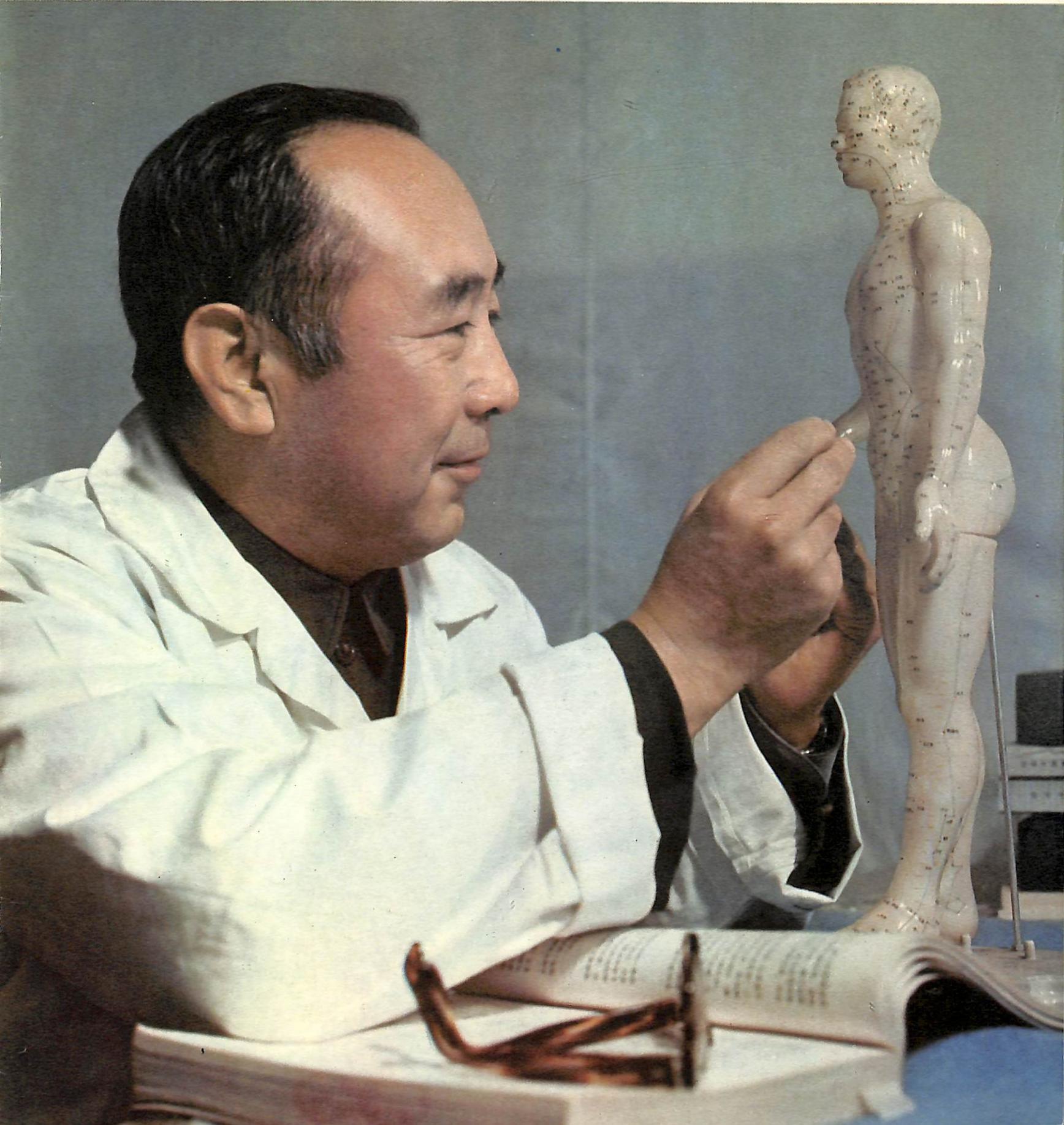


China *Combining Chinese and Western Medicine* Reconstructs

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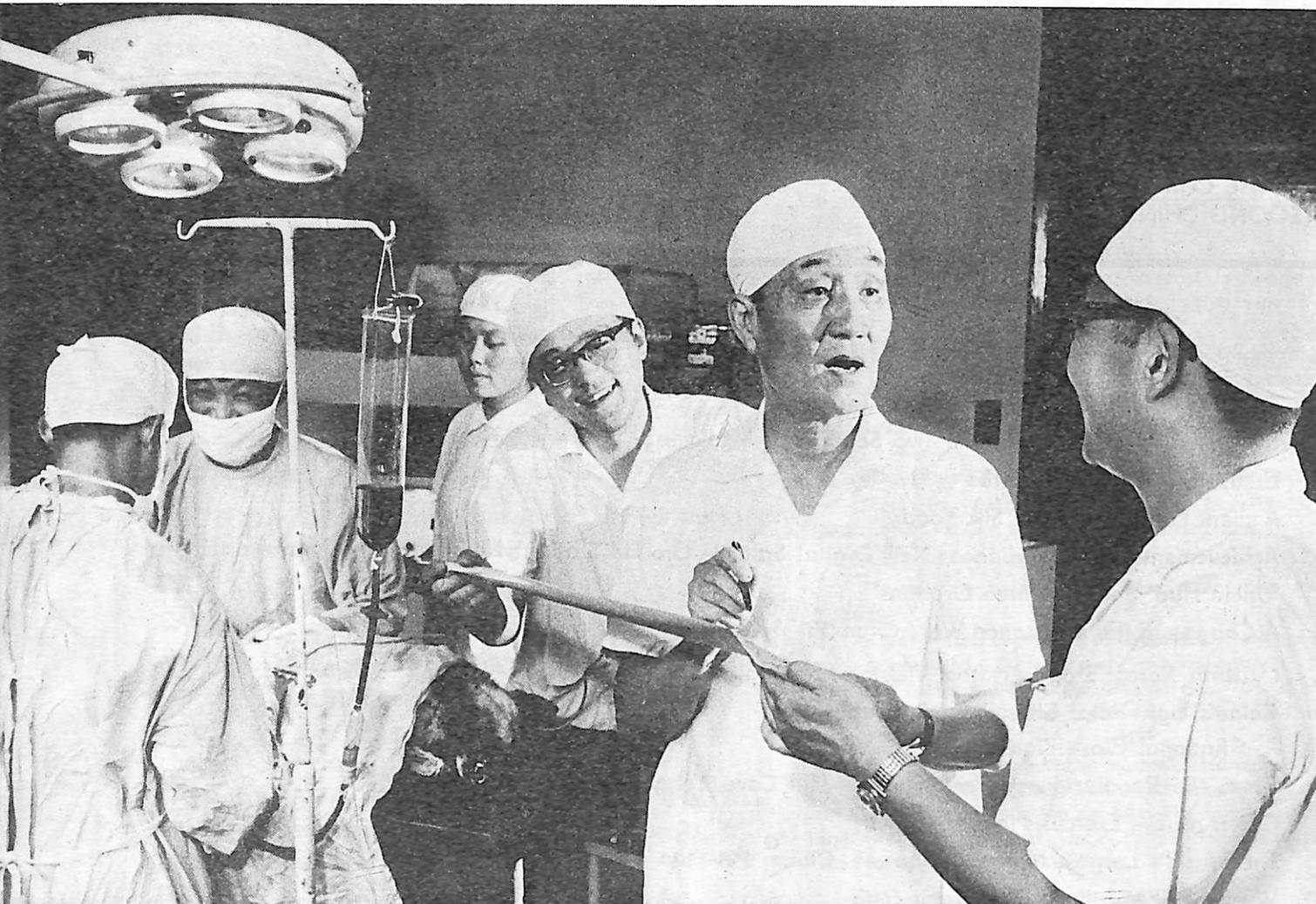
Back: Turtle Head Peninsula, Wusih (see p. 36).

Inside front: Grazing white-lipped deer at 4,000 meters above sea level in Chinghai province.

Inside back: The Yangtze Gorges.

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Creating a New Chinese Me



Shanghai's Chungshan Medical College Hospital staff members discuss the control of kidney blood flow with herbal medicine during an animal test. The hospital has succeeded in kidney transplantation with a method combining traditional Chinese and western medicine.

IN 1956 Chairman Mao called on Chinese medical workers to combine their knowledge of both traditional and western medicine and pharmacology and urged them to create a new unified system. This was a hope that, when realized, would contribute much to improving the people's health. Today this too is an important part of China's attempt to modernize science and technology by the end of the century.

Traditional Chinese medicine, with its rich clinical experience and particular theoretical system, has been accumulated by the Chinese people over many centuries of struggle against disease. In the middle of the 19th century modern medicine began to enter China from Europe and became known in China as western medicine. Though the two schools existed side by side over long years, in old China the ruling class, out of a need for imperialist support to

LI CHING-WEI is supervisor of the Medical History and Literature Section of the Academy of Traditional Chinese Medicine in Peking.

Commune members in Shanghai's outskirts picking safflower, a medicinal plant.



dicine

LI CHING-WEI



Young physicians at the Hospital of Traditional Chinese Medicine for National Minorities in Kashgar, Sinkiang Uighur Autonomous Region, learning from an old Uighur doctor.

help maintain their rule, propagated a slavish mentality of worshipping everything foreign and took a negative view of China's long cultural heritage. The Kuomintang government asserted that traditional medicine was unscientific and barred it from hospitals. In 1929 it passed a bill banning its practice. Immediately traditional doctors protested, and the people boycotted it because among the masses there was deep confidence in it born of generations of experience. Traditional doctors continued to practice and home remedies continued to be passed among the people.

Integration

In line with Chairman Mao's policy after new China was established in 1949, medical workers of both schools began to learn from each other and to try to combine their knowledge and experience. In the past 28 years they have steadily followed Chairman Mao's revolutionary line, constantly fought the interference of the revisionist line and repudiated the negative view toward traditional medicine.

Great numbers of traditional doctors and pharmacologists have been invited to work in hospitals, medical schools and research institutes. Traditional Mongolian and Tibetan doctors have similar facilities in their minority regions. Thousands of expert doctors of traditional medicine are now playing a bigger role. More and more western-type doctors have systematically studied one or two years in traditional medicine. They are now the main force in trying to improve this ancient system with modern methods and integrating the two schools in treatment and research. Many experienced traditional doctors now pass on their knowledge and experience to the younger generation without reservation, and the people eagerly contribute home remedies that have been effective.

Six hundred works on traditional medicine have been published in over 30 million copies. These include reprints of classical works, books on clinical experience by veteran traditional doctors, and others on the problems of combining the two schools. Much

progress has been made in research on medicinal herbs and their production. Areas under herb cultivation have increased many times. Herbs from widely different areas have been exchanged and acclimated to new environments. Many wild herbs have been domesticated, as have wild animals from which medicines are made. Essential elements from herbs have been chemically synthesized and manufactured.

The traditional and western schools of medicine developed under different historical conditions. Each has its strong points, its shortcomings and its limitations. Chinese medical workers are trying to bring together the best in both schools in a critical and dialectical-materialist way, creating through practice and research a new medical system better than either of the two. They have made much headway through long effort.

At first, doctors of both schools merely held consultations, or one with western training made the diagnosis, one from the traditional school gave the treatment and both made joint observations. Now they work together in diagnosis, treatment, observation and summary. In this higher stage of cooperation new therapies, theories and techniques differing from either traditional Chinese or western medicine have been worked out. These are often simpler, more economical and get quicker, more effective result.

Initial Achievements

Two examples may be cited of better results from combined methods.

Chronic bronchitis is a common ailment in China. Since the beginning of the 70s, some 200,000 medical workers have carried out mass surveys and treatment of this illness throughout China. At the same time, by studying folk prescriptions, the experience of local doctors of traditional medicine and ancient medical literature, they have discovered several hundred medicinal herbs which relieve coughing and asthma and eliminate sputum. Laboratory testing and selection narrowed these down to 20 of the most

effective. While research continues, they are being used in treatment and publicized.

For instance, the researchers studied *Vitex cannabifolia* S. et Z., a medicinal herb widely used for cough and asthma in the southern provinces of Kiangsu and Chekiang. Chemical analysis revealed that its volatile oil contains 17 elements effective in treating and preventing bronchitis. Oil extracted from the leaves was made into capsule and emulsion form. Results are better than with the herbal brews. It readily reduces or eliminates patients' symptoms. Inflammatory epithelial lesions of bronchus mucosa improve markedly.

