openly reported their activities are Alsthom-Atlantique, operating in conjunction with Creusot-Loire, and Finmeccanica, the nationalized Italian engineering group. When French Premier Raymond Barre traveled to China in January, the chairmen of Alsthom and Creusot-Loire traveled with him to lay proposals on a 250-mw plant before Chinese officials; and in the follow-up, a Chinese "atomic power station study team" spent three weeks in West Germany, departing 2/1/78, and an equal length of time in France (2/5–28/78) as guests of the French Ministry of Industry. Shortly after, a similar team stopped in Italy (3/13/78) for talks with Finmeccanica and tours of the Caorso nuclear power

THE CHINA-JAPAN LONG-TERM TRADE AGREEMENT

Signed February 16, 1978

The Japanese Sino-Japanese Long-Term Trade Consultative Committee and the Chinese Sino-Japanese Long-Term Trade Consultative Committee held amicable consultations for the long-term, stable development of the economic and trade relations between the two nations, based on the spirit of the Joint Communique of the Governments of Japan and China, and of the Trade Agreement, and on the basis of equality and reciprocity, mutual complementation, and the balancing of exports and imports, and concluded, as a part of the trade between Japan and China, the following long-term agreement for Japan's exporting technology, plants, and construction materials and machines to China, and for China's exporting crude oil and coal to Japan, with the support of the respective Governments.

Article 1. The period of validity of this Agreement will be eight years, from 1978 to 1985. The monetary amount of exports for both sides during the period of validity of this Agreement will be about ten billion US dollars, respectively.

Article 2. From the first year (1978) to the fifth year (1982) of this Agreement, Japanese exports of technology and plants to the Chinese side will be about seven to eight billion US dollars and the exports of construction materials and machinery will be about two to three billion US dollars. The two sides agree that the contracted monetary amount to be concluded each year will be regarded as the decided monetary amount. The commodity items and their amounts to be exported from the Chinese side to the Japanese side from the first year to the fifth year of this Agreement are as follows:

1978: Crude oil—7 million tons
Coking coal—150,000 to 300,000 tons
Coal for general use—150,000 to 200,000 tons

1979: Crude oil—7.6 million tons
Coking coal—500,000 tons
Coal for general use—150,000 to 200,000 tons

1980: Crude oil—8 million tons
Coking coal—1 million tons
Coal for general use—500,000 to 600,000 tons

1981: Crude oil—9.5 million tons
Coking coal—1.5 million tons
Coal for general use—1 to 1.2 million tons

1982: Crude oil—15 million tons
Coking coal—2 million tons
Coal for general use—1.5 to 1.7 million tons

The two sides agree to hold consultations during 1981 and to decide on the commodity items and their amounts to be exported by the Chinese side to Japan from the sixth year (1983) to the eighth year (1985) of this Agreement. The amounts of crude oil and coal to be exported by the Chinese side to the Japanese side in the last three years of this Agreement will be increased gradually, with the amounts in the fifth year of this Agreement as the basis.

Article 3. The two sides agree that, as a principle, technology, plants, and construction materials and equipment will be exported

station, the Euratom research center in Ispara, and other nuclear research and production facilities of Italian companies. Negotiations with West German firms have been reported as well, although individual companies working on contract proposals are not known. Among West German nuclear equipment manufacturers participating in the Technogerma Exhibition in Peking (9/5–18/75) were Bayer AG and Deutsche Babcock and Wilcox; Siemens and the Sloman subsidiary, KWA, have also been mentioned as possible suppliers. The Chinese have also been discussing nuclear plants with the Canadians. At least 50 companies worldwide have the capacity to develop plants to China's order, including third-world countries that might ignore COCOM injunctions against sales to China. But China seems to have made a decision for Western Europe on technology, hoping that the new agreement with the European Economic Community may tip the balance in its favor against COCOM and sure that it will smooth the complex project of technology transfer involved. Probable site or sites for a nuclear power station in China? —coastal industrial areas away from the PRC's hydro potential and readily accessible to foreign uranium suppliers.

MOFT has new department for international conferences. China's Ministry of Foreign Trade has had a department for international conferences since at least mid-1977. More participation by the PRC in international trade conferences could boost sales of China's products especially light industrial goods. Chinese trade officials have had prominent roles in recent conferences promoting China trade in Italy and Canada.

BUYING REPORTS

PLANT PURCHASES: 1978–1982 PROSPECTUS With the initialing of the Sino-EEC trade agreement and signing of the Sino-Japanese long-term trade agreement (abbreviated CJLTTA) shortly thereafter, China jumped into a new series of plant purchases rivaling the buying spree of 1973–1974. Reports of plant contracts proposed and already signed in the wake of the two agreements are presented below, arranged by industrial sector. The list also includes a number of reports emerging from the China trip in late January of French Premier Raymond Barre. France, having signed a scientific and technical cooperation agreement with China on 1/21/78, unique among Western countries, has launched its own sales offensive independent of the European

from the Japanese side to the Chinese side under the deferred payment formula.

Article 4. Transactions based on this Agreement will be carried out by the conclusion of separate contracts between the Japanese side's parties concerned and the Chinese side's related Export-Import Corporations. The two sides agree to the conducting of transactions, based on rational international prices and the customary practice of international trade.

Article 5. The two sides agree to carry out technical cooperation in necessary scientific and technological fields, for the carrying out of this Agreement and for the expansion of economic exchange between Japan and China.

Article 6. The two sides agree to designating one foreign exchange bank each and to having this bank take charge of carrying out necessary statistical work, in order to grasp the state of progress being made in the settlement of accounts for the transactions based on this Agreement. The Japanese side designates the Bank of Tokyo and the Chinese side the Bank of China. These two Banks will take necessary statistical measures and will maintain contacts with each other.

Article 7. All contract papers for transactions, letters of credit, bills of exchange, and letters of guarantee, based on this Agreement, will bear the following codes; that is, LT-1 for those for the first year, and LT-2 for those for the second year (the same applies for subsequent years).

Article 8. The two sides will establish their respective secretariats for the carrying out of this Agreement, and they will be given the work of handling communications and related business matters. The Japanese side will establish the Secretariat of the Japanese Sino-Japanese Long-term Trade Consultative Committee in Tokyo, and the Chinese side will establish the Secretariat of the Chinese Sino-Japanese Long-Term Trade Consultative Committee in Peking.

Article 9. The two sides agree that, in order to hold consultations on problems concerning this Agreement and for the carrying out of this Agreement, the representatives of the two sides will hold talks every year, in Tokyo and in Peking, alternately.

Article 10. This agreement cannot be abrogated without the consent of both sides. Contracts concluded on the basis of this Agreement cannot be abrogated without the consent of the parties directly concerned of both sides.

Article 11. The period of validity of this Agreement will be from the date of its signing to December 31, 1985. This Agreement can be amended upon consultations between the two sides and upon the consent of both sides.

Article 12. This Agreement is signed in Peking on February 16, 1978. Two texts of this Agreement, one in the Japanese language and one in the Chinese language, have been drawn up, and the two sides will each keep one copy each. The agreements in both languages will have the same validity.

Yoshihiro Inayama, Chairman, Japanese Sino-Japanese Long-term Trade Consultative Committee.

Liu Hsi-wen, Chief, Chinese Sino-Japanese Long-term Trade Consultative Committee.

Community and consequently is in a doubly favorable position with respect to the China market. Barre's delegation included chairmen of Alsthom-Atlantique, Technip, Speichem, the Rhone-Poulenc chemicals group, Creusot-Loire, and the Elf-Aquitane Group.

Petrochemical plants and equipment. The first publicized contract arising out of the efforts of the Barre mission was signed by **Heurtey, S.A.,** on $21 million worth of spare parts for three ammonia-urea plants under construction by Heurtey in the PRC. The deal was signed in late January. Technip and Speichem are negotiating contracts on spare parts supply for their petrochemical construction projects in China. TECHIMPORT has pending from Heurtey, an engineering subsidiary of Financiere de Paris des Pays Bas, G.A., bids on two plastics plants worth $105.6 million. A report in *L'Economiste de Paris* (1/18/78) reported that one of these was a plant for producing nitric acid substrates and the other an ammonia plant. West German companies have been making solid progress in supply of components for plants already contracted, and early in the year **Uhde GmbH,** a Hoechst Group company, commissioned its second petrochemical project in China, an 80,000 ton/yr vinyl chloride facility. Recent deliveries include a massive component for a diethylhexanol plant under construction by the Hamburg-based firm, BASF, A.G. Three 133-ton oxidators for the Krupp-Koppers DMT (dimethylterephthalate) plant under construction in the PRC are also nearing completion, according to press accounts. Both plants are due for completion in 1979. Italian makers of chemical and petrochemical products of the Montedison Group will submit bids on their chemical products and technology. CCPIT Chairman Wang Yao-ting made the selection of Montedison products during his visit to Italy last fall. If French companies have been busy hunting for contracts, Japanese firms know a few big ones are already in the bag. At least four petrochemical plants, including a synthetic leather plant and plants for producing agricultural pesticides, chemical fertilizers, and ethylene, are on China's shopping list submitted under CJLTTA. Kuraray Co. appears to have won the contest for the $41.4 million synthetic leather plant. While Kanebo has also been mentioned as a possible candidate, Kuraray received an official letter of inquiry in late February concerning production equipment and design of the firm's "Clarino" leathers, thus singling Kuraray out of the pack. The 3 million sq m/yr plant sale will represent

Japan's first export of synthetic leather production facilities to any country. Known candidates for the agricultural pesticides (metacresol) plant include Mitsui and Co. and Toyo Engineering, but as yet no further details have surfaced on the ethylene production complex under consideration (which will include separation and recovery of natural gas) or other petrochemical plant imports still apparently in the planning stages. **Construction.** On the list of plants China will order from Japanese makers in 1978–1982 are plants for production of housing materials and bulldozers. **Electronics.** Tokyo Shibaura Electric Co. (Toshiba), Matsushita Electric Industrial Co., and Hitachi are in the running for a $100 million color TV tube plant. All three companies were investigated by a Chinese survey team which visited Japan in the month of January. The team presented desired specifications of a plant for producing 300,000 units of 20–22" braun tubes per year. **Scientific Instruments.** China wants a plant for making precision and scientific instruments under provisions of the trade agreement (CJLTTA). **Metallurgical and Coal Plants.** Japanese reports have mentioned two plants in this category as items for import under CJLTTA, a copper smelting plant and an aluminum plant. According to sources at JETRO, Furukawa Mining and Nippon Toyo are main competitors for the copper plant contract bid. Although reports on the specifications of the plant disagree, China is interested in buying a coal dressing plant or a conveyor belt system for coal processing from Japanese suppliers, under terms of the CJLTTA. On the Sino-French trade front, French manufacturers have made an offer on a plant for refining magnesium ore and sold a complete foundry and metal laminating shop to China for $4.2 million. Supplier of the metal workshop is Société Griset of Aubervilliers. The Efim-Alsar Group of Italian national industries, meanwhile, reported the successful conclusion of a recent sales mission to Peking, having reached terms to present a proposal on design and systems for aluminum-working plants, in addition to winning orders on its aluminum products. **Energy.** According to French press accounts, Alsthom-Atlantique and Creusot-Loire are in the process of negotiating a contract for a LWR **nuclear reactor** of about 250 mw. Alsthom is also working on a bid for supply of a 600-mw thermal power station based on coal and according to press accounts had signed or was about to sign a note of agreement on 1/15/78. **Iron and steel.** Under the CJLTTA, China will buy up to three steel mills from Japanese suppliers, as well as equipment for modernization and expansion of existing facilities. Near signing is an accord with Nippon Steel Corporation on design and construction of a $3–4 billion integrated steelworks. Technical missions were dispatched in February to and from Nippon Steel's Yawata, Kimitsu, and Oita steel complexes for study of technical aspects of the agreement, and most observers were agreed that Nippon Steel had conquered the competition; Sumitomo MI was among the front-line contenders, but now has switched to duel with Kawasaki Steel Corporation on associated orders in the area of construction and operation of LD-type converters and seamless pipe equipment. Nippon Steel Corporation, which has achieved its favorable position in the China export market through a four-year successful relationship in providing technical assistance for expansion of the Wuhan steelworks (scheduled for 1978 completion), will probably also win a contract for expansion and modernization of the Anshan Steelworks. Nippon Kokan, K.K., the second-largest steel manufacturer in Japan after Nippon Steel, will probably win a related contract for modernization of the Shihchingshan (Capital) steel mill in Peking. Price tags on the latter two projects are estimated at $200 million each. According to reports, China wants to expand production at Anshan from the level of about 5.9 million mt per annum in 1975 to 7 million tons per year output capacity. No production estimates were available for the Shihchingshan project (available figures in 1973 indicated an output of 1.6 million mt/yr); but sources are in agreement that the new steelworks, probably to be located on the coast near Shanghai, will be designed for a production capacity of 5–6 million mt/year. Start-up of the Shanghai plant alone will mean a 26% increase in China's total steel output, based on 1976 estimates. Before the dust has settled on the initial round of purchases under the CJLTTA, Japan's steel makers will be preparing for a second and possibly larger set of orders. Two more integrated steel mills are being planned for locations in Hopeh and Shansi, according to the *Mainichi Daily News*, 2/17/78. The plants will be about the same size as the Shanghai project—that is, with output capacity of 6 million mt/yr—at an estimated cost of about $4 billion each. How the Japanese will import enough goods from China to balance the trade as the CJLTTA provides is already becoming a source of worry to architects of the pact, but steel makers are also predicting general economic recovery as well as rehabilitation of Japan's flagging steel industry on the basis of the Chinese contracts. If imports are realized according to the CJLTTA master plan, Japanese manufacturers will capture fully half of the iron and steel development projects for the next eight years, disclosed by Chairman Hua at the Fifth National People's Congress on 2/26/78. A few other suppliers have been able to squeeze in orders over the past months: The UK's Rank Hilger, which participated in the 48 Group's Broadcasting, Radar and Instrumentation Exhibition in late 1976, has signed a contract for supply of three direct reader emission spectrometers for steel analysis with ancillary computers (2/78). Valued at $487,600, the equipment will be installed in Chinese steelworks. According to the same source, Chinese negotiators have been talking with Indian dealers about the purchase of blast furnaces, rolling mills, and coke oven batteries for installation in existing and planned steelworks. **Transport.** Vickers Engineering has won a new $19 million contract for supply of aerospace testing facilities associated with the Spey engine project. The testing rigs will be developed in cooperation with Rolls Royce, and delivery is scheduled for 1980. Besides rigs for simulating operational conditions of Spey engine components and other aircraft parts, the contract provides supply of special equipment, most of which will be supplied by British manufacturers, including specialist drives, gearboxes, servo-hydraulic systems, instrumentation, and detailed components. The contract, which was signed between the design and projects group of Vickers and TECHIMPORT, is the product of months of collaboration between Vickers, technical experts from Rolls Royce, and the Chinese project managers.