On the basis of this experience, medical workers did the same studies on two north China herbs of the same family — *Vitex negundo* L. and *Vitex negundo* var. *incisa*. Animal tests and clinical use gave the same results as *Vitex cannabifolia*. This work has opened up vast resources for a medicine that can be collected and processed locally. Thus the new medicine, *Vitex cannabifolia volatile*, the result of combining traditional Chinese and western medicine, has become one of the leading drugs in preventing and treating chronic bronchitis. It has also proved helpful in reducing the incidence of pulmonary emphysema and pulmonary heart disease.

Another example of the benefits of combining Chinese and western medicine is in the treatment of prolapse of the anus caused by hemorrhoids and fistula. Traditional Chinese medicine has had centuries of experience with this. But combining it with western methods has shown better results. Surgery sometimes results in anal incontinence or stricture, especially in cases of complex fistulas. Thread therapy, a combined method, is quicker and highly effective, causes less complications and less pain. The method is also easier to learn and teach. In 4,000 cases treated at the Academy of Traditional Chinese Medicine since 1957, the short-term cure rate has reached 99 percent. Follow-up checks have found less than two relapses per 1,000 cases.

Exploring New Fields

Can burns be treated successfully with combined methods? At first it was thought that traditional herbal medicine was not useful for burns over large areas, especially third-degree burns covering 80 to 90 percent of the body. But a survey showed that they were quite effective. In 154 cases with burns covering 30 to 81 percent of the body, with herbal medicine there was no shock and it was not necessary to give an intravenous drip. It also prevented shock in 105 cases of burns covering 30 to 99 percent of the body with only a small amount of intravenous fluid needed. Some herbal medicines have proved to be effective in preventing infection. In Peking, Shanghai and Anhwei province, good results have been obtained in treating third-degree burns covering 80 to 90 percent of the body with combined methods. Mortality has dropped.

Traditional Chinese medicine regulates body functions gradually and works more slowly. Could it be used in cardiovascular diseases which attack suddenly? People doubted it in the beginning. But

since a combined treatment has been used, mortality from acute myocardial infarction has declined rapidly. In 13 Peking hospitals mortality in 1,000 cases dropped from 207 in 1975 to 146 in 1976. (Mortality was 453 per 1,000 in 1971 before combined methods were used.) More than half of the 1,000 patients took oral herbal medicine in the first 24 hours of hospitalization. Mortality was 11.6 percent. The others who took herbal medicine after the first 24 hours had a mortality of 19 percent.

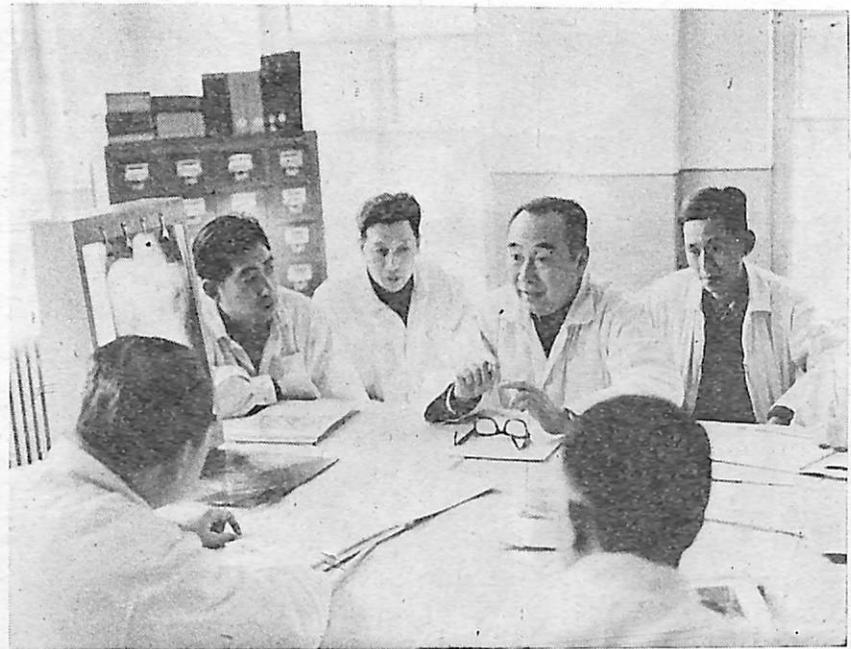
In 1973 a patient with acute myocardial infarction in the hospital of the Academy of Traditional Chinese Medicine in Peking suffered a cardiac arrest for 19 minutes. Such cases were considered near hopeless. The doctors used a combined treatment. While continuing artificial respiration, oxygen and medicine to bring up blood pressure according to western medicine, they also administered traditional herbal medicines — a pulse-stimulating solution, anti-shock No. 1 and an anti-infarction compound to stimulate blood circulation. Gradually the heartbeat was restored, though the patient remained unconscious. Nine days later full consciousness returned. The patient was discharged on the 38th day.

Medical workers have tried hard to find combined Chinese-western ways to deal with cancer. Much data and important information has come from studying ancient Chinese medical literature, analyzing medicinal herbs and folk prescriptions, and from treating complications in the course of postoperative chemotherapy and radiotherapy with traditional Chinese methods. For instance, some Chinese medicinal herbs have been found effective in preventing epithelial hyperplasia in the esophagus from developing into cancer. Some can reduce the size of a cancer. Some strengthen the patient's constitution, reduce pain and prolong his life. In tests on animals some herbs give immunity to the next generation. Some ease the side effects of chemotherapy or radiotherapy so as to make the whole course of therapy possible. Though the experiments are still in the elementary stages, they have shown the possibility that some types of cancer can be cured with combined traditional Chinese and western medicine.

Treating fractures and acute abdominal conditions with combined traditional Chinese and western methods began earlier. In recent years these methods have been spread and raised to a higher level. Medical workers are trying to integrate the theories of the two schools on the basis of their growing experience and fruitful research.

Today the effort to create a new system of medicine and pharmacology in China through research, medical education and disease prevention and treatment have become ever more widespread. No longer confined to individual diseases, drugs or methods, it embraces whole departments, fields or hospitals. The aim of hospitals in China (see p. 5) is to become institutions where the two schools are effectively combined in almost all departments. Underlying this is the difficult task of integrating the theory of the two schools into one unified theoretical system.

Dr. Wu Hsien-chung (center) presiding at a discussion on how to treat an acute abdominal case without surgery.



Nankai Hospital —Combining Two Schools of Medicine

Staff Reporter

Treating pancreatitis with electric acupuncture.

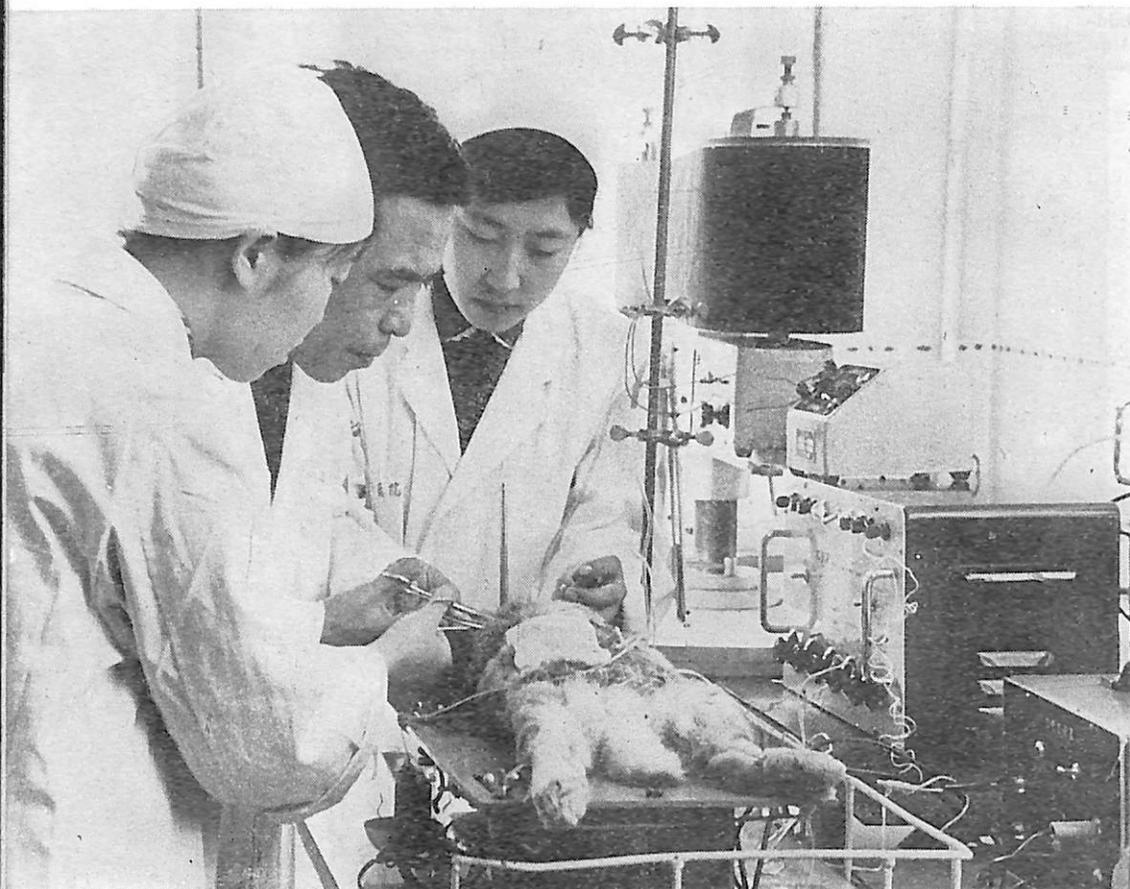


NANKAI Hospital in Tientsin, though not large and perfectly equipped, has become famous in China for its achievements in integrating traditional Chinese medicine with western medicine. Many doctors come from other parts of the country to study its experience.

One Saturday, in the early hours of the morning, an ambulance brought a pale, middle-aged man to the hospital. Examination and X-ray revealed an acute perforation of a peptic ulcer. The man was hospitalized and treated without surgery.

The patient was Sung Shu-chuan, a 44-year-old mechanic at the Tientsin Printing and Dyeing Plant No. 4. He had had a sudden abdominal pain so sharp that he could neither sit nor lie down. At a nearby hospital doctors decided on an immediate operation. Sung asked to be transferred to Nankai Hospital known for treating such cases without surgery.

At Nankai Sung was given acupuncture treatment to stop the pain and stimulate the closing of the perforation. A stomach tube



Finding out how traditional medicine works by an animal test.

evacuated food to reduce pressure. An intravenous drip was started to restore his energy and strengthen his resistance. His electromyogram, electrocardiogram, intestinal sounds and respiration were continuously recorded with electronic equipment. In five minutes Sung began to show improvement. In an hour his abdomen had relaxed and the pain markedly lessened. A few hours after a dose of traditional medicine to help absorb the secretion in the abdominal cavity was given, the pain was nearly gone and the patient fell asleep.

After six days of traditional medicine given by mouth, a fiberscope examination found that the perforation had healed. On the seventh day he was discharged, continuing to take "anti-ulcer" pills containing both traditional Chinese and western medicine in order to complete the cure. Sung was glad that he did not have to go through the pain of surgery and was able to go back to the plant in time to help install some new equipment. Sung Shu-chuan's medical care cost him nothing, as it was paid by the plant, but in this case the

hospital expenses were only 30 yuan, much less than if he had had surgery.

Taking the Good Points

Peptic ulcer, acute appendicitis, intestinal obstruction, pancreatitis, cholecystitis, gallstones, biliary ascariasis and extrauterine pregnancy all carry the same symptoms—sudden attack, rapid development, severe abdominal pain. They can easily result in death. In most cases western medicine relies on surgery. Its advantage is that it saves lives by removing the cause at once. Its disadvantage is that it causes pain, and can involve adhesions, post-operative infection and other complications.

Traditional Chinese medicine avoids these disadvantages. Used for centuries, it has accumulated an immense amount of clinical experience. But diagnosis is not as accurate and rapid as in western medicine.

With critical abdominal cases, is it possible to combine the strong

points of both Chinese and western medicine? In 1958 Chairman Mao called Chinese medicine and pharmacology a great treasure-house and urged that efforts be made to explore them and raise them to a higher level. He also advised medical people to combine Chinese with western medicine. Since then China's medical workers have made much progress in this direction.

In the last fifteen years Nankai Hospital has admitted nearly 10,000 acute abdominal cases. Those treated without surgery exceeded 80 percent for appendicitis, 90 percent for pancreatitis and biliary ascariasis, 70 percent for perforated ulcers and 50 percent for intestinal obstructions. This does not mean that surgery is never used. Acute cases were given medical treatment under constant observation, with surgery standing by if necessary. Surgery was used more often in such cases as strangulated intestinal obstruction, serious necrotic pancreatitis and complicated perforations. Whichever method was used, an attempt was made to combine the most effective measures of both Chinese and western medicine so as to make them work together and produce better results than either might produce by itself.

The results in treating acute abdominal conditions without surgery were encouraging and Nankai began to combine Chinese and western medicine in all departments. In 1977, of 222 types of common diseases handled in the hospital, 179 were treated with combined methods with satisfactory results. In the past four years, 80 percent of its 2,000 acute abdominal cases were treated without surgery, with a mortality rate of only 1.2 percent. Mortality in 430 myocardial infarction cases dropped from 14.28 to 11.8 percent. The short-term cure rate for bronchitis has also reached 70 percent. Marked improvement was shown in the treatment of skin diseases, open ulcers, hemorrhoids and fistulas.

The hospital has set up a research center to explore the scientific explanations behind traditional Chinese medicine and lay the the-

oretical foundation for integrating it with western medicine. Current efforts center on acute abdominal conditions, bronchitis, open ulcers and coronary heart diseases.

One notes differences in the Nankai Hospital. In the ward for acute abdominal cases, for example, most patients are under non-surgical treatment. Surgeons making their rounds need only ask about how they feel after taking Chinese medicine. Only in a few cases is it necessary to check incisions. It is difficult to tell whether the doctor is from the surgical or medical department, whether his training was in western medicine or Chinese traditional medicine. The patients' case records are more complicated, for they contain the results of tests and diagnoses by doctors in both schools. A coronary heart case, for example, will contain not only his electrocardiogram, cholesterol and triglyceride record but diagnoses by traditional Chinese doctors, including the related external and internal symptoms.

Nurses at Nankai take care of the patients using both types of medicine. Most of them have acquired some basic knowledge of traditional Chinese medicine and pharmacology. Many are familiar with some 120 traditional medicines and know some 40 acupuncture points. The dispensary carries both kinds of medicines and makes up the traditional medicines needed.

A Revolution in Outlook

Today 90 percent of the doctors in the hospital who only had western medical training before now have a general knowledge of traditional Chinese medicine and about one-fifth of them have reached the point where they are able to do research in it. Almost every one of them had gone through the process from doubt to trust, from wavering to becoming firm. "This is a revolution," they said, "a revolution to get rid of old forces of habit, to get rid of self-interest."

Not long after the people's republic was established, it was as-

serted that "western medicine will eventually replace traditional Chinese medicine", a comment made by Liu Shao-chi, then a leader of the state. Under this influence, doctors who always looked down on traditional Chinese medicine felt they were more correct than ever. Some who had taken Chairman Mao's advice and studied traditional medicine felt uncertain. As one of them said, "Whether traditional Chinese medicine is a treasure-house or trash remains to be proved." Surgeons who hoped to make a name with the scalpel were especially reluctant to heed it, feeling that studying traditional medicine would be more loss than gain.

One surgeon, for example, who didn't believe in traditional Chinese medicine would give traditional medicine to the patient just to go through the routine, then find an excuse to operate. He was hoping to prove that his way would be better than combining the two schools. He changed his mind only after the doctors began getting results with combined methods, and particularly after he spent some time as a member of a mobile medical team in the countryside.

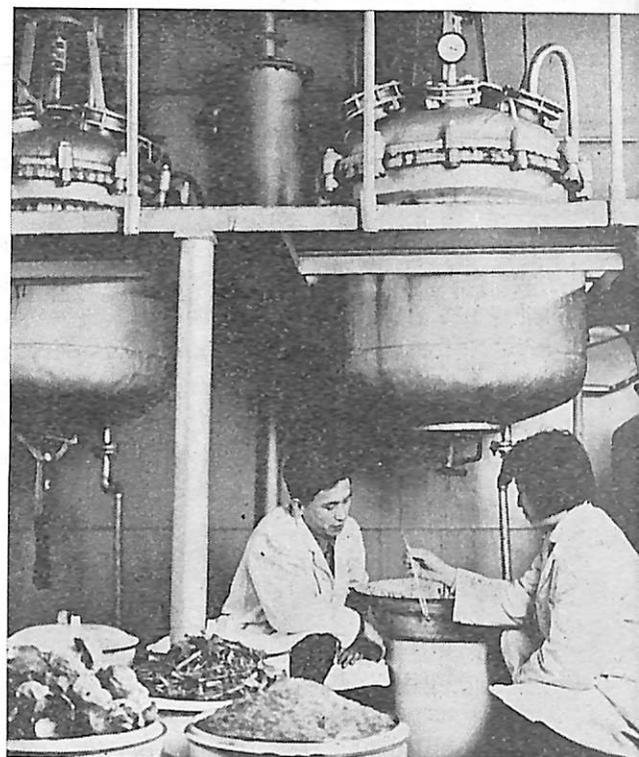
One day he had to treat an acute appendicitis case in a remote village without adequate facilities for surgery. There was no time to send the patient to a county hospital. Quickly weighing the chances, he prescribed some traditional medicinal herbs to bring down the fever and eliminate infectious elements. After taking five doses the patient was cured. Then the doctor realized that using combined methods was better than using western medicine alone and, moreover, the serve-the-people attitude more important than making a name with the scalpel.

Not all doctors changed their thinking. One asked to be transferred to another hospital. There are still those who take a wait-and-see attitude. But most of the hospital's staff are dedicated to the integration of traditional Chinese medicine with western medicine. Doctors, nurses, laboratory

technicians and herbal pharmacologists all try to improve their work constantly through practice and study. They know they are blazing a new trail. Recently 29 of them were cited as outstanding workers.

A New Horizon

Dr. Wu Hsien-chung, now 52, famous surgeon and vice-director of the hospital, is first on the honor roll in the work of combining the two schools. He was a member of the Chinese delegation to the 27th Congress of the International Society of Surgery held recently in



Making herbal medicines.

Kyoto, Japan, where one of the Chinese papers presented dealt with the treatment of acute abdominal diseases with combined Chinese and western methods. The paper was highly regarded by the delegates at the congress.

Dr. Wu was already a resident surgeon in 1948. Beginning in 1959 he studied traditional Chinese medicine for two and a half years. Since then he has been working on combining the two schools. Today he is leading the attempt to make Nankai Hospital a medical

(Continued on p. 31)

CULTIVATING MEDICINAL HERBS

FOR CENTURIES besides being patiently collected in their natural habitat, Chinese medicinal herbs have also been cultivated. Now intensive efforts are made to grow them and thus increase their availability. Today they are raised in most parts of China. South China grows the most varieties, particularly the provinces of Szechuan, Kwangtung, Chekiang, Yunnan, Honan and the Kwangsi Chuang Autonomous Region. Many are well known abroad.

The north has many famous herbs too, among them ginseng from the northeast, used as a tonic; Chinese angelica from Kansu province, used for anemia; the barbary wolfberry of the Ningsia Hui Autonomous Region for treating backache; and the sorrel rhubarb of Chinghai for acute appendicitis.

In 1958, when the State Council urged a policy of growing herbs locally for local use, cultivation expanded. This spread after the cultural revolution began and barefoot doctors in every part of the country started to raise them.

South China herbs have been acclimated and are now grown in the north (for example, Indian chiretta used as antibiotic and Madagascar periwinkle for treating leukemia). Northern herbs have gone south (such as ginseng from the cold northeast, now grown in Fukien province). More and more herbs, formerly collected in their wild state, are now being cultivated (for instance, the widely used membrane astragal and Chinese globeflower). Now new districts specialize in herb cultivation.

Between 1965 and 1975 the area devoted to herbs doubled and state purchases of important herbs more than doubled. Forty percent of them came from districts where cultivation was recently begun.

In order to discover new sources of medicinal ingredients, cultivate the herbs and raise output, the Institute of Medicine of the Chinese Academy of Medical Sciences has set up an experimental farm in Peking. The experience of 19 provinces in growing some 70 kinds of important herbs has been analyzed. A number of books, including *The Cultivation of Medicinal Plants* and *Handbook on the Cultivation of Common Chinese Medicinal Herbs* have been published. The Academy of Traditional Chinese Medicine has a research institute for this subject. There are also medicinal herbs research organizations in eight provinces.

One of the Institute of Medicine's jobs is to solve problems in the cultivation of herbs. Researchers go to live in herb-growing areas to study these problems with the local people. Experiments in Kirin province helped them learn how to accelerate the growth of ginseng, which used to take decades to mature. In Hupeh they studied the biological characteristics of Chinese goldthread and outlined methods of storing them and growing the seedlings.

In the north and northeast they investigated the sources of ergot, a wild herb used for gynecological disorders. Now ergot is cultivated in Peking. They also succeeded in crystallizing its effective component, ergometrine, by solid

culture and submerged culture. Ergometrine is now produced in quantity.

The rare and widely needed *gastrodia elata*, used in treating dizziness, headache, back and leg numbness, grows in Hupeh, Szechuan and Shensi provinces. Institute scientists studied the way it grows and reproduces and how to cultivate it. Both it and a hybrid of *Rehmannia glutinosa* are now grown successfully in large quantities. The wild *lingchih* fungus, used for high blood pressure and asthma, is now grown in glass jars by solid culture and submerged culture.

Institute researchers have also made progress in preventing and eliminating diseases and pests. For example, they found why barbary wolfberries turn black in Shantung province, a serious threat to their cultivation, and proposed measures to counter it. They have also systematically studied the life cycle of borers which attack the *Glehnia littoralis*, and now can forecast their appearance and take measures against them.

From left to right:

Tree peony, used for early stage of appendicitis, painful menstruation caused by coagulation or stoppage of blood, reducing pain caused by traumatic injuries, and high blood pressure.

Chinese quince, used in treating back and leg ache, numbness, vomiting, diarrhea and abdominal pain.

Madagascar periwinkle, used for acute lymphocytic leukemia, lymphosarcoma and high blood pressure.

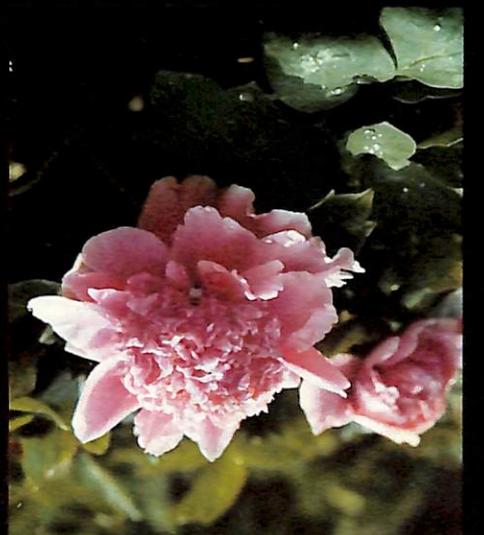
Aucklandia lappa, used for abdominal distention, vomiting and diarrhea.

Chinese globeflower, used for chronic and acute tonsillitis, acute inflammation of the middle ear, the eardrum, the conjunctiva and lymphatic vessels.

Ginseng, a well-known tonic, is used for treating asthma, palpitation, amnesia, thirst, profuse perspiration, loss of appetite and asthenia.

Blackberry lily, used for sore throat, tonsillitis, mumps, bronchitis, cough, enlargement of the liver and spleen, and mastitis.

Chinese peony, used for dizziness, headache, dysentery, pain caused by appendicitis, intestinal spasm and painful menstruation.



Ancient Pass on the

Old Silk Road

Staff Reporter

TUNHUANG is an oasis in the desert in westernmost Kansu province. It was a caravan stop on the Old Silk Road, opened during the middle Western Han dynasty (206 B.C. - A.D. 24). From Tunhuang westward, the road divided into two routes — one north and west through Sinkiang, the other to the south and west. Through them trade and culture flowed between China and countries in Asia and Europe.