TELECOMMUNICATIONS. Of all the contracts for which French firms have been angling in recent months, the fish most likely to bite are in the telecommunications sector. China has been particularly interested in the **French Transpac system** for automation of the telephone system, facsimile equipment, and data transmission systems; and in February the French minister of telecommunications, Norbert Segard, set off for China at the head of a technical mission to work out details of contract proposals. In an event of far-reaching significance for development of China's computer systems, two researchers from the Oriental Studies faculty of Cambridge University, Robert Sloss and Peter Nancarrow, have developed a simple solution to the problem of instructing **computers in Chinese.** The system is based on the design of Chinese typewriters. Their device, dubbed the Ideographic Encoder by Britain's Cable & Wireless, which has bought rights to the invention and which is footing the bill for R&D costs, uses the square Chinese typewriter format as matrix for a digitizer and vector program that translates each character directly into a system of connected lines and dots. Minister of Foreign Trade Li Chiang showed considerable interest in the encoder device during his trip to the UK in December, 1977, and Cable & Wireless has already undertaken a promotional campaign for launching of the computer in August, 1978. In other computer news, **Hitachi** has finally won approval of the Coordinating Committee for Export Control (COCOM) for sale of three seismic **recording computers** to China. The $10.4 million deal was concluded in August, 1976, and has been waiting since then for validation by the COCOM review board. Japan's Ministry of International Trade and Industry has described the sale as a path-breaker for future computer sales to China. And, while negotiations on sale of a plant for manufacturing **color TV tubes** were still underway with Hitachi, Toshiba, and Matsushita Electric Co., Japan's New Nippon Electric Co. announced the sale of 200,000 **black-and-white TV tubes** to China in early February. Deliveries were completed rapidly, according to the reports, but the price of the tubes was not disclosed.

LIGHT TO HEAVY INDUSTRY. The British firm MSE Scientific Instruments of Crawley signed contracts late in 1977 for supply of 13 centrifuges worth $380,000, following negotiations with a Chinese buying team from MACHIMPEX in December. The delegation accepted MSE's complete proposal to supply eight **refrigerated centrifuges** and five machines with specialized **rotors for mixing serum vaccines.** The same source reported that the "technological end" of the British 48 Group, a private organization fostering Sino-British trade, signed $1.9 million of contracts on a variety of technological products ranging from licenses to advanced equipment in the last quarter of 1977. In a late report from the Autumn 1977 Canton Trade Fair, Japanese traders reported about $1.6 million in sales of bearings, $124,000 of valves, $828,000 to $1.2 million of measuring instruments, and medical equipment worth about $828,000. An Austrian firm, Hutter and Schrantz AG, has won a $197,850 order for supply of special **paper filter presses,** according to a February report. The Danish firm Burmeister and Wain reported about $175,000 in contracts for spare parts of ships equipped with B and W engines, according to a November report.

MINING EQUIPMENT: TRILATERAL DEAL. China, Great Britain and Hong Kong have entered into a three-way partnership to modernize and expand China's coal industry, beef up the power sector in the territory, and add foreign exchange to the UK's reserves. The first stage will be construction of a dual-fired coal and oil-burning station in Hong Kong, a $176 million contract won by a UK group led by General Electric Company. In the second stage, currently in progress, China will buy as much as **$500–600 million worth of coal mining equipment** from British suppliers. Negotiations for these sales are now underway. Companies called to Peking in January–February, among them Dowty Mining Equipment Group, Gullick Dobson, and Scotland's Anderson Strathclyde, expect to hear answers on their proposals by mid-April. The British press reported that West German firms, including Westphalia and Eickoff, the leading maker of shearing machinery, were anxious to share in contract spin-offs from the deal. During February a high-ranking delegation of the PRC's Coal Ministry led by Vice Minister Chia Hui-sheng visited the FRG to investigate modern coal mining methods and to discuss an offer by West German industrialists for supply of an open-cast mining system for lignite (a soft coal). In the third stage, Hong Kong will foot part of the bill for China's expenditures on mining equipment by buying Chinese coal to fuel its new power station. The time frame is still unclear, but volume of sales has been set at 3.5 million metric tons. The British as well as Chinese coal industry managers have great expectations for a productive long-term business relationship under the aegis of the agreement. The agreement provides, too, a case example of China's preference for working out business deals on the government-to-government level. Li Chiang, the PRC's Minister of Foreign Trade, and Edmund Dell, his English counterpart, developed the scheme together during the PRC Minister's December tour of Great Britain.

OIL EQUIPMENT: SHIPS AND PIPELINE. With China striving to build up its potential as an oil-exporting nation, the field continues to be rich for manufacturers of oil equipment worldwide. In an order related to China's drive to discover untapped oil resources, **Mitsui** Engineering and Shipbuilding Company reported in mid-January a contract for construction and design of **two geophysical survey ships,** worth approximately $14.5 million. To be built at the Fujinata Shipyard, one of the vessels will be delivered in late 1978 and the second in February, 1979. Both will be equipped with sound wave devices for probing seabottom topography and magnetic fields. Equipment will be mounted on vessels with dual 2,100-bhp engines and dual screw systems, as well as bow thrusters to increase maneuverability at low speeds. Oil transportation and drilling equipment sales figure in recent news: **Proline Pipe** Equipment Ltd., a Canadian company based in Edmonton, Alberta, has won a $700,000 order for pipeline construction equipment. The Proline equipment had already been shipped as of press accounts in January, 1978. The Austrian firm K. Teufelsberger will ship 300 tons of 84-mm diameter wire ropes for use in drill rigs, according to a January, 1978, report.

CONSTRUCTION EQUIPMENT: VOLVO SALE. Sweden's Volvo Inter-

national Development AB has signed a contract to supply 700 heavy-duty trucks and service vehicles to China, according to a Reuters report on 2/21/78. Value of the sale was not disclosed, but observers estimated the contract to be worth about $52.8 million. Most of the vehicles are scheduled for 1978 delivery. Mitsubishi Heavy Industries also received a February order for construction equipment. Six concrete pump trucks from MHI's line were shipped to China at the order of MACHIMPEX; the trucks are similar to one purchased by China at the Autumn 1976 Canton Trade Fair. No price was given. In other Japanese news, late reports from the Autumn 1977 Canton Trade Fair indicate that Japanese firms made sales of about $4.5 million of truck cranes and $2.5 million of trucks. Mitsubishi signed contracts on "about" one hundred 5-ton and 7-ton trucks, with a price tag of $1.03 million, running neck and neck with Isuzu Motors in sales value. Isuzu sold eighty 6-ton and 8-ton trucks and a number of 2-ton and 6-ton tankers. In the category of upcoming sales may be an order from France's Renault Industrial Vehicles. Renault President Paul Berliet accompanied Prime Minister Barre on his mission in January, reporting to the French press upon his return that the China market was ripe in the areas of heavy vehicles and especially large-capacity trucks. The month before in France, Berliet presented a proposal to Minister of Foreign Trade Li Chiang for production of buses and light motor trucks under Renault license, and just

THE TRADE AGREEMENT BETWEEN THE EUROPEAN ECONOMIC COMMUNITY AND THE PEOPLE'S REPUBLIC OF CHINA

Signed April 3, 1978

The Council of the European Communities and the Government of the People's Republic of China, desiring to develop economic relations and trade between the European Economic Community and the People's Republic of China on the basis of equality and the mutual advantage of the two Contracting Parties and to give a new impetus to their relations, have decided to conclude this Agreement, the terms of which are as follows:

Article 1

The two Contracting Parties will endeavour, within the framework of their respective existing laws and regulations, to promote and intensify trade between them.

To this end they confirm their determination:

(a) to take all appropriate measures to create favourable conditions for trade between them;

(b) to do all they can to improve the structure of their trade in order to diversify it further, and

(c) to examine in a spirt of goodwill any suggestions made by the other Party, in particular in the Joint Committee, for the purpose of facilitating trade between them.

Article 2

1. In their trade relations the two Contracting Parties shall accord each other most-favoured-nation treatment in all matters regarding:

(a) customs duties and charges of any kind applied to the import, export, re-export or transit of products, including the rules for the collection of such duties or charges;

(b) rules, procedures and formalities concerning customs clearance, transit, warehousing and transshipment of products imported or exported;

(c) taxes and other internal charges levied directly or indirectly on products or services imported or exported;

(d) administrative formalities for the issue of import or export licenses.

2. Paragraph 1 of this Article shall not apply to:

(a) advantages accorded by either Contracting Party to States which together with it are members of a customs union or free trade area;

(b) advantages accorded by either Contracting Party to neighbouring countries for the purpose of facilitating border trade;

(c) measures which either Contracting Party may take in order to meet its obligations under international commodity agreements.

Article 3

The two Contracting Parties will make every effort to foster the harmonious expansion of their reciprocal trade and to help, each by its own means, to attain a balance in such trade.

Should an evident imbalance arise, the matter must be examined within the Joint Committee so that measures can be recommended in order to improve the situation.

Article 4

1. The People's Republic of China will give favourable consideration to imports from the European Economic Community. To this end the Chinese authorities will see to it that Community exporters have the possibility of participating fully in opportunities for trade with China.

2. The European Economic Community will accord increasing liberalisation of imports from the People's Republic of China. To this end it will endeavour progressively to introduce measures extending the list of products for which imports from China have been liberalised and to increase the amounts of quotas. The manner in which this is to be implemented will be examined within the Joint Committee.

Article 5

1. The two Contracting Parties shall provide each other with information on any problems that may arise in their trade and shall undertake

prior to his January visit sent four six-cylinder diesel trucks with all-wheel drive for testing in China. In an interview with *Eco-So-Tec* (Paris) on 2/3/78, Berliet stressed the importance of licensing technology in the China market; China has apparently already manufactured around 12,000 trucks under a Renault license. The license, sold to the Chinese in 1966, has been unheard of for many years.

TRANSPORT SECTOR: JAPANESE KNOW-HOW. On 2/15/78 Japanese government sources disclosed a governmental decision to approve export to the PRC of sophisticated **rail technology and equipment developed by Japan's National Railways (JNR).** The first system to go will be a computerized railway marshaling system similar to the one in use at JNR's Musashino marshaling yard in western Tokyo. The package will not include signaling and switching equipment, which the Chinese will provide themselves from other sources. The system, which automatically directs and recomposes freight trains in the yards according to weight and cargo type, will be installed in the Fengtaihsi marshaling yard on the outskirts of Peking and handle an estimated 4,500 cars daily. No price tag was mentioned in press accounts, but the computer for the system alone, a Mitsubishi Electric Co. product, is worth "several billion yen." In addition to the marshaling system, China wants JNR's centralized train control system (CTC). Observers said that government export approval would follow the marshaling system approval in short order. China

friendly consultations, with the desire to promote trade, for the purpose of seeking mutually satisfactory solutions to those problems. Each Contracting Party will see that no action is taken before consultations are held.

2. In an exceptional case, however, where the situation does not admit any delay, either Contracting Party may take measures but must endeavour as far as possible to undertake friendly consultations before doing so.

3. Each Contracting Party will ensure that, when taking the measures referred to in paragraph 2, the general objectives of the Agreement are not prejudiced.

Article 6

The two Contracting Parties undertake to promote visits by persons, groups and delegations from business, trade and industry, to facilitate industrial and technical exchanges and contacts connected with trade and to foster the organization of fairs and exhibitions of mutual interest and the provision of services pertaining thereto. As far as possible they must grant each other facilities in connection with the above activities.

Article 7

Trade in goods and the provision of services between the two Contracting Parties shall be effected at market-related prices and rates.

Article 8

The Contracting Parties agree that payments for transactions shall be made, in accordance with their respective existing laws and regulations, in currencies of the Member States of the Community, Renminbi, or any convertible currency agreed by the two parties concerned in the transactions.

Article 9

1. An EEC-China Joint Committee for Trade shall be set up, comprising representatives of the European Economic Community and representatives of the People's Republic of China.

2. The tasks of the Joint Committee shall be as follows:

—to monitor and examine the functioning of this Agreement;

—to examine any questions that may arise in the application of this Agreement;

—to examine problems that could hinder the development of trade between the Parties;

—to examine means and new opportunities of developing trade between the Contracting Parties and other matters relating to their trade; and

—to make recommendations that may help attain the objectives of this Agreement.

3. The Joint Committee shall meet once a year, in Brussels and Peking alternately. Special meetings may be convened by mutual agreement, at the request of either Contracting Party. The office of chairman of the Joint Committee shall be held by each of the two Contracting Parties in turn. Where both Parties consider it necessary, the Joint Committee may set up working parties to assist it in its work.

Article 10

As far as the European Economic Community is concerned, this Agreement shall apply to the territories in which the Treaty establishing the European Economic Community is applied, under the conditions laid down in that Treaty.

Article 11

This Agreement shall enter into force on the first day of the month following the date on which the Contracting Parties notify each other that the legal procedures necessary to this end have been completed. It is concluded for a period of five years. The period of validity of the Agreement shall be tacitly extended year by year provided that neither Contracting Party gives the other Party written notice of denunciation of the Agreement six months before it expires.

However, the Agreement may be amended by mutual consent of the two Contracting Parties in order to take account of new situations.

In witness whereof, the undersigned, being duly authorized for this purpose, have signed this Agreement.

Done at Brussels, February 3, 1978, in two copies in the Danish, Dutch, English, French, German, Italian and Chinese Languages, each text being equally authentic.

For the Government of the People's Republic of China.

For the Council of the European Communities.

may get its own "bullet train" before long, by all indications. Plans have been laid to send a **railway technical mission to study technical features of the *shinkansen* line** and the famous bullet train sometime this spring, according to the *Daily Yomiuri*, (2/15/78). Japanese railway know-how has won the first battle among railway systems manufacturers but not the war. China has also shown intense interest in French and British rail technology in recent months. A delegation of the **Chinese Civil Engineering Society, visiting Great Britain** contemporaneously with Minister of Foreign Trade Li Chiang, made an exhaustive tour of the Derby railway technical center, where British Rail carries out testing and experimentation on the latest models of coaches, power cars, and locomotives. The group saw the pantograph test vehicle, Prometheus laboratories, and a high-speed track-recording coach in the vehicle dynamics segment of the tour, then went on to look at APT and diesel-electric locomotives produced at BR's locomotive works, also at Derby. Finally, the group saw production lines of HST power cars at Crewe. Interspersed with hands-on demonstrations of equipment were technical presentations on vehicles dynamics, deterioration of ballasted track after maintenance, rail welding, computing design, vehicle structures, and dynamic testing. French railway systems received the personal attention of the foreign trade minister during his visit to France in December, 1977, and among negotiations reported underway in the French press is an order for **6,000-hp diesel locomotives from Alsthom Atlantique.** Value and quantity of the prospective order were not specified in reports.

ARMS. While the debate on whether China can, will, or will be allowed to acquire the Harrier goes unresolved, China is quietly building up the striking capacity of its small (approximately 4,250 aircraft) air force through purchase of military technology from abroad. Modern aircraft and missiles are at the top of China's current shopping list. While negotiations on the French Exocet and Crotale missiles (reported in *CBR* 4:6) are still in progress, China has voiced interest in adding the **"Milan" anti-tank rocket** to its arsenal as well. In late January, reports surfaced of fresh negotiations on the **BO-105 helicopter** with the West German firm Messerschmitt-Boelkow-Blohm GmbH. China has bought BO-105's in the past for use in oil exploration. The models featured in the present order of 30 units will be fitted with six "hot" anti-tank missiles each and will likely be deployed around China's chilly northwestern border zone. In shopping for arms in the Middle East, China is able to bypass the problems with export controls caused by Western brokers. In mid-January, China and Egypt sealed a deal through which China will obtain one of **Egypt's Soviet-supplied MiG-23's in exchange for Chinese-made spare parts** for earlier models of Soviet fighter planes, the MiG-17 and the MiG-21. The immediate cause of China's Egyptian venture was failure of an attempt to obtain the MiG-23 from North Korea. The aircraft will be used in research and development of the F-9. Besides the MiG-23, China has also asked the Egyptian military for SAM land-to-air missiles, MAT anti-tank missiles, and T-62 tanks. Production of China's own Shenyang F-9, an indigenously designed fighter of MiG-23/F-4 performance, modeled after the Soviet fighter, has stopped because of unresolved engine problems, according to Japanese reports. The Shenyang F-9 is mounted with the Spey RB.168-25R augmented turbofan engine manufactured by Rolls Royce. Orders for aircraft testing equipment placed with British manufacturers in the past year —most recently a $1.9 million contract with Vickers Engineering for testing rigs, some of which are specifically designed to test Spey components—show that China is far from dropping its commitment to fly the new fighter aircraft. According to the January issue of the China Society of Aeronautics' professional journal, *Knowledge of Aeronautics*, **domestic manufacture of the Spey engine under license to Rolls Royce** has already begun. Britain's newly nationalized shipbuilding industry is pulling all stops in an effort to capture the China market in naval patrol craft, parts, equipment, and systems. A spokesman for the British Marine Equipment Council revealed details of its sales drive along with the news that it would be taking part in an exhibition in Peking in late 1978 with both commercial and naval equipment displays.

RAW MATERIALS. In a rare example of China buying services as well as products of a multinational corporation, the PRC has entered into **an agreement with the Japanese firm C. Itoh for the sale of bunker oil to China.** Foreign ships stopping off at ports of call in the People's Republic will now be able to make arrangements through C. Itoh's New York–based affiliate, C. Itoh International Petroleum, to take supplies on location, rather than stocking up in Yokohama or other nearby ports. Ships have been able to obtain bunker fuel from Chinese sources in the past but only on a spot cash basis. C. Itoh's initial one-year contract, starting 1/1/78, calls for 15,000 tons of fuel. Other foreign firms, such as Exxon and BP, have agreements to bunker Chinese ships abroad. The chemical firm Anic-SpA of Milan, a member of the Italian Oil Association (ENI), signed a deal with SINOCHEM in early February for **supply of $13 million of chemical fertilizers** for delivery in the first half of 1978; and in other petrochemical news, Japanese firms delivered **42,000 tons of benzene** from October, 1977, to March, 1978, as the result of a successful Japanese petrochemical mission in the fall of 1977. Japanese synthetic fiber makers signed contracts, also last fall, for export of about 30,000 tons of **polyester staple** at Chinese request. Firms involved in the deal, including Teijin, Toray Industries and Unitika, shipped approximately the same amount as in the second half of 1977 but reportedly at a slightly lower price. In late December, Teijin was on the verge of signing an agreement for supply of 2,200 tons/month in the first six months of 1978, and Toray was not far behind with a contract for 1,500 tons/month of polyester staple fibers. Another contract on raw materials supply for delivery in the first half of the year was signed between the Austrian firm Chemiefaser Lenzing AG and CHINATEX in January, 1978. Chemiefaser has undertaken to supply **5,000 tons of pulp** valued at about $4 million. A letter of intent for delivery of an equal amount in the second half of 1978 was signed simultaneously.

NONFERROUS METALS. Serious negotiations are underway on purchase of **uranium ore** from Australian suppliers, according to Australian government sources. A delegation is scheduled to arrive in Sydney sometime this spring for discussion of supply, price, and export control conditions of the

ores. Contracts for supply of **aluminum ingot** and forgings were signed in late February by the Italian Efim-Alsar Group during a Group sales mission to China, according to March reports. A late report on Sino-Philippine trade disclosed that Atlas Consolidated Mining and Development Corporation supplied China with 40,000 tons of **copper** concentrates over a six-month period in 1977, or about 66% of the total volume of trade in copper concentrates set by the 1977 trade agreement. The price tag on the several contracts involved came to about $12 million. In 1978, China has agreed on purchases of 42,000–80,000 metric tons of copper concentrates from the Philippines.

IRON AND STEEL. While China, with much fanfare, announced the inauguration of ten iron and steel projects for development over the next eight years, the hot pace of imports of crude and finished products continued as industry supply still fell far short of demand. Current Japanese forecasts for the export trade in steel products to China predict that **1978 shipments will surpass the 1977 level** of 4.537 million metric tons. Contracts for the first half of fiscal 1978 (4–9/78) are expected to match the record 2.6 million mt ordered by the PRC from Japan in the second half of fiscal 1977; and with rising protectionism in the US market, China may well become Japan's foremost steel customer. In 1977, deliveries by six companies, Nippon Steel, Nippon Kokan, Sumitomo Metal, Kawasaki Steel, Kobe Steel, and Nisshin Steel accounted for 75% of Japanese exports. In a contract associated with the Spey engine licensing project, the British specialty forging company Firth Derihon Stampings Ltd. recently won a $475,000 order for **bearings forgings** for the Rolls Royce engines. China has been tapping nontraditional suppliers as well: An Indian firm, Gujarat Steel Tubes Ltd., received an order in January for 21,000 tons of **steel pipes and tubes** worth $7 million. Indian papers called the order the biggest trade deal since the restoration of commercial relations between the two nations in late 1977. The Auckland, New Zealand firm, Pacific Steel Ltd., has won an order at an unnamed price for 2,000 tons of steel reinforcing bars, according to December reports. If the bars should prove satisfactory, China's MINMETALS has promised more contracts for the coming year. The Brazilian firm Cimetals was reported on the verge of signing an export agreement with China in early February. Under the agreement Cimetals will ship 100,000 tons of **iron ore** at a value of approximately $75 million in the course of 1978. Brazil, like Japan, having been stung by protectionism in the Common Market, is searching for greener pastures; and China may be among the greenest, as a result of the recently signed China–Brazil trade agreement, which included provisions for expanded trade in iron.