Buddhism, coming from India along the southern route, reached China through Tunhuang. Subsequently many Buddhist monasteries appeared along the Old Silk Road, two of them being the Mokao Grottoes (also known as the Caves of the Thousand Buddhas) 25 kilometers southeast of Tunhuang and the West Caves of the Thousand Buddhas some 30 km. southwest. These are world-famous for their exquisite murals, painted statues and rock carvings.

I set out to explore the area west from Tunhuang to Yangkuan. Yangkuan was a pass in the old Tunhuang prefecture on the southern route of the Old Silk Road, fortified during the Han dynasty. It was used until the 13th century when most of China's trade with the west began to go by sea. Yangkuan gradually became deserted and fell into oblivion. By the eve of the establishment of the people's republic in 1949 the place had become a sandy waste. Today, 29 years later, the whole area from Tunhuang to Yangkuan is part of Tunhuang county, now an advanced unit in learning from Tachai, the national model farm brigade.

The Tang River Diverted

Accompanied by a county archeological worker, I drove west from Tunhuang along the Tang River. As our jeep passed the ancient seat of the old Tunhuang prefecture, we saw a few remains of side-towers (a part of tomb-constructions in the Western Han dynasty), the only signs of the inhabitants of 2,000 years ago. We crossed several fast-flowing irrigation canals and came to the edge of the oasis. In front of us was a vast stretch of desert.

At a worksite 30 km. west of Tunhuang, peasant builders were finishing a 35-km. trunk canal which this spring will begin bringing water from the Tang River Reservoir to irrigate fields and generate power. Several young peasants were installing a sluice gate to the canal. "This is Nanhutien near the southern branch of the Old Silk Road, the first stop out of Tunhuang for trade caravans leaving for the west," my archeological guide told me. "Two kilometers beyond here are the West Caves of the Thousand Buddhas, another treasure house of ancient art."

A few more minutes in the jeep brought us to the site. We climbed down a steep slope facing the old bed of the Tang River and arrived at the grottoes. Both the West Caves of the Thousand Buddhas and Mokao Grottoes were begun 1,600 years ago during the Eastern Tsin dynasty (A.D. 317-420). Repaired and expanded in later dynasties, they stood for centuries. But in the West Caves of the Thousand Buddhas, situated at a turn of the Tang River, the swift current gradually washed parts of the sandstone foundation away, causing cave-ins and damage over the long years. Only 16 grottoes have survived. Today one visits the caves along new wooden walkways.

The old Yangkuan trail ▲ marked by beacon mounds is now a wide highway on the desert.

A grape-drying room near the site of Yangkuan Pass of the Han dynasty. ►



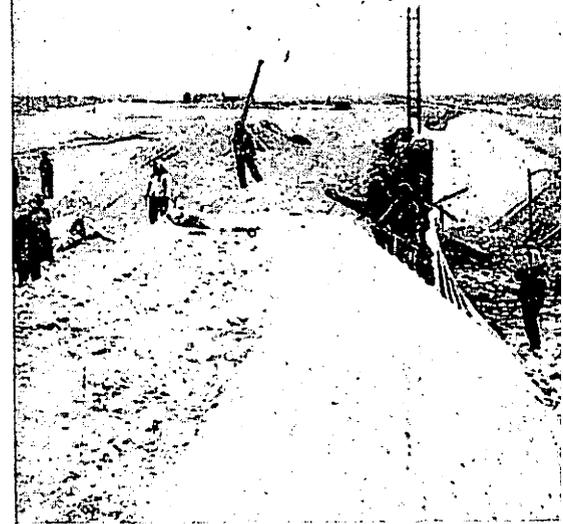
We climbed steps and passed from one grotto to another. Here are vivid and colorful mural paintings and statues dating from the Northern Wei (A.D. 386-534), Tang (618-907) and Five Dynasties (907-960). These ancient art treasures are valuable for the study of the history of Chinese culture. After 1949 the site was listed as one of the important cultural units to be protected by the new people's government. Special funds were allotted and the work of preservation and restoration was begun by personnel assigned by the state and the Tunhuang Cultural Research Institute.

In 1963 a temporary channel and dyke were built to divert the Tang River south of the caves to protect them from further damage. To provide permanent protection, the local people are building a trunk canal to move the Tang River to the north. Funds have been added for paving the walls of the trunk canal with concrete slabs to

prevent leakage which might damage the caves.

The Tang River Reservoir lies a few kilometers southwest of the West Caves of the Thousand Buddhas. The river that feeds it originates in the Chilian Mountains and has irrigated the fields in Tunhuang for generations. But it has also brought frequent disasters to the people. June and July flood waters often inundated fields on both sides of the river, washing crops away. Droughts usually followed the floods. In 1975 the people of Tunhuang county built their reservoir, installed a power station and sent power lines far out into the desert. The river has been forced to serve the people.

"There used to be only one power generator in the county, a thermal one," the director of the reservoir told me, "and only for industrial use. With our new power station, we can meet the electricity needs of the whole county for industry, agriculture and daily life. The

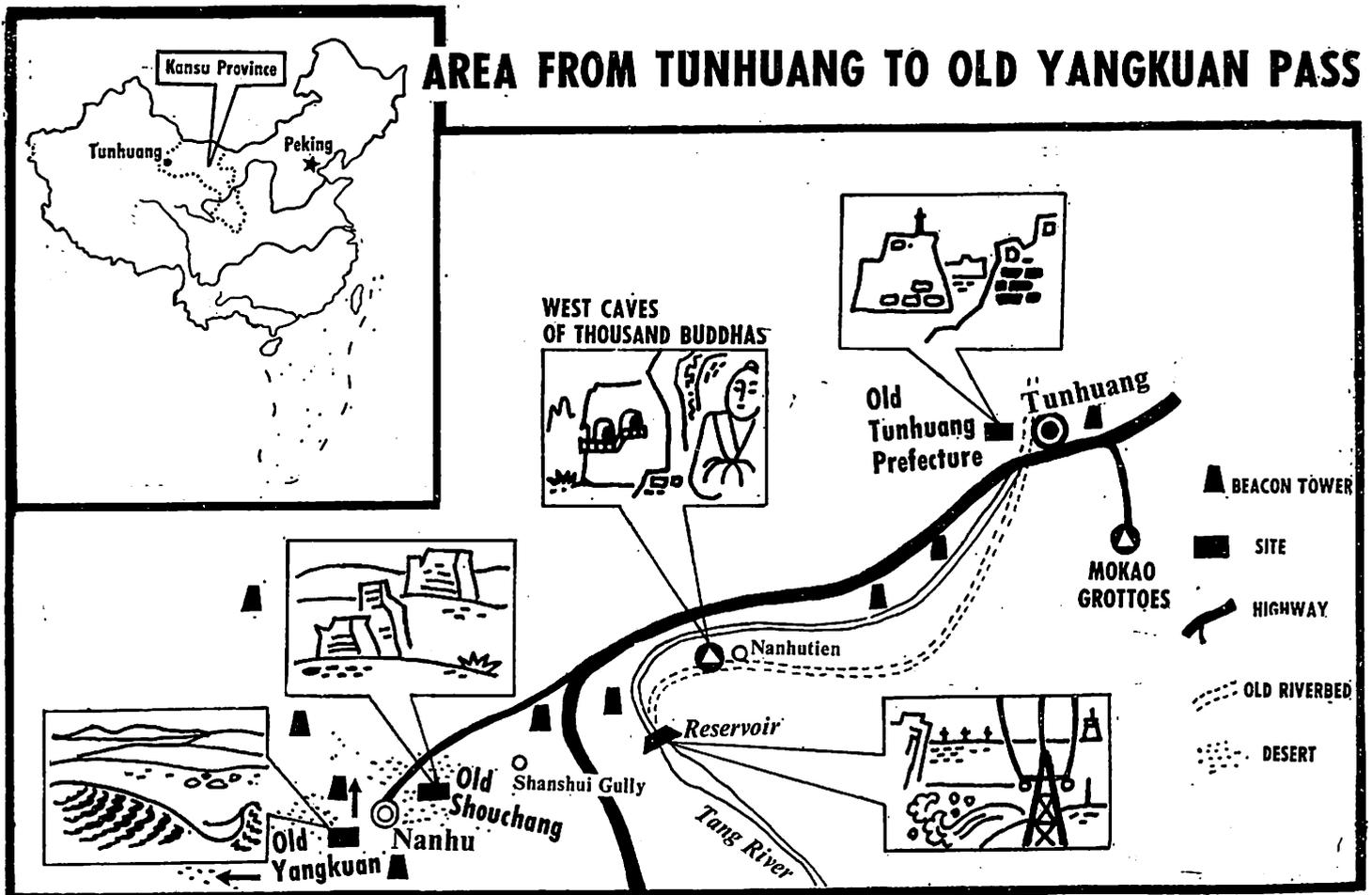


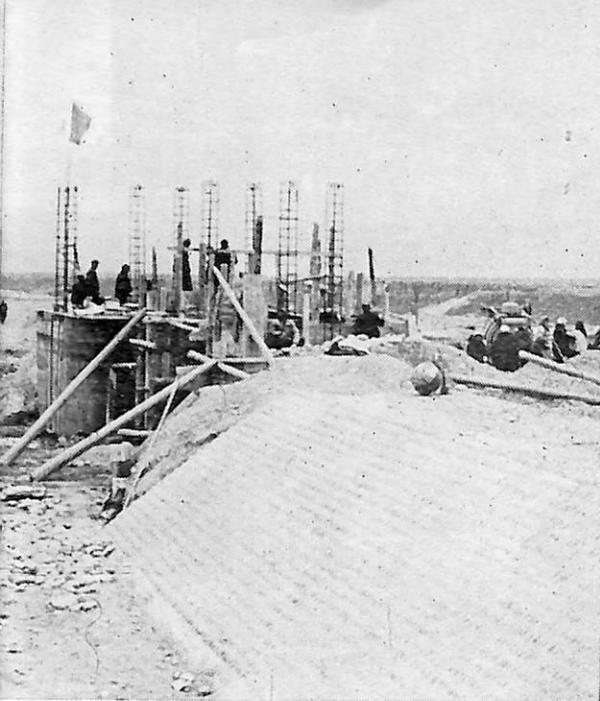
The trunk canal leading to the Tang River Reservoir under construction.

reservoir will irrigate 80 percent of the county's fields through a trunk canal and three branch canals."

At an Ancient Pass

There is a stone mound on a hill near the Tang River dam — the remains of a beacon tower built during the Han dynasty. Signal





Corn fields between shelter belts in the Nanhu commune.

fires were lighted on it in case of invasion. Such towers were landmarks for caravans on their way to and from China. Today the wide Kansu-Sinkiang Highway passes just below this stone mound.

Back in our jeep again, we drove on along this highway. Twenty km. west we came to a fork in the road on a slight rise in the desert. I was astonished to see several trucks full of fresh vegetables coming toward us. My guide said they were from Shanshui Gully, a small village not far away which had been a stop on the Old Silk Road. Remnants of Han dynasty housing had been discovered there, I was told.

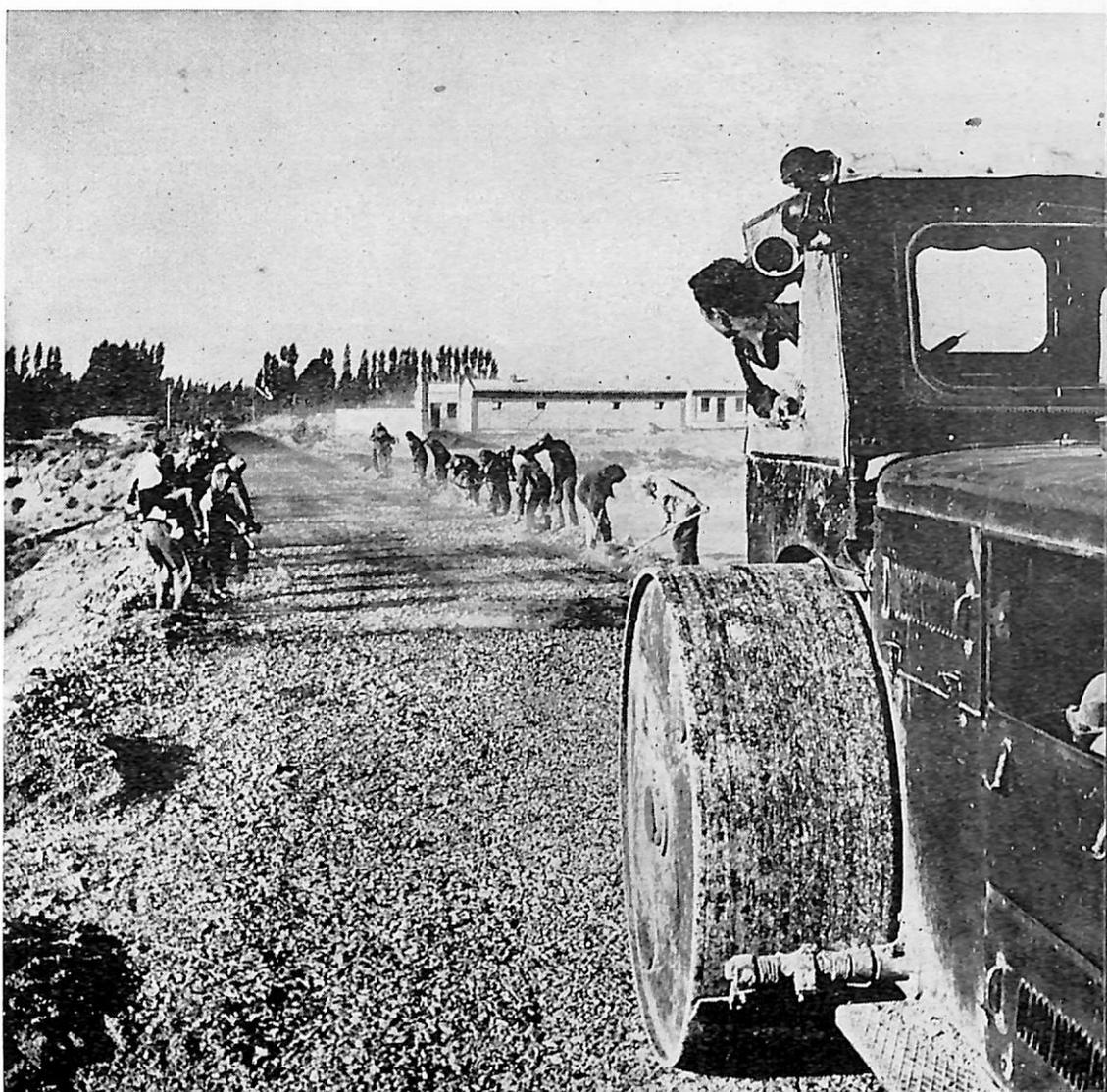
There we found a stream which had been flowing through the oasis in ancient times. A dozen years ago a group of workers and their families moved to Shanshui Gully from the Tsaidam oil field just across the line in Chinghai province. Bent on growing food for the oil field, they built a dam to store the stream water and reclaimed 100 hectares of land from the desert. Later they put up several large hothouses. Their farm provides large quantities of meat and vegetables, and some fruit and fish.

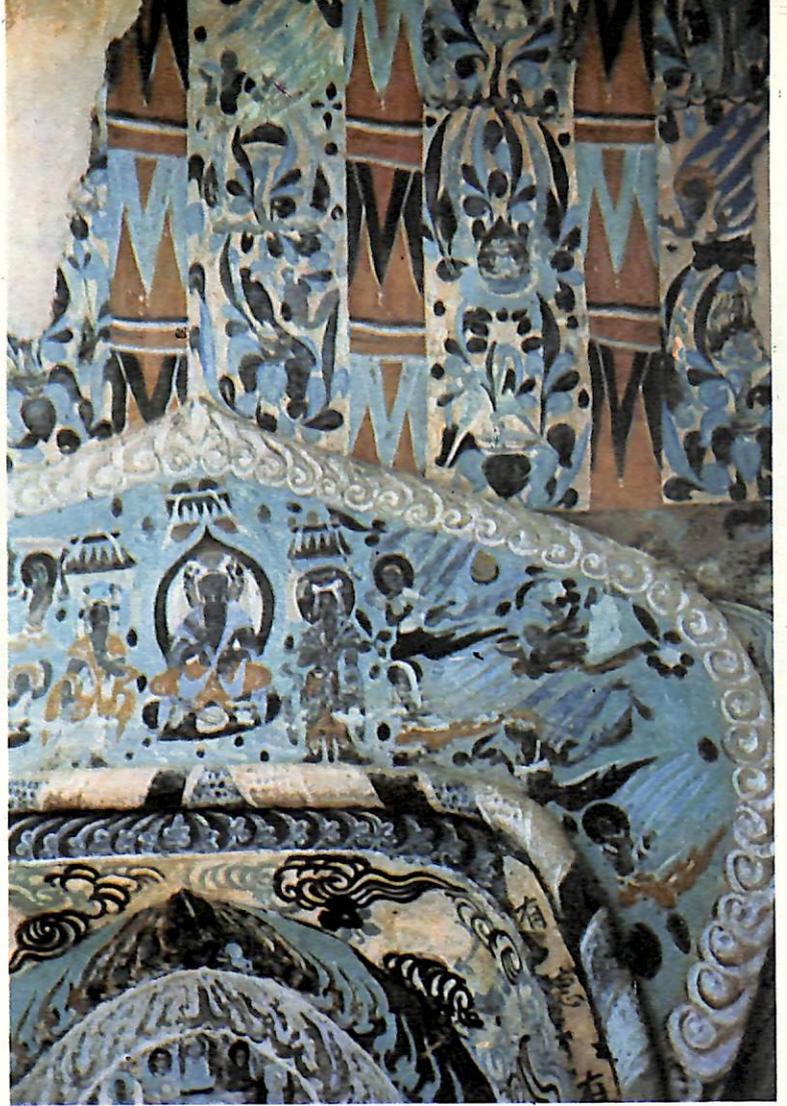
From Shanshui Gully a drive of a dozen kilometers farther west

took us to the Nanhu commune on the western edge of Tunhuang county. This is the site of the Yangkuan Pass and the Hungshan Pass of the Han dynasty, and Shouchang county town of the Tang dynasty. Here the Old Silk Road forked. Near the commune center we met a group of its

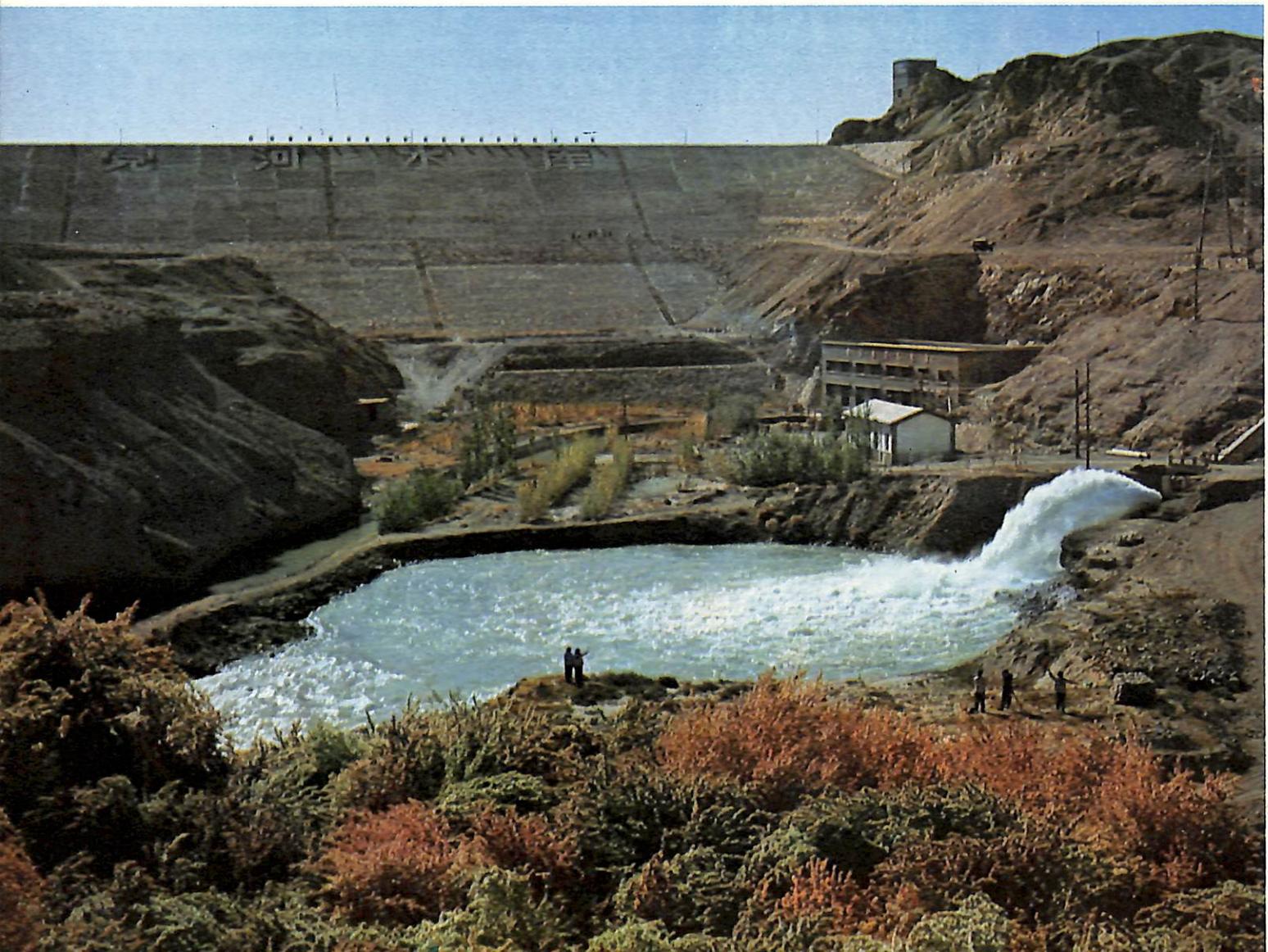
members asphaltting a road with a road-roller, two tractors and a truck of asphalted material. My guide spotted Wu Yung-hung, a vice-chairman of the commune revolutionary committee, on the road-roller and introduced me to him. "This will be our main street," Wu said. "Our commune

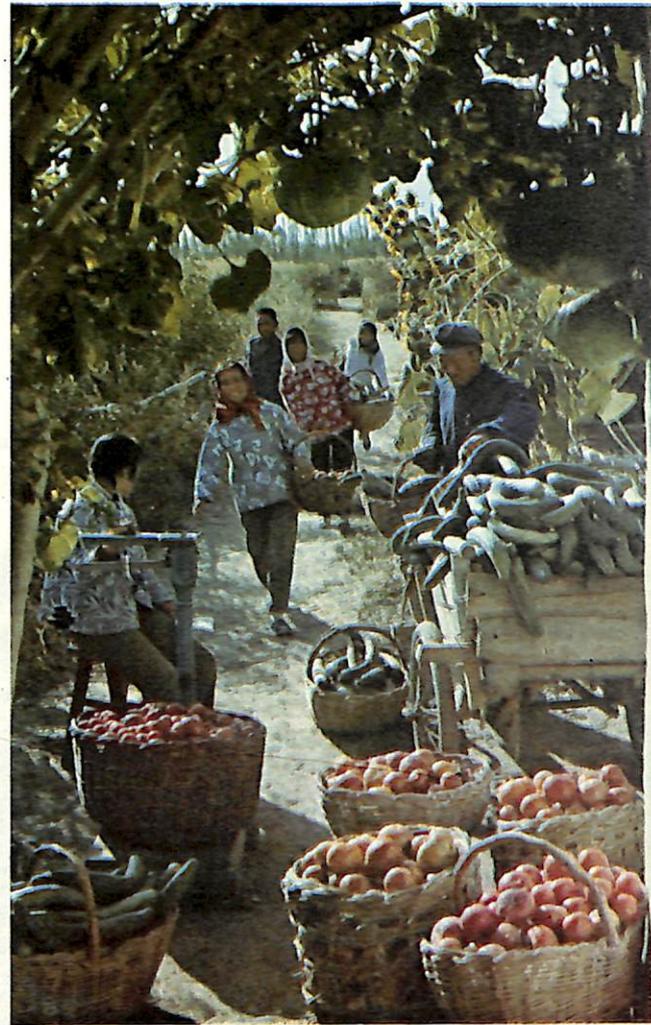
Asphaltting a road in the Nanhu commune.