AGRICULTURAL GOODS: SUGAR. Reports of Chinese sugar purchases ranged from a high of 500,000 tons to firm reports of at least 73,000 tons of raw and refined sugar in the first months of 1978. The *Financial Times* (1/12/78) cited figures of 250,000 to 300,000 tons that had been reported and subsequently denied on the New York market, while French sources estimated sales at 130,000 tons of raw sugar, including 100,000 tons of Brazilian raw, in mid-December, 1977. Some of these sales may overlap with sales previously reported in *CBR*; but sugar dealers themselves were unable to draw the line between new sales and deliveries on previous deals as shipments continued at a fast clip. A 50,000-ton shipment of raws from the London market in late December fell into the ambiguous category. Among fully documented sales was a purchase of 33,000 tons of refined sugar from Brazil at a cost of about $7,656,000 ($232/ton FOB). Delivery was to be carried out via an international operator in three stages ending in June. French dealers made sales of about $4.1 million worth of raws (20,000 tons at $205 per ton C&F). *Lloyds List* provided the information that Thai sales of sugar to China in the January to October period, 1977, reached 620,000 tons, worth approximately $328.4 million. In perhaps the wildest rumor to hit the sugar market, *Public Ledger* carried the report that China was negotiating a 500,000-ton purchase of sugar from India. The report awaits confirmation from Indian suppliers. In other news, China will undertake again to buy supplies of **raw cotton and cotton yarn** from Pakistan; last reported sales by Pakistani suppliers were in 1976, when approximately 42,800 bales (480-lb, net) were shipped to the PRC. A breeding farm in Lincolnshire, England, has announced imminent dispatch of a delegation to present a technical seminar on duck breeding technology, according to December reports. Cherry Valley Farms may soon be helping to put Peking duck in every Chinese pot, if its team's performance is up to par.

SCIENCE FOR THE MASSES. Filmo Hong Kong, a distributor of educational films, has received orders from China in recent months for science and educational films on a wide range of subjects, according to *Business China* (11/23/77). Buyers have been snapping up movies on industrial technologies and automation. Film producers represented by Filmo include the Massachusetts Institute of Technology, McGraw-Hill, British Broadcasting Corporation, and the National Film Board of Canada. The same source notes increasing use of imported filters, cellophane, and cigarette papers in domestic cigarette production in China. Recent deals with Japanese suppliers of cigarette makings were concluded at the Canton Trade Fair in autumn, 1977. In other consumer news, China has purchased $2 million of leather goods from Pakistan, according to the statement of the Chinese Consul-general in Pakistan in January, 1978.

SELLING REPORTS

MACHINE TOOLS AND MICROSCOPES. Toft Machine Tools Ltd. of Worcestershire has acquired the first exclusive agency on machine tools in Britain, according to company president Fred Toft. The exclusive covers a range of knee-type milling machines and radial drilling machines and includes servicing and supply of spare parts for users. The first 30 machines of Toft's initial $228,000 order arrived in January. While Toft plans to import at least 60 Chinese machines a year over the next two years, the second 1978 order will wait on launching of the product at the Metalworking '78 Exhibition at Britain's National Exhibition Center in May. The milling machine range comprises four universal and two vertical knee-type machines, with table sizes ranging from 870 x 200 mm to 1,700 x 400 mm. All have dial speed and feed change and rapid traverse on all axes. The smallest IV and IU machines have eight speeds (60-I 650 rev/min), eight feeds, and

4-hp drive. The large 4U has 18 speeds and feeds and a 13½-hp drive motor. The radial drilling machine imported by Toft has 16 spindle speeds (25–2,000 rev/min) and 16 feed rates (0.4–3.2 mm/rev). Maximum distance from spindle to column is 1,600 mm. It is equipped with a No. 4 morse taper spindle. According to a report in *The Engineer* (1/19/78), all tooling interfaces, bearings, and other parts meet international standards. Viability of the machines on the British market has been proven not only by customer trial testing of Toft's wares, but also by the success of other British importers of machine tools made in the PRC, notably TI Comet of Redditch. Britain's Machine Tool Trades Association is seeking formal expansion of the machine tools trade with China, according to recent reports. The Association's president led discussions with commercial and technical members of the Chinese mission in London in late November, as a prelude to formal negotiations in 1978. At a gear production exhibition in October, a Chinese-made 500-mm *d* capacity gear hobber, dubbed the Norgear, was the first item to be sold off the floor. The machine tool was in its first British appearance at the show, arranged by WE Norton (Machine Tools) Ltd. In the **scientific instruments** field, China has been making inroads to the French market. Gilbert Leens, department director of the French Import Trade Bank, estimated that Chinese-made microscopes captured 10% of the domestic market in France in 1977, knocking about 10 points off the share of traditional suppliers, primarily the Soviet Union, Poland, Switzerland, the US, and Japan.

OIL CUSTOMERS. Under CJLTTA, Japanese industry has committed itself to purchase of $10 billion worth of Chinese oil and coal over the next five years, a promise which some analysts predict may be difficult to fulfill. China will have enough oil to sell; according to Japanese forecasts, the country's oil output will reach 400 million mt annually by 1985, in advance of the Western figure of about 300 million mt in 1985 (see *CBR* 4:4). But the Japanese oil industry is in limbo. At present, facilities for refining China's crude, a heavy oil high in paraffin and nitrogen content with relatively large fuel oil yields, are minimal. Most oil imported from China by Japan has been used for thermal power plant fuel generation. While the Japanese government has set up a special committee to study the problems of refining oil imported under the agreement, and plans have been unveiled for government financing of a 30 million ton/yr hydrocracking facility, oil men are balking at what is considered deliberate inflation of an industry already plagued by excess capacity. Asia Oil Co., has laid a compromise plan before the government committee that may solve at least the near-term problems of an expansion of Chinese crude imports. Asia Oil is offering to remodel part of its idle refining equipment into a residual oil cracking plant. Capacity of the remodeled plant will be 1.5 million mt per year, or three times the capacity of the government project, and at a cost of $49–50 million—about 4% of the government-estimated price tag, according to Asia Oil President Ryutaro Hasegawa. The Philippines—like Japan, one of China's early oil customers after the OPEC strike in 1974 imposed a desperate quest for non-traditional suppliers—has been increasing its take steadily. On 1/24/78, representatives of the Philippines National Oil Corporation agreed to raise oil imports this year to one million metric tons, 100,000 tons above the 1977 level. Chinese officials said that oil sales to the Philippines would be double the amount following the next revision of trade schedules, although no dates were mentioned. Oil destined for the Philippines will be lifted from the Shengli oil field, which produces a relatively inexpensive, high sulfur content oil. China has sent samples of crude oil to France at the request of French Premier Raymond Barre, who recently returned from negotiations in Peking. Preliminary examination of the samples, which were tested at French refining facilities, has already spurred Barre to proclaim that France may import 500,000 to a million tons of oil per year from China. China has also been recently discussing oil exports with Egypt and Yugoslavia. As a result of secret talks between the Chinese and British foreign trade ministers in London last December, China has committed itself to supply 3.5 million mt of steaming coal for a 700-mw thermal power station now under construction in Hong Kong. The plant, scheduled for start-up in 1982, will need that much coal per year for operation. Indications are that China will be the main or sole supplier for the plant, which will be managed by a joint company owned by China Light and Power, the Hong Kong electricity utility, and Eastern Energy, a member of the Exxon Group. Price and type of coal to be sold under the agreement have not been disclosed, although the Chinese have agreed to adhere to international market rates. Based on figures for Japanese purchases of bituminous coal from China in 1976, the deal under current negotiation could be worth as much as $94 million to China, but transport costs and market prices as well as quality of the coal shipped will determine the final value.

METALS. Reports from Japanese sources showed a steady rise in imports of tungsten from China in spite of prices considerably higher than international price levels. In the first 10 months of 1977, Japan imported 168 metric tons of tungsten compared to 95 mt in the same period of 1976, although the increase was balanced by the absence of new contracts for ferrotungsten, of which 147 mt were imported in 1976. Tungsten prices at the October Canton Trade Fair were up to 3.6% higher than international market prices, in the range of $172–176 per ton. US as well as Japanese buyers have been voicing complaints about high Chinese prices but have little alternative since China claims 25% of world production of tungsten ore concentrates. While China is keeping a tight rein on tungsten supplies, rumors of liberal gold sales by China on the London Metal Market have contributed to a momentary downward flip in gold prices.

AGRICULTURAL GOODS: STONE BEANS. The bad luck that has plagued China's soybean crop in the last two years has also dogged the export trade to Japan. Displeased with the "stone beans" arriving from China and paying lower prices (down $4.20 per ton in less than two months), Japanese importers have postponed the semiannual talks on the soybean trade and, more drastically, called for changes on the Tokyo Grain Exchange that may have long-term effects on the trade. Currently PRC beans are used as standard deliverable grade on the market, but Grain Exchange officials have presented a resolution to the

board of directors to cut in half the $2.48 differential (per 60 kilos) between PRC beans and the ordinary grade of beans, for which selected US soybeans are used as standard. The Exchange has also introduced a motion to reduce the premium for Chinese beans delivered on its future contract. All is not foul weather in the grain trade, however; Indonesia signed an order for 300,000 tons of Chinese rice late in 1977, its largest purchase since 1975. Shipment was completed in March, 1978. India has promised to turn to China for its silk yarn requirement, according to reports from Tokyo; and there was good news for traders as prices of raw silk continued to decline on the Hong Kong market, falling from $20.57 per kilo in October, 1977, to $18.61 in late December.

CONSUMER GOODS. Nepal will be a big customer for China's consumer products in 1978. $7.2 million out of a total $9.6 million order of goods arrived in January, including clothes, newsprint, and machine tools. Consumers in Sweden and Hong Kong have been placing orders for increasing amounts of products of China's vast reindeer herds, the Swedes for meat and the Hong Kong Chinese for antlers to process into Chinese medicines. Hong Kong antler imports rose 50% in 1977, primarily from China. More welcome than antlers was a Chinese jet that flew into Hong Kong's Kaitak airport bearing nine tons of fresh water crabs direct from Nanking. Agents for the CAAC in the deal were Jardine Matheson; Ng Fung Hong acted as distributors. The first experiment in airfreighting the crabs, a regular supply item to Hong Kong, was highly successful, showing a 90% survival rate compared to a 50% survival rate of crabs imported by train. *Snack Food* (12/77) reports that China has been making strides in development of another export item, potato chips. Packaging as well as sales has shown marked improvement, with sales volume rising by 25% annually in exports to ten Asian nations over the past five years. From Britain, there are more reports of defective toys from China; the current offender is a toy mouth organ under the "Star" label that has injurious metal edges. More promising are reports of successful introduction on the British market of carpeting made out of rice paper, selling for about $6.20 a yard.

DELEGATIONS TO CHINA

ALGERIA, 1/19/78, Trade delegation under the leadership of the Director of Trade of the Ministry of Commerce, Zaidi Salah, arrived in Peking for talks with FTC officials.

AUSTRALIA, 1/29–2/6/78, Six members of Parliament nominated by Prime Minister Fraser visited China as guests of the Institute of Foreign Affairs. Discussions were held on facets of Sino-Australian trade, in particular **Australian livestock and wool exports.**

BURUNDI, 1/29/78, Minister of Foreign Affairs and Economic Cooperation Albert Muganga left Peking with an invitation to President Baganza to visit Peking in hand among other results of extended talks on the **development of Sino-Burundi cooperative projects.** He headed a high-level team including the director general of the Ministry of Agriculture, the head of the army engineer corps, and the director of the Bureau of Economic Cooperation of the Ministry of Foreign Affairs.

CANADA, 1/27/78, Delegation of the **National Defense College** led by Rear Admiral C. W. Ross left Shanghai after talks with the Ministry of National Defense.

CANADA, 1/29–2/6/78, Reciprocating the October visit to Canada by PRC Foreign Minister Huang Hua, External Affairs Secretary Donald Jamieson visited China. In over twelve hours of talks with Huang Hua, Premier Hua Kuo-feng, and other upper echelon officials, Jamieson mapped out specific areas of Sino-Canadian relations to be expanded in 1978. The stress was on technology transfer; **Jamieson told the press on 1/31/78 that "very special opportunities" existed for Canadian satellite communications and oil drilling technology,** and by the end of his visit had made preliminary arrangements for a technical seminar on telecommunications as well as exchange of delegations on oil drilling, mining, transport, electricity distribution, nonferrous metals, and paper technology. The Chinese discussed the purchase of Canadian locomotives and a 730-mw power generating facility. While Jamieson did not say whether the Peking leaders had offered to maintain Canada's position as a major wheat supplier to the PRC, exchange of agronomic missions headed the slate of delegations planned for the coming year. Plans for academic delegations on medical research and audio-visual education programs were also drawn up at the meetings.

CANADA, 2/6–9/78, Rounding off the cultural side of External Affairs Secretary Jamieson's China initiative, the **Toronto Symphony Orchestra** played to overflow houses in Peking, Shanghai, and Canton.