Many reminders of ancient times, as well as life in the new society, can be found along the Old Silk Road. The West Thousand Buddhas Grottoes with rock carvings and mural paintings of the Northern Wei dynasty are located on the steep bank of the Tang River, across which a dam is built to divert water for irrigation and power generation.





Nearby the buried Tang dynasty city of Shou-chang (top) the Yangkuan brigade has built irrigation canals and the Peikung brigade grows vegetables.

offices, stores, a hospital and grain-purchasing station will be set up along it and it will serve our villages, middle school and agricultural machinery factory."

At the end of the new road we saw a large pool named Huangshuipa. A channel carries its water to irrigate fields. The 550-hectare oasis where the Nanhu commune is located is surrounded on three sides by sand dunes and desert. A Han dynasty beacon mound still stands high over the Hungshan Pass in the northwest. From the Han to the Tang dynasties, my guide said, this area was a stretch of marshland. East of the beacon was Shouchang, to the west, Yangkuan, a distance of three km. between them. Trade caravans from Shanshui Gully passed Shouchang first, and then the Yangkuan or Hungshan Pass to continue their journey along the Old Silk Road. The two passes were strategic military points controlling the routes to the west.

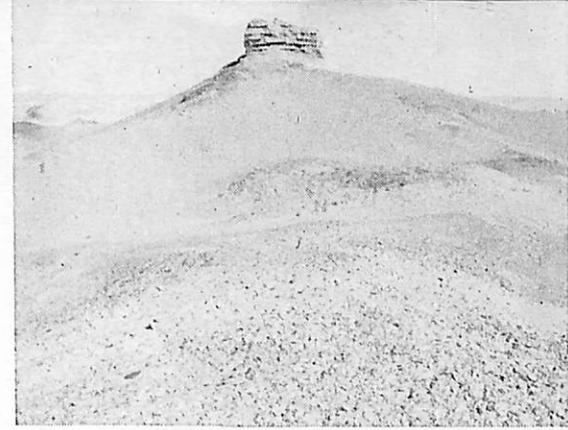
According to historical annals, the Huangshuipa Pool was called Wowa Pool in the Han dynasty and the Shouchang Sea in the Tang dynasty. South of it is a great stretch of grassland known from

ancient times for its fine breeds of horses. My guide told me a tale of how Emperor Han Wu Ti (140-87 B.C.) was offered a "heavenly horse". During his reign a man called Pao Li-chang was farming near Tunhuang. He often grazed his horses at Wowa Pool where he saw wild horses coming to drink. One of these looked like paintings of heavenly horses. He molded a large clay figure of a man, put clothes on it and a lasso in its hands, and set it beside the pool. When the horse got used to the clay figure, Pao Li-chang took its place and waited for the horse. At last he lassoed it. He presented the horse to Emperor Han Wu Ti, who was so pleased that he wrote the famous "Song of a Heavenly Horse".

Today a new dam and dyke have been built and Huangshuipa Pool enlarged. Its water irrigates 300 hectares of farmland. About 500,000 fish are being raised there. The ancient pasture now grazes 5,500 horses, donkeys, cattle and sheep.

Desert Wasteland to Farms

On our way to the site of Shouchang, we passed the Yang-



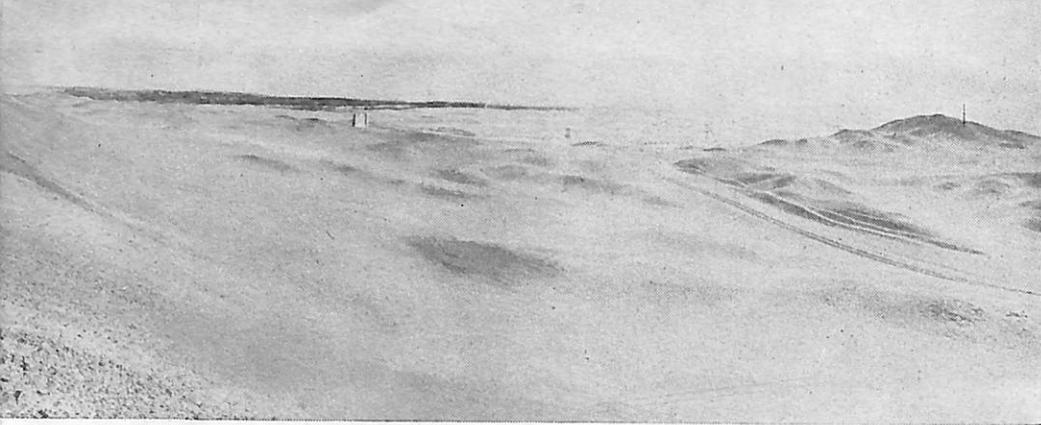
kuan brigade of the Nanhu commune where new villages have grown up along the western side of a tall shelter belt. Before 1970 there was only a rough road here with sand dunes on both sides. In 1970, after the brigade Party secretary returned from a visit to the Tachai brigade in Shansi province, he called the brigade members together and told them of the Tachai experience. They worked out a plan to change the sandy waste. Working hard through four winters, they reconstructed and straightened an old leaky channel from a spring five km. away, covered its walls with concrete slabs and brought water to the brigade. They have added 20 hectares of farmland and raised their grain output from four to eight tons per hectare.

Next to the Yangkuan brigade is the Peikung brigade. On both sides of the main street are neat rows of houses with whitewashed walls. Clean water runs in a ditch beside the shaded sidewalk. At a cross-road several women were washing clothes under a hand-pump well. Wu Yung-hung ushered us into a courtyard house and introduced us to his father, mother and two brothers. There were six clean and spacious rooms. His brothers brought in watermelons and Hami melons to treat us. They were so sweet and cool that our fatigue from traveling the whole day instantly vanished.

The place where the Peikung brigade was located had been a stretch of undulating sand dunes before 1966. Nothing grew here. The only things to break the sand were remnants of ancient city walls and houses. Wu Yung-hung and 64 others brought their families here to settle in 1966, building

On the bank of a reservoir in the Nanhu commune.





Ruins of a Han dynasty beacon tower at the Hungshan Pass.

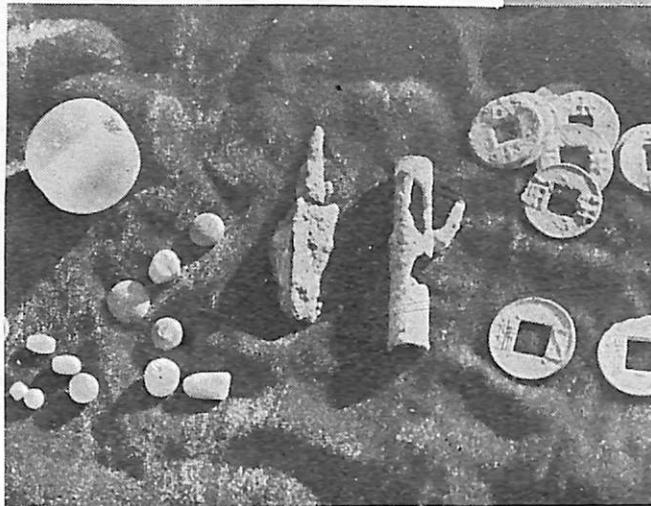
houses, digging channels and reclaiming land. But the sandstorms were fierce. Their channels filled up with sand and much of their wheat died the next spring. They went out to dig again and made up for the lost time. In the summer they harvested their first crop of wheat. In spite of hard living conditions, from 1967 to 1969 they planted shelter belts which gradually reduced damage caused by sandstorms. The new village has stood proudly here for 11 years. Crops are continuing to increase.

Abundant Relics

Out on the street once more, we walked across shelter belts and fields to the edge of the desert. We climbed up a sand mound and walked among the broken walls of ancient construction, from which we could get an idea of an old city. My guide said this was the location of the Lungleh county town of the Han dynasty, renamed Shouchang in A. D. 619 during the Tang dynasty. It was the last stop before trade caravans left Yangkuan for the west.

At the base of a ruined wall, I picked up a few corroded bronze coins from the Han dynasty and some pottery pieces with a wave design. "City walls in those days were made by ramming down red clay inside a wooden frame," my guide explained. "Pottery and other objects in the rammed clay indicate that the city walls were repaired by later dynasties. Some of these drop to the ground as the walls weather and crumble."

My friend had been a member of an archeological team organized by the Chiuchuan prefecture in Kansu province, which surveyed



The staff reporter and his guide at the site of old Yangkuan Pass. Right: Bronze coins, a bronze tube, an arrowhead and some necklace pearls found at the site.

and studied the site in 1971. The total area of the old Shouchang city is 83,500 square meters. East of the city there is the site of an ancient kiln. Ninety percent of the area inside the city is under drifting sand.

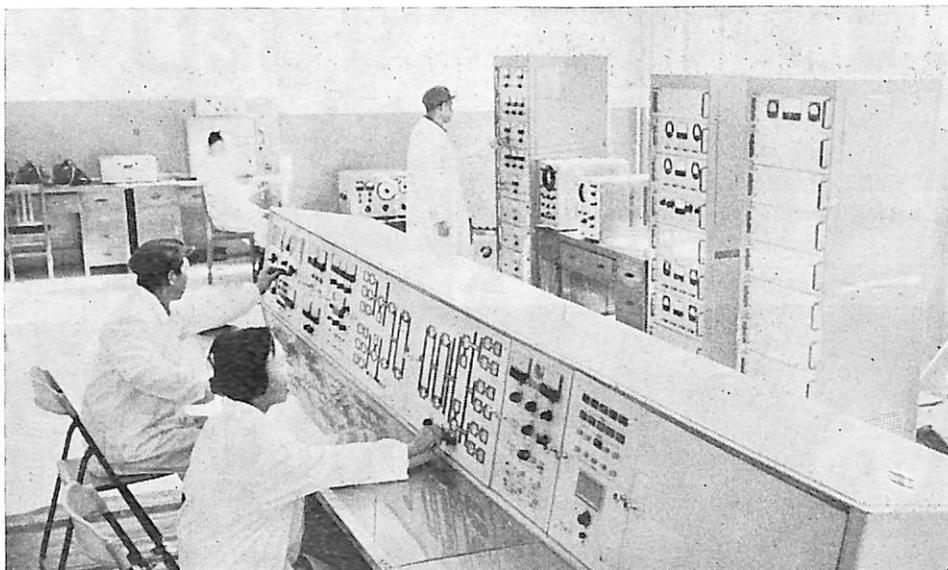
Measures were taken to protect the site and Wu Yung-hung was appointed head of a relics protection group in his commune. It has a member in every production team. Commune members were taught how to recognize, evaluate and care for cultural objects turned up during their farmland improvement projects. In the past two years complete pottery jars, millstones and some coins and iron artifacts have been found by commune members and turned in to the county department for protecting cultural relics.

The next day we reached the western tip of the Nanhu commune, site of the old Yangkuan Pass. Over the centuries the site had been weathered by water and storms and buried in sand. Gradually the drifting sand was blown away in places, exposing flat areas between a dozen sand dunes and a lot of relics — old pottery pieces,

remains of house foundations and signs of ancient cultivation.

As we walked among the dunes, we found several Han dynasty bronze coins. Though green with corrosion, the two characters *wu chu* (five cents) could still be recognized. We also picked up three necklace pearls, an arrowhead, a broken knife, some pottery pieces with different markings and a few coarse Tang dynasty porcelain pieces — proof that from the Han to the Tang dynasties people had lived and worked here. Yangkuan had been a prosperous city in the days of the caravans.

Before I left the Nanhu commune to return to Tunhuang, I climbed up a Han dynasty beacon mound near the Hungshan Pass for a bird's-eye view of the area. Oases like emeralds dotted the golden desert. Pastures, reservoirs, houses, fields, new roads and an expanded power station made the Nanhu commune a beautiful picture. Trees planted in the commune and state forest farms looked like a green Great Wall in the distance. Trucks and tractors shuttled back and forth on the highway. The barren desert of the past is gone.



Control panel of the Digital Satellite Communication Ground Station and its antenna.

New Digital Satellite Ground Station

THE FIRST digital satellite communication ground station designed and built by Chinese engineers and workers was put into operation with satisfactory results last year. An analogous satellite communication ground station had been built in 1975.

Now China has two types of satellite communication ground stations. As a relay station the satellite receives signals from one ground station, adjusts and magnifies them, and sends them to ground stations far away. The new station will transmit confidential telephone and radio messages, and word and picture facsimiles. It will transmit radio and television programs and the format of daily papers from Peking to other areas.

Satellite communication began in the sixties and digital satellite communication toward the seventies. China began its studies at the beginning of the seventies. The superpowers, relying on their



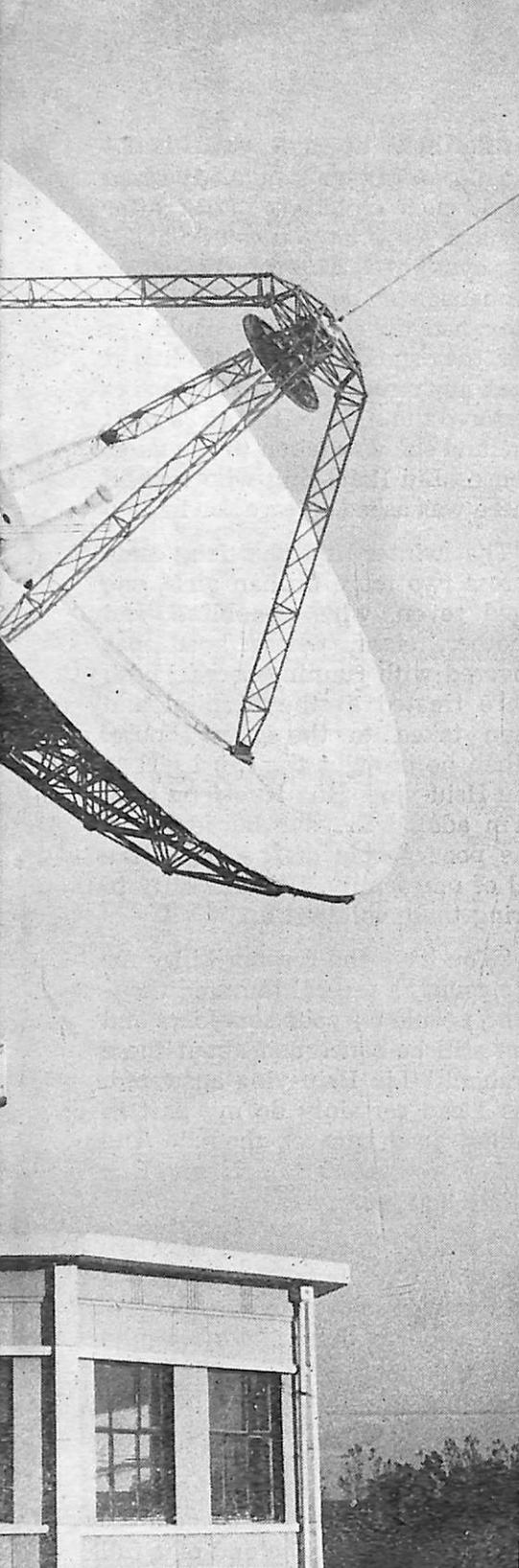
The high-speed digital telegram receiving terminal.

advanced technology, have sent up many satellites in an attempt to monopolize favorable positions in space. To break their control of space resources and space technology and catch up with advanced world levels, in 1975 Chairman Mao approved a satellite communication project. Premier Chou attached great importance to it and urged the scientists, technicians

and workers to complete it as soon as possible.

Researchers and workers went all out and built an analogous satellite communication ground station that same year. Then they turned to the digital satellite communication project. The departments of electronics industry organized to help. More than 120 units in 14 provinces and municipi-





New Power Station

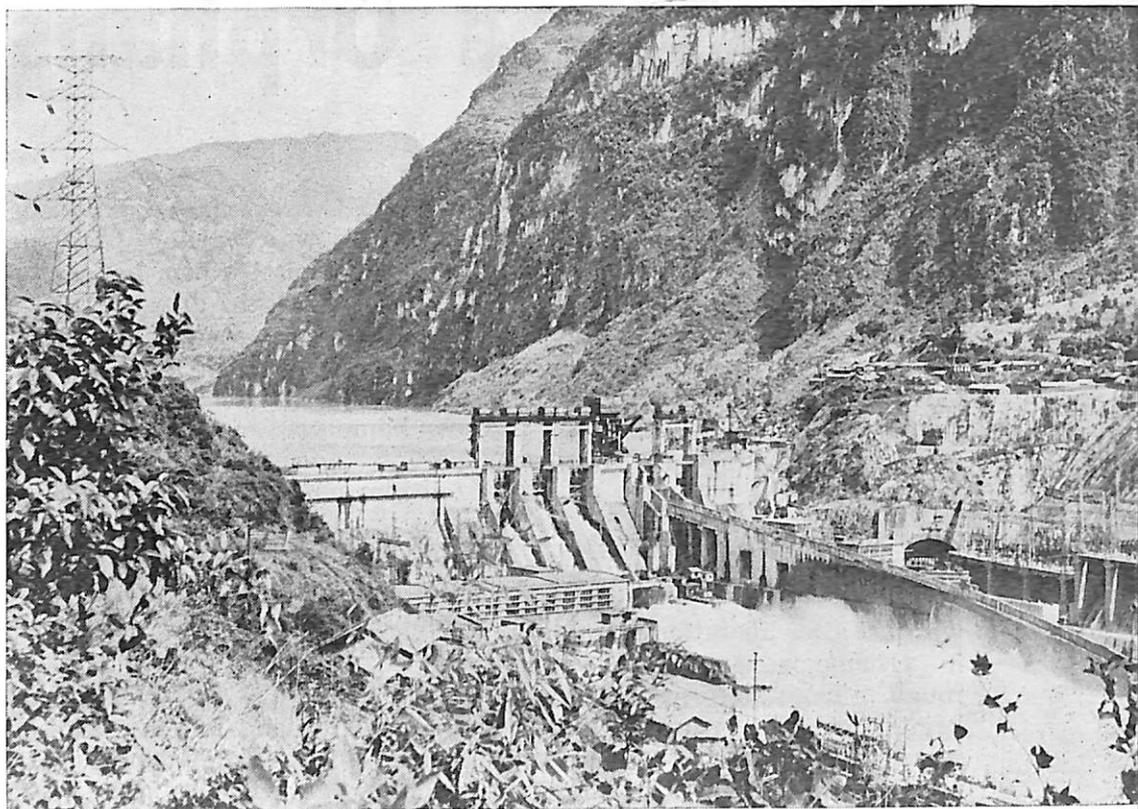
THE Kungtsui Hydropower Station, biggest in southwest China, now stands on the Tatu River, one of the most formidable natural barriers in Szechuan province. A big dam cuts the fast current, raises the water level and makes a drop of several dozens of meters. The turbines, all made in China, can produce fifteen times more current than in the whole province before liberation.

Southwest China has rich resources and many minority nationalities. But in the past there was little industry and electric power, and the local inhabitants were poverty-stricken. The Kungtsui Hydropower Station was built in

line with Chairman Mao's policy of developing hydropower and inland industry. Design, construction and installation were all done through China's own efforts. The project also controls flood and facilitates navigation, irrigation and the breeding of fish.

Six new turbines have been added since the first one was installed on December 26, 1971. The generating units are up to requirements and have withstood high flood waters. High tension wires carrying 220,000 volts connect with the power grids of Chungking, Chengtu and Ipin, facilitating the growth of industry and agriculture in Szechuan province.

Kungtsui Power Station.



palities worked closely together to accomplish the task.

Trial runs have shown that the station works satisfactorily. Antenna reception has approached the world advanced level. Two-channel color television programs come out clear and with excellent sound. It has created conditions for the growth of China's satellite and oceanic communications, space projects, economy and defense.



'Uncle Hua' and the Three Orphans

AT Spring Festival last year, three young women returned to their "old home", that of Liu Hsiu-ying, a worker at the guest house in Hsiangtan county, Hunan province. They decided to write a letter to an absent "family member", Chairman Hua Kuo-feng, who had brought them together.

In 1951 Hua Kuo-feng was secretary of the Hsiangtan County Communist Party Committee. It was just after liberation and things in Hsiangtan were still rather rough. Land reform had only begun and the working people were still suffering from the effects of oppression in the old

society. One evening in June Hua Kuo-feng was walking past the county hospital when he saw a three-year-old girl dressed in rags crying near the gate. He looked around but saw nobody else. He picked her up and asked her where her home was and what were her parents' names. The child could tell him nothing so he carried her into the hospital. He took out a handkerchief and wiped her eyes and discovered she was blind. Inquiries yielded no information. The only conclusion was that the child had been abandoned.

Hua Kuo-feng left the child in the care of the hospital staff. "The people's government must take

care of her," he said. "This is not the old society where nobody cared about such children. Look after her and see what you can do about her eyesight." The county had no orphanage so he said that when they had done all they could for her, they should send her to live at the county guest house. The doctors restored the sight of the girl's right eye and she was taken to the guest house. Liu Hsiu-ying who worked there was asked to care for her.

That winter Hua Kuo-feng came across two more orphan girls, one aged seven, who was blind, and another, eight, whose head was covered with running sores. Both were treated at the hospital and then taken to the guest house. When he brought the third girl to Liu Hsiu-ying, Hua Kuo-feng said, "I'm adding to your burdens, but the poor people of the world are all of one family. It's our duty to bring these children up."

"You have the responsibility for the county's several hundred thousand people on your shoulders and can still be concerned about these orphans," Liu Hsiu-ying answered, "so I can certainly do my part in taking good care of them." The girls were named Hua Hsiang, Hua Ching and Hua Ping.

The guest house served only two meals a day, but Hua Kuo-feng told the director to give the girls three, and to dress them warmly. To the girls he said, "You have lost your parents, but now Chairman Mao and the Communist Party are your parents and the people's government is your family." He was extremely busy with land reform, but once at the end of a full day his messenger noticed that before going to bed he wrote on

Hua Hsiang, now a rural commune member.



his list of problems for his attention, "Livelihood of the three orphans".

EIGHT-YEAR-OLD Hua Ping was sent to school right away. When the county hospital was unable to restore seven-year-old Hua Ching's sight, Hua Kuo-feng arranged for her to be sent to the prefectural and later the provincial hospital. Every available treatment was tried, but she could not be helped. Hua Kuo-feng went to visit Hua Ching and talked to her about learning to take care of herself and learning some skill. "Don't worry, Uncle Hua," said Hua Ching. "I may not be able to see, but I can still be useful with my hands. When I grow up I want to work for the revolution too." Later she learned to read and write in braille.

Hua Kuo-feng went to see them whenever he could. Before the younger ones started school he taught them to write the words "Long Live Chairman Mao", "Peking", "Tien An Men" and to sing the songs "The East Is Red" and "Battle Song of the Volunteers".

The county Party committee held its meetings in the guest house. Every time Hua Kuo-feng went to one, he stopped off to see the girls first. If it was early in the morning he would help them wash and comb their hair. Sometimes he brought his bowl of rice over and ate with them. Every time, he showed special consideration for blind Hua Ching. He always remembered them with candy at Spring Festival.

Several years later, when Hua Ping was about to leave for

work on a state farm elsewhere in the county, Hua Kuo-feng, now working in the Party committee of the prefecture, came to see her off. "Do as the Party says," he said, "and work hard."

A job was found for Hua Ching weaving in a factory for blind workers in Hsiangtan. One day in 1959 someone touched her on the shoulder and said, "Hsiao Hua, do you recognize my voice?"

"Uncle Hua!" cried Hua Ching, stopping her machine. Tears of happiness filled her eyes. Hua Kuo-feng, now in the provincial Party committee, was in Hsiangtan on an inspection tour. He clasped Hua Ching's hands and asked how she was. He was pleased that she was able to be of use and encouraged her to try to contribute more to socialism. Hua Ching's heart was filled with warmth as

she listened to the familiar footsteps moving away.

Hua Hsiang, youngest of the girls, became a commune member. Now, 25 years later, all three are married and have children.

When the news came that Hua Kuo-feng had been appointed Chairman of the Party Central Committee and its Military Commission, Hua Ching was so excited she couldn't sleep. Later she bought a portrait of Chairman Hua and hung it on the wall. "Is he in good health?" she asked her children. "Is he smiling?"