EGYPT, 2/4–14/78, Premier Hua Kuo-feng announced **China's support for Egypt's peace efforts** in the Middle East in conference with Deputy Prime Minister Hasan al-Tuhami, special envoy of President Sadat.

EGYPT, 2/24/78, Guests of the PRC Ministry of Petroleum and Chemical Industries Ahmad 'Izz ad-Din Hilial, minister of industry, oil and mines, and party arrived for talks on the **Sino-Egyptian oil trade.**

FRANCE, 2/11–21/78, In the first of several follow-up missions to Premier Raymond Barre's China trip in January, a group from the **French telecommunications industry** shepherded by the Minister of Posts, Telegraphs, and Telephones, Norbert Segard, visited Peking to present papers on automated switching systems and data transmission via satellite.

FRANCE, 4/8–21/78, A **series of delegations** is being planned by the Confederation of Small and Medium-sized Industries (PME Francaises). Following the April visit of 30 persons, two more missions of 40 persons each will visit China in October and November. These will be the first delegations from the Confederation since the early 1960's, when the Confederation sent five missions in succession until the Cultural Revolution cut off Sino-French exchanges.

FRANCE, 4/78, According to press reports, **Heurtey S.A.** plans to send a team to China to present technical papers on machine tools.

FRANCE, Spring, 1978, A mission of the **French railway industry** is in the works according to press reports.

FRANCE, 1978, The **Union of French Export Industries** will send a mission to China later this year.

FRANCE, 1978, **President Giscard d'Estaing** accepted "with pleasure" the invitation of Premier Hua Kuo-feng to visit Peking.

GREAT BRITAIN, 1/13/78, Labor Party members John Cartwright and Brian Davies arrived in Peking as representatives of the British Parliament.

GREAT BRITAIN, 4/10–21/78, Multi-industry trade delegation visited China

under sponsorship of the **48 Group.**

GREAT BRITAIN, 4/78, **Trade mission** from Merseyside and Northwest England will concentrate on "high technology," according to local press accounts.

GREAT BRITAIN, 5/78, Organized by the North of England Development Council, the first regional **trade mission** from the Northeast will travel to the PRC.

GREAT BRITAIN, 6/4–24/78, **Pharmaceutical delegation** sponsored by the British Pharmaceutical Society will visit northern China.

GREAT BRITAIN, 10/22–11/12/78, Second delegation from the **Pharmaceutical Society,** organized by Society Council member Mervyn Madge, will visit pharmacological research and factory production sites in southern China.

GREAT BRITAIN, 1978, Michael Casey, deputy chairman and chief executive of British Shipbuilders, will visit China to sound out **contract opportunities for construction of merchant ships** in British shipyards.

GREAT BRITAIN, 1978, Edmund **Dell,** secretary for trade, has accepted an invitation from PRC Foreign Trade Minister Li Chiang to visit China later in the year.

HONG KONG, 1/29/78, Members of a media delegation from press and film circles were received in Peking by Premier Hua Kuo-feng.

HUNGARY, 2/26/78, Jeno Tardai, deputy minister of foreign trade, arrived in Peking at the head of an official trade delegation.

IRAQ, 2/25/78, Water conservancy delegation led by Hashim Jassim al-Hammadi, department director of the Ministry of Irrigation, met in Peking with officials of the Ministry of Water Conservancy and Power, including Vice Minister Li Po-ning.

ITALY, 12/6–15/77, Hosted by the CCPIT and the China Electronics Society, a **delegation from Olivetti** joined in a ten-day symposium on applied and theoretical areas of advanced electronics, held at the Mindzu Hotel in Peking. Liu Te-kuei, of the Research Institute for Applied Technology and Electronics, moderated the event, which included 25 Chinese engineers, technicians, and specialists in design, application and software, as well as the Italian group, which was led by Olivetti's manager of China and Far Eastern Operations, Rocco Cacopardo.

JAPAN, 1/20/78, Delegation of the League for Japan-China Friendship of the National Diet, composed of members of the Liberal Democratic Party, met in Peking with Vice Premier Chi Teng-kuei.

JAPAN, 2/13/78, Nine-man delegation arrived in Peking for **joint meetings on civil aviation;** the *Japan Economic Journal* reported that negotiations were underway to double the number of flights per week on Chinese and Japanese carriers from two to four. The need for an increase in airliner service has reached near crisis proportions among Japanese travel agencies, faced with an increasingly heavy demand for passage to China from businessmen and tourists alike.

JAPAN, 2/13/78, **Technical delegation from Nippon Steel Corporation** visited China to negotiate clauses of a technical assistance contract for construction of an integrated steelworks near Shanghai. Technical aid will cover design, construction, and operation of the works, according to a Nippon spokesman.

JAPAN, 2/14/78, **Delegation of ten trade organizations** affiliated with the Japanese Association for Promotion of International Trade arrived in Peking on the eve of the signing of the Sino-Japanese Long-Term Trade Agreement. Following signing of the agreement, delegates were admonished to hold to the letter of the agreement in a reception with PRC Vice Premier of the State Council Ku Mu.

JAPAN, 2/14/78, Led by Nippon Steel Corporation Chairman Yoshihiro Inayama, the delegation of the **Japanese Committee for Promotion of the China-Japan Long-Term Trade Agreement** arrived in Peking to sign the agreement, under negotiation since March, 1977.

JAPAN, 2/20/78, Joint steel mission from **Nippon Steel Corporation and Kawasaki Steel Corporation,** the second delegation from the Japanese steel industry implementing the plant and equipment sales clause of the Sino-Japanese Long-Term Trade Agreement, arrived in China. A separate delegation of the presidents of major corporations in the Kawasaki Group, including Kawasaki Steel, Kawasaki Heavy Industries and Kawasaki Kisen, also held discussions with Chinese steel industry officials in connection with the agreement.

JAPAN, 3/78, **Hitachi** Shipbuilding and Engineering Company Vice President Toshikazu Yuguchi led a sales mission of six engineers to introduce Hitachi lines of iron and steel manufacturing equipment, pressing machines, oil drilling rigs, and chemical plants.

JAPAN, 5/22–6/2/78, The **Japan Committee for Economic Development** (Keizai Doyukai) will send a delegation including the vice president of Kajima Corporaton (builders and general contracting), Rokuro Ishikawa, and Masaru Ibuka, honorary chairman of Sony Corporation.

LAOS, 1/10–23/78, Delegation of the Ministry of Industry and Commerce led by Minister Maisouk Saisompheng met with counterparts at the Ministry of Foreign Trade, including ministry chief Li Chiang and Ms. Kao Lu, director of the First Bureau of the MOFT.

MALAYSIA, 2/22/78, **Rice trade delegation** from the National Padi and Rice Authority met with CEROILS officials in Peking, led by NPRA Director Yang Amar bin Kamaruddin.

MEXICO, 1/16/78, **Geographical delegation** met with Chien San-chiang, one of China's leading nuclear physicists and a prominent member of the Academy of Sciences, for discussions on operation of remote sensing equipment on geophyical survey aircraft and computer techniques in cartography.

PAKISTAN, 11/27–12/4/77, In accordance with the revised border trade agreement, a caravan of trading syndicates traveled to Sinkiang for a week's stay.

PAKISTAN, 1/2/78, Government trade delegation led by Mukhtar Masood, secretary of the Ministry of Commerce, departed China after detailed talks on 1978 trade projects.

PAKISTAN, 12/23/77–1/2/78, Delegation of the State Heavy Engineering and Machine Tool Corporation led by Director Jawaid Mirza discussed machinery and spare parts supply for two sugar plants and a cement factory construction project, which China has agreed to provide under its economic assistance program in Pakistan. Mirza said that a technical training program had been agreed upon in addition to schedules and scope of equipment supply under the aid program.

POLAND, 1/29/78, Government trade delegation arrived in Peking, led by Tadeusz Nestorowicz, vice minister of foreign trade and maritime economy.

ROMANIA, 2/25/78, Delegation of the Grand National Assembly under Nicolae Goisan visited Peking briefly.

SWEDEN, 1/15/78, Delegation of the Swedish Broadcasting Corporation under Director-general Otto Nordenskjold visited Peking at the invitation of the Central Broadcasting Administration.

VIETNAM, 12/28/78, Microbiological student group assigned to the Institute of Microbiology met in Peking with the deputy secretary-general of the Chinese Academy of Sciences, Kan Chung-tou. The group, part of the scientific cooperation program between China and Vietnam, is leaving soon after more than a year's study.

VIETNAM, 1/2/78, Government trade delegation arrived in Nanking on its way from Peking; Nguyen Chanh led the group.

YUGOSLAVIA, 2/19–22/78, In the first government - to - government consultations since Mao first hurled charges of revisionist backsliding against Marshal Tito in the mid-50's, Yugoslav Vice Premier Berislav Sefer held three hours of talks with Vice Premier Ku Mu and an hour-long conversation with Premier Hua Kuo-feng. **Implementing Tito's promise to quadruple the level of Sino-Yugoslav trade, the talks focused on new avenues of economic cooperation,** including joint manufacturing and production projects and "joint ventures" in third markets. Evidently with Tito's mandate, Sefer announced that Yugoslavia was ready to enter the market for $250–300 million yearly of Chinese commodities, such as petroleum and coking coal. According to an AFP report, two-way Sino-Yugoslav trade will rise from the 1977 level of $90 million to $200 million in 1978 and $600 million in 1985. Textile goods, machines, and agricultural equipment were named as major Yugoslavian export items.

DELEGATIONS FROM CHINA

AUSTRALIA, 1978, **China has entered serious negotiations on the purchase of uranium ore** from Australia, according to official sources in Canberra on 2/8/78. A high-ranking trade delegation to visit Australia within the next few months will include nuclear experts, among them possibly China's leading nuclear physicist, Chien San-chiang, who last visited the continent with a CAS delegation in June, 1977.

BAHRAIN, 1/28/78, Wang Yao-ting, chief of the China Council for the Promotion of International Trade, led a **CCPIT** delegation to the state.

BANGLADESH, 1/20–25/78, Vice Minister of Foreign Trade Cheng To-pin signed the protocol on Sino-Bangladesh trade for 1978 as head of a government trade delegation.

BANGLADESH, 2/20/78, Delegation of the China People's Association for Friendship with Foreign Countries left Peking on a three-country tour. Visiting Bangladesh, Pakistan, and India, **the delegation was rumored to have discussed purchase of beneficiation equipment for steel plants, dredgers, computers, and automatic control equipment** from South Asian suppliers. Head of the mission was CPAFFC President Wang Ping-nan.

BANGLADESH, 3/78, Vice Premier Li Hsien-nien visited Bangladesh and the Philippines. Object of the mission was apparently to secure alignment with China's firm anti-Soviet policy.

BELGIUM, 2/4/78, Sun So-chang, director of the department of America, West Europe, and Oceania Affairs of the Ministry of Foreign Trade, and party departed Brussels after initialing a **five-year trade agreement with the European Economic Community.** The agreement will be signed officially by the minister of foreign trade, Li Chiang, when he visits Europe later this spring.

BULGARIA, 1/11–18/78, Wang Jun-sheng, vice minister of foreign trade, visited Sofia to sign the 1978 goods and payments exchange agreement.

BURMA, 1/26–31/78, Vice Premier **Teng Hsiao-ping's first visit abroad** since his resurrection from political oblivion was shrouded in mystery.

CAMBODIA, 1/26/78, Following the joint announcement by Cambodia and Vietnam that they were ready to talk together after months of bloody fighting across the Viet-Khmer border, Teng Ying-chao, widow of Chou En-lai and Central Committee member, traveled to Phnom Penh with a party from the Ministry of Foreign Affairs to encourage the peace initiative.

EAST GERMANY, 1/24/78, Wang Jun-sheng, vice minister of foreign trade, and government trade delegation left Berlin after signing the China-Bulgaria goods exchange and payments agreement for 1978.

FRANCE, 1/78, **Aromatics delegation** visited offices and production facilities of Ricard Corporation, according to a January report in *Objective Sud* (Marseilles). Ricard draws 80% of its aniseed oil supplies from China through CHINATUHSU.

FRANCE, 2/78, According to sources close to Premier Barre, who led an official-cum-industrial delegation to China in late January, an **"energy" delegation** was to visit France in the early spring; nuclear power plants and oil drilling and exploration technology are likely to be the main interests of the delegation.

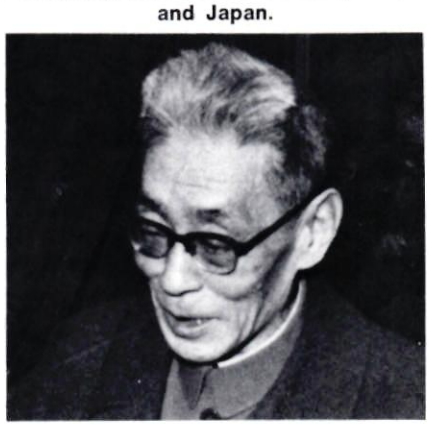
FRANCE, 1978, The Union of French Export Industries has extended an invitation for a **Chinese technical mission** to visit facilities of member companies of the association in the early part of the year.

FRANCE, 1978, As guests of the French government, a delegation of the **Department of Hydrography and Oceanography of the Chinese Navy** will visit France to discuss cooperation in the areas of marine seismic survey and the analysis of ocean pollutants. The delegation has been arranged under the newly signed Sino-French cooperation agreement and entails a return delegation of French oceanographers to China, date unspecified.

FRANCE, 1978, According to the text of a communique issued following the homecoming of French Premier Raymond Barre from China, **France will receive a chain of high-ranking visitors in the coming year:** first, Vice Premier of the State Council Ku Mu and Foreign Minister Huang Hua, then at a later date Chairman Hua Kuo-feng himself, in the first visit abroad by China's top official.

GREAT BRITAIN, 11/77, Liu Chin-sheng, commercial counselor of the Chinese embassy in London, Hsia Yun-fu, second secretary, and other mem-

Sun Ching-wen, China's oil envoy to US and Japan.



NCUSCT Director Walter Sterling Survey in Peking following 1977 conciliation settlement (see Council Activities).

bers of the PRC diplomatic mission visited the Waterside Works of **Ransomes & Rapier Ltd.** in Ipswich. They saw production lines of NCK-Rapier and Rapier machines and a hands-on demonstration of the NCK-Rapier Eiger C1100 crawler crane, with 108-ton loading capacity.

GREAT BRITAIN, 12/10/78, Six-man delegation investigating **techniques of public transportation and traffic control** visited the York Trailer Company, Northallerton.

GREAT BRITAIN, 1/5/78, **A training group of Chinese engineers** visited LB Parkes plant in Walsall to view techniques in anodizing and metal finishing treatment for aircraft parts. The visit was arranged by Marston Excelsior of Wolverhampton, sponsors of the group's three-month course of study of Marston heat exchangers for the Spey engine.

GREAT BRITAIN, 1/12/78, Hsia Yun-fu and Lu Ke-hsing, second secretary and third secretary, respectively, of the Chinese Embassy in London, visited the Sheffield factory of **Titanium Fabricators, Ltd.** The party gave special attention to numerically controlled tooling equipment.

GREAT BRITAIN, 1978, Minister of Foreign Trade Li Chiang confirmed in London in December, 1977, that a **technical mission** would be dispatched to Britain in early 1978 to make a detailed assessment of UK **steel-making know-how.**

HONG KONG, 1/12/78, According to a report in *Daily News Record* (NY), China's textile corporation is considering a **joint venture with Toray Industries** of Japan to expand two-way trade in textile apparels between CHINATEX and Toray's Southeast Asian subsidiaries. A delegation led by CHINATEX official Mao Li-jih toured false-twisting and other textile processing plants of Textile Alliance, Ltd., a Hong Kong–based conglomerate in which Toray has major ownership, in early January. Following their stay in Hong Kong, the group was reported to have toured facilities of Teijin, Kuraro, and Toray subsidiaries in Malaysia and Thailand, which may in the future serve as suppliers of fibers and textile raw materials to China.

INDIA, 2/8–24/78, For the first time since the breakdown of Sino-Indian relations in 1962, **a government trade delegation** traveled to India to view nationally produced machines and equipment on exhibit in New Delhi at the trade fair of the Association of Indian Engineering Industry. The sixteen-man delegation was led by MACHIMPEX Managing Director Liu Ching and included representative of LIGHT INDUSTRY, MINMETALS, and TECHIMPORT. Observers concluded that the mission was a prelude to long-term arrangements for purchase of Indian machinery and engineering products.

INDIA, 2/20/78, The first diplomatic delegation since the border clashes of 1962 left Peking for a trip to Bangladesh, India, and Pakistan. The delegation, headed by Wang Ping-nan, president of the China People's Association for Friendship with Foreign Countries, reportedly had trade as well as political objectives.

JAPAN, 11/29–12/16/77, **MACHIMPEX officials** spent three weeks in talks with Taiyo Fishery and two other Nagasaki-based fishing firms. The fate of 16 idled Japanese fishing boats of 190-ton class was in the balance, but no contracts were signed in the first round of talks.

JAPAN, 1/23/78, **Meteorological delegation** headed by Tsou Ching-ming of the Central Meteorological Bureau left for Tokyo at the invitation of the Japanese Foreign Ministry.

JAPAN, late January, 1978, **Delegation of steel industry officials** from the Shanghai region was reported engaged in talks with Nippon Steel Corporation for supply of a six million ton-per-year integrated steel works, worth $3–4 billion, to be located on the coast near Shanghai.

JAPAN, 4/78, The President of the **People's Bank of China** led a group of officials from PBOC and the Bank of China, which handles foreign exchange and international settlements, for talks with Japanese counterparts on modernization of China's banking system. According to preliminary reports, the mission was to scrutinize among other things the distribution of Bank of Japan notes, the central bank's computer system, personnel training, and implementation of financial policy.

JAPAN, 5/78, In pursuit of a broad program to modernize the transport sector, **20 motor technologists will visit truck and bus assembly factories** under auspices of the Japan Automobile Manufacturers Association (JAMA). A JAMA delegation which traveled to the PRC in September, 1977, agreed to expand intercourse and exchange of technical information; and according to Japanese sources, the current group may be followed by the longer-term visit of 100 students for technical training.

JAPAN, 1978, As part of the Sixth FYP (1981–1985), China is reported interested in a high-speed railway line, to be based on the model of the Japanese *shinkansen* or "bullet train." Vice Premier Chi Teng-kuei told a visiting group of Japanese councilmen on 1/21/78 that a **survey team to assess technology of the *shinkansen*** would be sent to Japan later in the year.

KUWAIT, 1/24/78, Wang Yao-ting, chairman of the CCPIT, and members of the **CCPIT** delegation, met with top government ministers in discussion of potential areas for development under the new Sino-Kuwaiti economic and technical cooperation agreement signed on 12/26/77.

LAOS, 12/27/77, Government economic delegation arrived in Vientiane for discussions on aid programs.

NEPAL, 2/3–6/78, Vice Premier **Teng**

Hsiao-ping, in his second trip abroad just six weeks into the new year, in talks with Prime Minister Kirti Nidhi Bista agreed on the development of three new aid projects—sugar, paper and ceramics factories—but made no mention of expanding two-way trade or opening Tibet to tourists as was hoped by his hosts.

NORTH KOREA, 2/13/78, Plant quarantine mission left for DPRK under Yen Shih-ting, deputy department director of the Ministry of Agriculture.

PAKISTAN, 12/22/77–1/1/78, A 31-man, 18-truck **caravan** loaded with agricultural equipment, consumer goods, tea, and drugs crossed the Sinkiang desert to the trading outpost of Gilgit, at least part of the way on the Karakoram Highway, now nearing completion. The delegation, which was arranged under the Sino-Pakistan border trade agreement of 1969, recently renewed for 1978, purchased Pakistani textiles, dry fruit, medicinal herbs, cigarettes, soap, paint, varnish, and optical frames.

PAKISTAN, 2/20/78, Delegation of the China People's Association for Friendship With Foreign Countries under CPAFFC President Wang Ping-nan left Peking on a three-country tour, including India and Bangladesh, as well as Pakistan.

PHILIPPINES, 1/21/78, An **oil trade delegation** under the leadership of Mai Wen-lan, deputy general manager of SINOCHEM, departed for the Philippines.

PHILIPPINES, 2/17/78, Government trade delegation led by Hsi Yeh-sheng, department director of the Ministry of Foreign Trade, left Peking for the Philippines.

ROMANIA, 12/8–30/78, **Scientific delegation** of solid mechanics specialists met with their colleagues of research institutes and universities for exchange of information on advanced research and survey of Romanian resources in the field.

ROMANIA, 2/22/78, Delegation of the **coal industry** including Chia Hui-sheng, vice minister of the Coal Ministry, and Chin Hsi-ying, vice minister of the State Planning Commission, left for West Germany and Romania.

SUDAN, 2/2/78, **CCPIT** delegation under CCPIT Chairman Wang Yao-ting returned from a four-country goodwill visit to the United Arab Emirates, Bahrain, Kuwait, and the Democratic Republic of Sudan.

SWITZERLAND, 2/5/78, Delegation of the **Civil Aviation Administration of China** (CAAC) under Deputy Director-General Yen Chih-hsiang arrived in Zurich to discuss opening of direct air service to Zurich, via Belgrade. The inaugural flight is expected in April or May, 1978. Currently, CAAC operates only one European flight a week, Paris–Peking.

TURKEY, 1/2–9/78, Chin Chung-to, department director of the Ministry of Chemical and Petroleum Industries, headed a study tour of factory sites.

UNITED ARAB EMIRATES, 1/6/78, Wang Yao-ting left for Dubai at the head of a delegation of the **CCPIT.** In Dubai the group attended the opening ceremony of the PRC economic and trade exhibition.

WEST GERMANY, 1/78, The German Electron Synchrotron, located in Hamburg, has received **the first group for long-term study abroad under China's new science policy.** Six physicists will spend 2 to 3 years working on a detector (Mark J), which will go into operation in 1979 in the new "Petra" storage ring of the Synchrotron. The project was arranged by chairman of the board of the Synchrotron, Dr. Herwig Schopper, during a China visit in November, 1977, and is being supervised by Nobel prize winner S.C.C. Ting.

WEST GERMANY, 2/1/78, **Electric power mission** departed after visiting production sites of nuclear, thermal, and hydroelectric power equipment during a three-week stay. Head of the mission was Chang Pin, vice minister of water conservancy and power.

WEST GERMANY, 2/24/78, Delegation of **coal specialists** arrived for investigation of modern coal mining techniques and equipment. Among other topics, the delegation was expected to discuss purchase of a system for open-cast mining of lignite which has been offered by German industrialists. The 14-man delegation was headed by Vice Minister of Coal Industry Chia Hui-sheng.

YUGOSLAVIA, 12/15–17/77, Delegation of the **Chinese Academy of Sciences** led by nuclear physicist Chien San-chiang discussed means of strengthening scientific cooperation with Yugoslav colleagues.

YUGOSLAVIA, 1/26/78, Under the 1978 plan for cultural exchange, a **film industry team** was sent to participate in the 10th International Scientific and Technical Film Festival.

YUGOSLAVIA, 1/30/78, Delegation of the **CAAC** under Yen Chih-hsiang left Peking for Belgrade to negotiate opening of direct air service to the city (Belgrade–Peking).

EXHIBITIONS

FRANCE, 4/7–17/78, China will participate for the first time in the annual International Fair at Nantes.

HANGCHOW, 1/78, The British **48 Group** concluded its multi-company technical seminar on aerospace technology (see Exporter's Notes).

HONG KONG, 12/3–18/78, Organized by Teck Soon Hong, Ltd., a PRC agency house, and 14 Hong Kong importers and exporters of Chinese products, the **Chinese Fur, Leather, Feather and Down Garments Exhibition** displayed a rich variety of cold-weather clothing, as well as decorative items made from furs and feathers. New PRC makes of down-padded jackets and other garments featured prominently.

HONG KONG, 1/16/78, **Chinese Drawnwork and Embroidery Exhibition** drew two to three thousand spectators daily, featuring over 2,000 handmade pieces of fine lace work, some of which were custom designed. Effective use was made of **new promotional techniques** at the exhibit, including a videotape show of laceware production in China and a selling counter on the exhibition floor. The exhibition, arranged by China Resources, the exclusive agent for PRC lace products in Hong Kong, was the first of its kind since 1972.

KUNMING, 1/10/78, Exhibition of rare beasts native to Australia—the koala, platypus, kangaroo, and more—opened in the capital of Yunnan Province.

PEKING, 2/6/78, Exhibition of Iranian painting emphasized historical links between Iranian and Chinese painting.

PEKING, 2/78, NCNA reported the holding of an **exhibition of foreign scientific and technical publications.** The thousands of books on display represented the fruits of the intense activity of China National Publications Import Corporation (PUBLIM) in recent months, scouring book fairs and retail outlets for the latest research publications as well as science textbooks. No foreigners were invited to the exhibition.

PEKING, 5/78, CEFAR (Association des Constructeurs Francais Eportateurs d'Appareils de Mesure, de Controle, de Regulation, d'Automatisme et d'Instruments Scientifiques) will stage a show of French-made scientific instruments.

PEKING, 9/78, A single-firm exhibition will be staged by the German firm, Siemens.

PEKING, 9/78, Metallurgical and Construction Industries Exhibition will be put on by the Japan International Trade Promotion Association.

PEKING, 9/78, The **Japanese machine tool industry** will present an exhibition of metal-working machinery and building materials technology.

PEKING, 10/78, A multinational exhibition of **agricultural machinery** will take place at a 30,000–40,000 sq m open-air location in Peking. The list of participating countries to date includes Britain, France, Italy, Switzerland, Sweden, West Germany, Canada, Australia, New Zealand, and Japan. The CCPIT, hosting the show, has welcomed the presentation of technical seminars as well as machinery displays. Candidates for the exhibition have been provided with a **list of types of equipment that Chinese end-users most want to see,** including articulated tractors, sugar beet planting machinery, livestock rearing equipment, drying machinery for grain and cereals, irrigation equipment, combine harvesters, implements for tractors, battery hen equipment, ventilation equipment, hydraulic equipment, fuel pumps, test benches, tractor engines, and animal husbandry and testing machinery. The list is not exclusive, but CCPIT organizers have made it clear that only candidates offering the most advanced technology, whatever the field, will be accepted.

PEKING, 11/24–25/78, Sponsored by the Scientific Instrument Manufacturers Association, an **all-British display of scientific instruments** will be held in Peking. Members of the British 48 Group as well as other British manufacturers will be represented at the show.

PEKING, 11/78, **PETROGAS Expo** will show off the latest in French technology of petroleum exploration, production and refining. Fifty-nine French companies have already announced their intention to participate. Main areas to be represented are deep drilling equipment; transport and processing equipment adapted to China's heavy, waxy crude; and offshore exploration equipment.

PEKING, 1979, The British **48 Group** hopes to hold a small specialized exhibition on the aerospace industry. Dates have not been finalized yet, but talks with the Exhibition Department of CCPIT have been underway since spring of 1977.

PEKING, 1979, Following the signing of the Sino-EEC five-year trade agreement, European industrialists and national organizations for the promotion of trade with China in EEC countries have been putting heads together on presentation of an **EEC technological exhibition** in the PRC. Date of the exhibition is likely to be sometime next year.

PEKING, 1979–1980, A **series of multinational exhibitions** is being considered by the Peking government, to be held outdoors because of lack of in-

door display space in the Peking municipal area. Topics under consideration include mining equipment, petroleum equipment, and construction equipment.

PHILIPPINES, 3/25–4/15/78, The **Cebu-China Trade Fair** featured exhibits of agricultural and industrial machinery as well as commercial facilities for sale of Chinese products. The fair was arranged on a government-to-government level by the Philippine International Trading Company in cooperation with the overseas Chinese community of Cebu.

SUDAN, 1/20/78, Wang Yao-ting, chairman of CCPIT, presided at festivities marking Chinese Pavilion Day at the first Khartoum International Fair.

UNITED ARAB EMIRATES, 1/11–24/78, Chinese Economic and Trade Exhibition drew about 80,000 participants. CCPIT Chairman Wang Yao-ting attended opening ceremonies of the fair.

WEST GERMANY, 1/15/78, The 1978 Home Textile Furnishing Fair included 487 exhibit stands from foreign countries including one from the PRC.

AGREEMENTS

AUSTRALIA, 12/22/77, **Negotiations on a Sino-Australian long-term sugar agreement have yet to come to a definitive conclusion.** The bargaining parties—Commonwealth Sugar Company on the Australian side and CEROILS on the Chinese—are hanging fire until the settlement of the International Sugar Agreement that will impose new and lower export quotas on participating producer nations. Australia is believed to be going for agreement on a marginal contract volume above the ISA quota to be activated after the fulfillment of contract shipments to Japan.

BANGLADESH, 1/24/78, **Bilateral commodity exchange protocol** was signed in Dacca, setting two-way exchange volume for 1978 at $40 million. Projected composition of trade includes PRC exports of pig iron, coal, cement, machinery and equipment, and light industrial products, while Bangladesh will export jute, jute goods, hides and skins, rayon, newsprint, and paper products. If realized according to plan, trade in 1978 will increase 43% over the 1977 level.

BULGARIA, 1/14/78, **Goods exchange and payments agreement** for 1978 was signed in Peking, instituting a 22% increase in trade volume over 1977. Exports of Bulgarian electric trucks, computers, and medical equipment, and imports of rice, cotton, wool, and silk were agreed upon.

EAST GERMANY, 1/19/78, China and the GDR signed a **goods and exchange payment** agreement for 1978, calling for an increase in the volume of trade. Under the agreement the GDR will export motor buses, diesel engines, machine tools, and scientific instruments while China will sell nonferrous metals, foodstuffs, animal byproducts, rice, and cotton textiles. Chinese signatory to the agreement was Wang Jun-sheng, vice minister of foreign trade.

INDIA, 2/20/78, Observers in New Delhi reported that China has put out feelers on a **long-term trade agreement.** China is particularly interested in Indian supplies of iron ore and low-cost steel manufacturing equipment. Indian sources claimed that Chinese officials have shown marked preference to Indian iron ore over that exported from Australia.

JAPAN, 2/16/78, A **long-term trade agreement** was signed between the PRC and a consortium of Japanese business enterprises (see box).

JAPAN, 1/19/78, In meetings of the China–Japan **Joint Fishery Commission** in November–December, 1977, China proposed to sharply limit Japanese fishing operations in the Yellow Sea, lowering the quota of licensed shrimp fishers and extending two conservation areas 12 miles eastwards. Further discussion will take place at the next meetings of the Joint Commission in the summer of 1978.

JAPAN, 1/31/78, **Notes** on the enactment of the Sino-Japanese trademark agreement were exchanged. The agreement, which was signed on 9/29/77, provides for mutual MFN treatment of registered trademarks.

JAPAN, 2/17/78, In talks between Japan Airline officials and the Civil Aviation Administration of China, **it was decided to increase flights of both airlines** on the Japan–China route from two to three weekly flights, effective in April, 1978.

LAOS, 12/18/77, A **province-to-province agreement** was signed between the PRC's Yunnan Province and the Lao state of Oudomsay, according to Lao news service (KPL).

NORTH KOREA, 1/26/78, **Protocol** on the 17th meeting of the Sino-Korean border river navigation cooperation committee was signed.

PHILIPPINES, 1/29/78, In talks with the Philippine National Oil Co., the oil trade delegation from SINOCHEM under the leadership of Deputy General Manager Mai Wen-lan signed an agreement for supply of 1 million tons of **Shengli crude oil** in 1978 worth $80 million.

PHILIPPINES, 2/24/78, The second meeting of the **China-Philippines Joint Trade Committee** resulted in the signing of notes on the increase of PRC oil exports to the Philippines, balanced by higher levels of imports of Philippine copper concentrates, coconut oil, and resins compared to 1977 trade in these commodities. **Specific export targets** given were: For the PRC, oil, 1 million tons; and machinery and equipment, chemicals, minerals, and foodstuffs in undetermined quantities. For the Philippines, 100,000–150,000 mt of sugar (150,000 mt target in 1977); 40,000–80,000 mt of copper concentrates (60,000 mt in 1977); 20,000–35,000 mt of coconut oil (15,000–30,000 mt in 1977); 20,000–40,000 m^3 of logs and lumber (same as in 1977); and 3,000–6,000 mt of resins.

POLAND, 1/30/78, The China–Poland **goods exchange and payments agreement** for 1978 was signed in Peking, Vice Minister of Foreign Trade Wang Jun-sheng and his Polish counterpart, Tadeusz Nestorowicz, officiating.

SWITZERLAND, 2/10/78, In accord with the 1973 Sino-Swiss relative agreement on air transport, China dispatched a team from the Civil Aviation Administration of China, led by Deputy Director Yen Chih-hsiang to evaluate technical problems of establishing a new **Zurich–Peking air route.** The service, via Urumchi and Belgrade, is due to open in May, 1978.

VIETNAM, 1/10/78, China and Vietnam renewed their annual agreement on **mutual supply of goods and payments.** The signing ceremony took place in Peking in the presence of Li Chiang, the minister of foreign trade.

YUGOSLAVIA, 2/3/78, A protocol was signed in Belgrade on the opening of a new **Peking–Belgrade air route** and the beginning of regular flights between the two capitals. The leader of the CAAC delegation, Deputy Director Yen Chih-hsiang, signed on behalf of the PRC government. Flights will begin in May, 1978. 完

US TECHNICAL DATA

Licensed for Export to

(For previous licenses, see CBR 4:3)

Totals 1971 Through Fourth Quarter 1977

Item	*Value ($)*
US Export Licenses to China	275,284,488+
US Licenses For Re-export to China	8,419,527+
Temporary US Licenses for China	83,468,857+
Technical Data Approvals for China	399,617,160+
TOTAL	**766,787,032+**

US Export Licenses for China

Second Quarter—1977

Data	*Item*	*Value ($)*
4/7	Electronic Computer Equipment (Replacement parts)	4,472
4/12	Electronic Computer Equipment (Neutron activation analysis)	89,803
4/13	Signal Generator (Telecommunications use)	3,468
4/18	Electronic Computer Equipment (Equipment Maintenance)	1,250
4/18	Electronic Computer Equipment (Equipment Maintenance)	2,850
4/26	Electronic Computer Equipment (Maintenance and repair)	5,734
5/4	Metalworking Machine Tools (Machine tool turning machine)	267,917
5/4	Metalworking Machine Tools (Machine tool boring machine)	329,953
5/4	Metalworking Machine Tools (Machine tool boring milling machine)	1,110,298
5/4	Metalworking Machine Tools (Machine tool lathe)	832,392
5/4	Metalworking Machine Tools (Machine tool boring mill)	357,406
5/4	Metalworking Machine Tools (Machine tool boring machine)	681,937
5/6	Communications Equipment (Airborne navigation equipment)	5,734
5/11	Gravity Meters (Geological exploration)	447,000
5/18	Electronic Computer Equipment (Monitor overhaul of commercial ACRF)	92,795
6/6	Communications Equipment (Testing equipment)	15,215
6/13	Magnetic Recorder Parts (Maintenance)	35,623
6/13	Magnetic Recorder Parts (Maintenance)	13,305
6/13	Magnetic Recorder Parts (Maintenance)	41,628
6/13	Magnetic Recorder Parts (Maintenance)	63,080
6/29	Communications Equipment (Airborne navigation)	70,000
	Subtotal	**4,471,863**

Third Quarter—1977

Data	*Item*	*Value ($)*
7/27	Communications Equipment (Servicing)	88,749
7/27	Communications Equipment (Servicing)	52,892
8/10	Communications Equipment (Peking 2 satellite earth station)	74,614
8/10	Communications Equipment	27,009
8/10	Photographic Film and Plates (Scientific processes)	49
8/8	Magnetic Tape[1]	1,828
8/8	Magnetic Recorder and Parts[1]	318,850
8/8	Magnetic Recorder and Parts[1]	50,870
8/8	Magnetic Recorder and Parts[1]	9,947
9/12	Electronic Testing Equipment (Testing HF communications equipment)	32,580
8/16	Amended Approval for Aircraft Parts[2]	262,000
8/19	Organic Chemicals (Lab work)	47
9/21	Electronic Communications Equipment	1,000,000
9/21	Electron Tubes (Replacement for RCA Videovoice)	4,500
	Subtotal	**1,923,935**

Fourth Quarter—1977

Data	*Item*	*Value ($)*
10/17	Communications Equipment (Replacement faulty unit)	248
10/17	Magnetic Recorder and Parts (Broadcasting)	318,850
10/27	Testing Equipment (Speech analysis)	26,675
10/31	Electronic Computing Equipment (Spare parts)	15,000

AND PRODUCTS

China Through 1977

Data	Item	Value ($)
11/1	Electronic Testing Equipment (Television testing)	5,825
11/10	Oscilloscope (Lab measurement)	1,365
11/10	Communications Equipment (Airborne communications)	12,261
11/10	Communications Equipment (Airborne communications)	21,061
11/17	Electronic Computing Equipment (Iron/steel tension-compression test)	14,800
11/27	Communications Equipment (For earth station Intelsat)	112,450
	Subtotal	**528,535**

US Licenses for Re-Export to China

Second Quarter—1977

Data	Item	Value ($)
4/21	Parts and Accessories NEC (Replacement) (Re-Export through Switzerland)	4,500
5/20	Electronic Computing Equipment (Data processing) (Re-Export through Canada)	3,752
5/20	Magnetic Tape (Data processing) (Re-Export through Canada)	3,752
5/17	Testing Equipment (Parts for electronic testing equipment) (Re-Export through France)	19,947
6/3	Photographic Film (Scientific film) (Re-Export through Hong Kong)	12
6/8	Pigments and Coatings (Research) (Re-Export through Hong Kong)	50
6/24	Electronic Computing Equipment (Data processing) (Re-Export through Denmark)	674,000
6/28	Photographic Film (Cartography) (Re-Export through United Kingdom)	13
6/28	Photographic Film (Cartography) (Re-Export through United Kingdom)	17
	Subtotal	**706,043**

Third Quarter—1977

Data	Item	Value ($)
7/5	Magnetic Tape (Computer communications system) (Re-Export through United Kingdom)	64,666
7/5	Electronic Computing Equipment (Re-Export through United Kingdom)	64,667
7/5	Electronic Computing Equipment (Re-Export through United Kingdom)	64,667
9/14	Electronic Computing Equipment (Chemical research) (Re-Export through FRG)	8,782
	Subtotal	**202,782**

Temporary US Export Licenses for China

Third Quarter—1977

Data	Item	Value ($)
10/20	Electronic Communications Equipment (Demonstration)	21,343
10/20	Electronic Communications Equipment (Demonstration)	9,850
10/20	Electronic Communications Equipment (Demonstration)	16,431
10/20	Electronic Communications Equipment (Demonstration)	18,225
10/20	Electronic Communications Equipment (Demonstration)	115,346
10/20	Electronic Communications Equipment (Demonstration)	14,308
10/20	Electronic Communications Equipment (Demonstration)	1,622
10/20	Electronic Communications Equipment (Demonstration)	1,038
10/20	Electronic Communications Equipment (Demonstration)	7,657
	Subtotal	**205,820**

US Technical Data Approvals for China

Second Quarter—1977

Data	Item	Value ($)
5/5	Technical Data (Strain gauge trans)	160

Fourth Quarter—1977

Data	Item	Value ($)
11/10	Technical Data (Polyester polymer plant)	NVG

Source: OEA

[1] Original license issued 2d Quarter, 1977, for $162,590; amended to $200,000.

[2] Original license issued 3rd Quarter, 1977, for $200,000.

THE CHINA TRADER

An audiocassette program of interviews by Julian M. Sobin, sponsored by the National Council for US-China Trade, as a service to the China trade community.

INTRODUCTION

One of the first tangible results of the Shanghai Communique of 1972 was the opening of trade relations between the United States and the People's Republic of China. After nearly a quarter century of no relations whatsoever—diplomatic, commercial, or cultural—US-China trade began again. Its growth exceeded everyone's expectations. To help promote this trade, Julian M. Sobin initiated this series of interviews, sponsored by the National Council for US-China Trade, which is proud to present it as a service to the business community. If you have further questions about the China trade, please contact the Council at 1050 17th Street, NW, Suite 350, Washington, DC 20036.

THE PARTICIPANTS

POLITICS AND TRADE

1A Christopher H. Phillips
President
The National Council for US-China Trade
Formerly Deputy Representative of the
United States to the United Nations
". . . in the trade relationship, we have a dimension which is particularly important because it's not merely political or a symbolic relationship."

1B Michel Oksenberg
National Security Council
Former Professor Political Science
University of Michigan
Executive Committee, National Committee on
United States-China Relations
". . . in a comparative sense, the Chinese political system is probably as stable, if not more, than most around the world."

2A Eugene A. Theroux, Esq.
Partner, Baker & McKenzie
Formerly Vice President, National Council for
United States-China Trade
Trade & legal aide to the late Honorable Hale Boggs; traveled
to China with Rep. Boggs and the then Rep. Gerald Ford
"Getting through to China takes hard work, it takes hard work on both sides."

CHINA'S ECONOMY

2B Dwight H. Perkins
Professor of Economics
Director, East Asian Research Center
Harvard University
Chairman, Subcommittee on the Economy of China
Social Science Research Council
"The area where they have had the greatest success, where they have had very rapid development, is in industrial development that does not depend on agriculture."

3A Alexander Eckstein
Formerly Professor of Economics
Associate, Center for Chinese Studies
University of Michigan
Consultant, United States Department of State
"In effect they are applying our own standards to our own system and their standards to theirs so you have total assymmetry."

LEGAL ASPECTS OF CHINA'S TRADE

3B Jerome Alan Cohen
Professor of Law & Associate Dean, Harvard Law School
Director, East Asian Legal Studies
Harvard University
Chairman, China Council, Asia Society
"The most striking thing to the newcomer to the Chinese business environment and legal environment is there's no ready proof that China has a legal system in the conventional western sense."

4A Walter Sterling Surrey, Esq.
Senior Partner, Surrey, Karasik and Morse
Director, General Counsel, member of Executive Committee
National Council for United States-China Trade
President, American Society of International Law
Director, National Committee on United States-China Relations
"Someone once said that conciliation in China may be like being pecked to death by a thousand Peking ducks. You just conciliate, conciliate, conciliate until you are finally worn out."

4B Henry Holzer
Marketing Coordinator
Superintendence Company, Inc.
Member, Panel on Legal Aspects, United States-China Trade
American Society of International Law
". . . What we have to do in order to get trade with China underway successfully . . . is to arrive at a mutually agreeable method of examination so that when a finding is finally rendered . . . (it) will be an acceptable one."

FINANCIAL

5A William J. McDonough
Executive Vice President
International Banking Department
First National Bank of Chicago
"Over time we believe that China will be a more and more important part of the world economy."

5B V. K. Ranganathan
Senior Economist
Citibank, Hong Kong
Lecturer, Economy of China, Hong Kong University
Co-author, CHINA TRADE GUIDE
"Competitiveness will be the guiding criterion for buying rather than diplomatic ties or any non-economic factors."

THE CHINA MARKET

6A William F. Rope
Formerly Chief, Northeast Asia Division
Office of Resarch & Analysis for East Asia & Pacific

United States Department of State
Formerly Foreign Service Officer in Hong Kong, Taiwan, and (for two years) in Peking
"If you are going to Peking, the first thing you find out is that you are in the hands of a Foreign Trade Corporation . . . you'll be met at the airport or the train station and taken right in hand."

6B William W. Clarke
Director
People's Republic of China, Bureau of East-West Trade
United States Department of Commerce
Technical Advisor, United States Delegations, COCOM
"Politics still dictates China's trade, and it dictates the relationship between our two countries . . . we've come a long ways from the Shanghai Communique."

SELLING TECHNOLOGY TO CHINA

7A Robert W. Johnson
Vice President
Marketing & Communications, UOP, Inc.
Coordinator, one of the first Task Forces to hold technical seminars in Peking
"You should provide a price only after you know precisely what you are quoting . . . no matter what you add on afterwards, the price never goes up, but if you knock things out, you can be pretty sure it will go down . . ."

7B Robert J. McMenamin
Vice President, Special Operations
Overseas Division
International Harvester
Director, East-West Trade Council
Chairman, East-West Trade Advisory Committee
Department of Commerce
"The American who goes there must be a salesman to the fingertips."

8A Donald A. Sackman
President, Sackman Associates
Host, first two Chinese scientific delegations to United States
Formerly Director of Licensing & Export, Honeywell Information Systems
"The Chinese have refused to stipulate that their machines will be used for peaceful purposes and that has caused them a great deal of difficulty in terms of getting (export) licenses."

8B Hugh P. Donaghue
Vice President
Assistant to the Chief Executive Officer
Control Data Corporation
Member, Transnational Advisory Committee, Department of State
"One thing that amazed us was the fact that they were very, very knowledgeable, well read on every aspect of our computer industry."

COMMODITIES

9A Melvin W. Searls, Jr.
Former Vice President
National Council for United States-China Trade
Marketing Director, Esso (Hong Kong) Ltd.
Former Chairman, China Commercial Relations Committee
American Chamber of Commerce, Hong Kong
"The type of sale to China that is taking place in the high technology area or for manufactured goods doesn't really take place in Canton."

9B Gerry Wielenga
Manager, Southeast Asia & Western US Pulp Division
Weyerhaeuser Company
Associate, China Council, Asia Society
"People think that the Canton Fair is most accurately described as an export fair, but I have sold lots of things there. You can go there for selling purposes."

10A Kurt E. Reinsberg
Senior Vice President
Associated Metals & Mineral Corporation
Chairman, Importer's Committee & member of Board of Directors
National Council for United States-China Trade
"The Chinese are very good at knowing the (commodities) market. But, sometimes, their evaluation of the market, or at least what they claim to be their evaluation, doesn't coincide with our evaluation."

IMPORTING

10B David Cookson
Vice President of Far East Operations
I.C.D. Group, Inc.
Co-Chairman, Foodstuffs Committee, National Council for United States-China Trade
"There are certainly two sets of rules for the Chinese when they buy and when they sell. . . . A prime example being the inspection: when one buys from them, it's the inspection final from them; when one sells to them, it's the inspection final in China, on arrival."

11A Veronica Yhap
President, Dragon Lady Traders, Inc.
Born in Shanghai, raised in Hong Kong
Co-Chairman, Textile Committee, National Council For United States-China Trade
"We would certainly like to have Most-Favored-Nation status granted to China. That would help a great deal, especially in ready-made garments. But in greige goods, even without MFN, Chinese prices have been competitive. The quality is good; the prices are competitive."

11B Murry P. Berger
President, Seabrook Foods, Inc.
Speaker, International economics
"Patience is what you need when you deal in China, and . . . being consistent and being a regular buyer through good and bad times . . . will one day be rewarded."

12A Stanley Marcus
Chairman of the Executive Committee
Neiman-Marcus Company
Director & Corporate Executive Vice President
Carter Hawley Hale Stores, Inc.
"I said, 'I would like to see some antique robes.' He said, 'We don't have any.' I said, 'I'm sure you must have them.' He said, 'They're too expensive.' I said, 'Who says so?' He said, 'The Macy's buyers said so.' "

12B Robert Boulogne
Director of International Buying
J.C. Penney Purchasing Corporation
Co-Chairman, Textile Committee, National Council for United States-China Trade
"The Chinese often told me they construct prices so that a competitor in another country would not be able to afford to compete with me in America. . . . Well, the year before last, I discovered I could buy Chinese goods from Japan and from Europe at lower prices than in my own contracts."

The China Business Review

is Published by

The National Council for United States-China Trade
1050 Seventeenth Street, N.W., Suite 350
Washington, D.C. 20036

202/331-0290

FULL
MEMBERSHIP

Membership in the National Council for United States-China Trade is open to American firms interested in doing business with the People's Republic of China. The principal categories of membership are (1) corporations or business entities with sales or gross income equal to or greater than $50 million for the fiscal year immediately preceding the date of application for membership, for whom the annual dues are $2,875; (2) those with sales or gross income of between $20 million and $50 million for the fiscal year immediately preceding the date of application for membership, for whom the annual dues are $1,150; and (3) those with sales or gross income of less than $20 million for the fiscal year immediately preceding the date of application for membership, for whom the annual dues are $575.

In a special effort to assist smaller American firms interested in importing goods from China, the National Council has a special category of affiliated membership. Companies engaged primarily in importing, and having sales or gross income of less than $10 million in the year immediately preceding the date of application for membership, may join the National Council upon payment of annual dues of $350.

Importers in the National Council constitute a special committee whose activities are designed not only to acquaint importers and potential importers with Chinese manufacturing, sales and trading practices, but also to aid the Chinese Foreign Trade Corporations in understanding the import regulations, consumer tastes and other market conditions in the United States.