They assured her he was. In braille writing she inscribed a pair of scrolls with the words, "Closely follow our leader Chairman Hua. Make revolution to the end and never turn back," and hung them up on either side of the portrait.



Liu Hsiu-ying and the three young women recall how Chairman Hua brought them together.

Hua Ching (right) reading to her children from braille script.



Hua Ping (right) with young people at the state farm where she works.



A CHANGE IN THE RESISTANCE WAR

CHEN YI

Chen Yi (1901-1972) was an outstanding proletarian revolutionary and one of China's finest military leaders. After the People's Republic of China was established he served as a Vice-Chairman of the Military Commission of the Communist Party Central Committee, a Vice-Premier of the State Council and concurrently as Minister of Foreign Affairs.

After the outbreak of the war against Japan (1937-45) Red Army units then engaged in guerrilla warfare in the southern provinces merged to become the New Fourth Army. Chen Yi was appointed commander of the army's first detachment and later commander of the army. In June 1938, following Chairman Mao's instructions, Chen Yi took his troops behind enemy lines in southern Kiangsu province, established a base area centered around the Maoshan Mountains, and waged guerrilla warfare against the Japanese. Below are excerpts from an account of life there which he wrote in April 1939.

Rain

It was the rainy season when we entered southern Kiangsu in June 1938. Marching was a continuous struggle on muddy paths in the unending rain. The hardest was moving at night behind enemy lines. We were constantly crossing and recrossing the Shanghai-Nanking railroad, which bristled with Japanese block-houses and sentries. We raided enemy trucks, warehouses, trains and weakly-defended cities, always in the rain and mud. Almost everyone was cursing the rain.

Still my sharpest memories of those days are the buoyant spirits of the soldiers.

One day on the march the roads were a quagmire. One of the men had just warned the comrade ahead of him when he himself slipped and fell. "Do it again!" those behind him shouted gleefully. Another suddenly found himself sitting in the muddy water. A third was laughing at him when he himself tripped and fell. Somebody behind him shouted, "Hey, not so fast there!" and then slipped himself. It was becoming like a circus. Finally the political director yelled, "Watch your step! Quit clowning or somebody'll break a leg." But so as not to dampen the men's spirits, the company commander pointed to a blur in the distance and said, "Only five more *li* and we camp."

There was quiet for a while. Then someone observed, "It was never like this when we fought guerrilla wars in the hills of the south."

"Well, this is Kiangsu in the rainy season," I called from the horseback. I forgot to hold the reins

tightly and the horse lurched. We both tumbled and rolled into a slimy pond. I was dragged out like a drenched chicken.

By the time we camped everyone was a mud figure. We built several big fires to dry our clothes. A service corps man complained that his diary and books were soaked and the words in them blurred beyond recognition. The first thing the soldiers did was clean their weapons. My two loads of books were also soaked. It was no use doing anything about them for the time being. As I lay on a door panel in a dank hut I couldn't help cursing, "Damn this rain!" I felt I had been cheated. Poets throughout history had written so differently about southern Kiangsu.

But I cheered up at the sight of some of our comrades. They were standing around naked while their clothes dried, not complaining but laughing and joking about the slips and falls on the march. Such was the optimism of revolutionaries fighting to keep our country from being conquered.

Another Spring

Less than a year later we saw a different southern Kiangsu.

Beginning from the second month of the lunar calendar the lower Yangtze valley quickly shed its drab winter garb and emerged in a delicate blend of pastels — the yellow of rape in blossom, the green of young wheat shoots, pink peach blossoms and freshly whitewashed walls. The distant hills seemed to float in mist. Nearby was a scene of mirror-smooth ponds and farmhouses surrounded by running brooks and drooping willows. Around the lakes at night shimmer-



Commander Chen Yi in the southern Kiangsu base area during the anti-Japanese war.

ing moonlight added a sheen to the whole landscape. Even the Maoshan Mountains, which we had considered tactically worthless, seemed to have come alive.

Our unit had learned to fight in the mountains of the south, so when we got to Kiangsu which is mostly flat plain, we had hoped to make the Maoshan Mountains the mainstay of our base area. We had imagined lofty peaks, heavy forests and tall bamboos. But we arrived to see slopes and peaks practically treeless, with only a thin cover of grass not tall enough to conceal a man or a horse, let alone whole units. But as we became more familiar with the terrain we found that the grass was actually thick enough and there were a great many dips and recesses not obvious to the eye. It was entirely possible to conceal several small guerrilla units in these places. Gradually the beauty and value of the Maoshans increased for us.

As a native of Chengtu in Szechuan province, I had felt I was being generous when I allowed that the scenery of Kiangsu was as lovely as that around Chengtu. But when the wheat in Kiangsu turned a velvety green I had to admit I had never seen such lush scenes in my native place. But the people here insisted, "You haven't seen real Kiangsu beauty until you've seen Soochow and Wusih." That meant Lake Taihu. Our advanced unit had already reached the east shores of the lake and got together with local guerrilla units. As commander I ought to go there

myself and have a look at the newly expanded guerrilla area and the famed landscape.

One evening my colleagues and I climbed up a hill. From the top we tried to identify the landmarks. Those are the Maoshans. That's Chienyuan Monastery. Over there are the Paohua ranges and at its western end is the famous Dragons' Pool. To the southeast are the shores of Lake Taihu. Over there is Lake Changtang and near it are the hills of Yihsing. Straight east are Soochow and Wusih. To the north is the railroad, beyond which flows the Yangtze. The afterglow of the setting sun had turned the rape blossoms a rich gold. Willows along the dyke stretched in a straight line into the distance. Boats moved slowly down the river, the tips of their sails brushing the treetops. Perhaps the liveliest objects in the landscape were a dozen or so children whipping the buffaloes they were riding in a race toward the farm huts in the distance.

"What a wonderful spring scene!" one of the men exclaimed.

"But there's something here that doesn't belong," I said.

"What?"

"Guess."

"The outdoor latrines?"

"No."

"You tell us."

"The Japanese."

"Right!" several voices exclaimed. "We must drive the Japanese out! This good spring weather should help us give them some good blows."

I was reminded of a letter a comrade wrote me in which he said, "I love this springtime and the fighting it brings." Well said, for we were really giving the Japanese some stiff fighting in these lovely spring days.

Army and People

Getting ready for the battles to come, we trained our troops on grassy stretches. Speaking at a meeting of one of the corps I asked, "How many were there in your unit when you first came here?"

"About three hundred."

"And now?"

"Several hundred more."

"Let's take a count," I said. "Those from Kiangsi raise your hands." Twenty-one hands went up. "Hunan." Eight. "Kwangtung." Two. "The north." Fourteen. "Szechuan." Four, including myself. "Southern Kiangsu." A forest of hands went up and it was difficult to count them all.

We had always found it helpful to educate the men in the history of the New Fourth Army, especially

in the fine traditions of its predecessor, the Workers' and Peasants' Red Army. So I went on to ask, "Where are the veteran comrades from Kiangsi and Hunan now?"

"Died for the country," came a roar of voices.

"What shall we do now?"

"Advance on the ground reddened with their blood."

"Right!" I shouted. "The New Fourth Army is fighting the Japanese invaders in southern Kiangsu, so the people of southern Kiangsu should love the New Fourth Army as their own troops. When the army and the people unite in the struggle we will be victorious. The New Fourth Army should integrate itself with the people here. The people of southern Kiangsu should join hands with the New Fourth Army."

Three or four hundred people from nearby villages had gathered outside the circle of our troops and had been listening attentively to my talk. As our

meeting broke up I heard happy laughter all around. I couldn't tell whether it came from the soldiers or the people. But this was the voice of the Chinese people, the voice of resistance.

When I got back to camp, a political department comrade told me that an elderly woman had come to enroll her 16-year-old daughter in the service corps. A man from Chenchiang brought in some thirty new recruits. A work report from our First Regiment described how an old peasant had brought his son to enlist in our army, even bringing his own rifle.

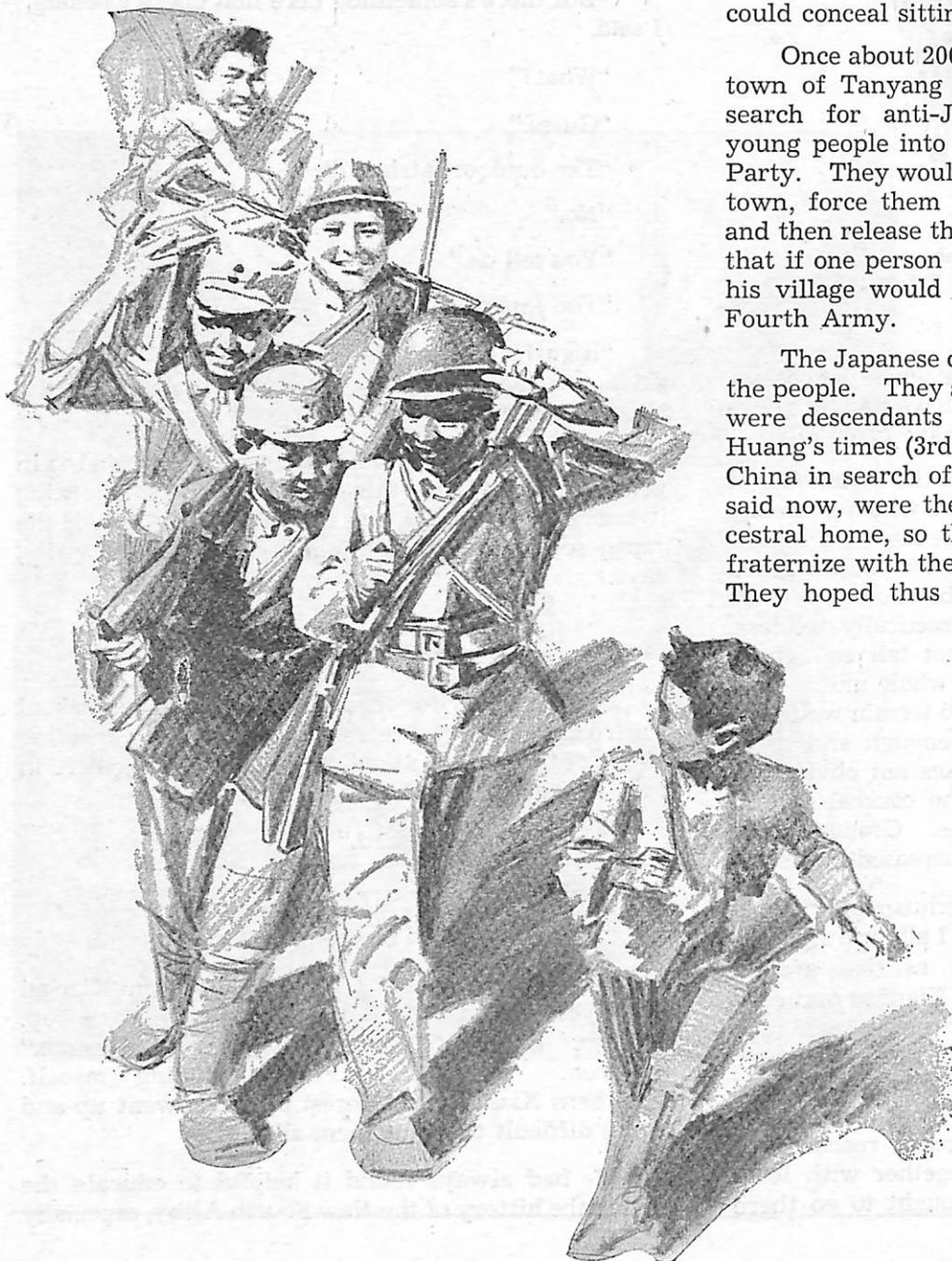
These reports added excitement to my satisfaction at this morning's meeting. From the next room came the voice of my young orderly singing, "Fight and resist, and the Chinese nation will never be overcome . . . never be overcome!"

Ambush

In north China the best time to waylay the enemy was when the corn and sorghum were tall enough to make "green curtains" for us. In southern Kiangsu the spring wheat and rape were not as tall but they could conceal sitting or crouching men.

Once about 200 Japanese soldiers from the county town of Tanyang went out into the countryside to search for anti-Japanese activists and intimidate young people into organizing against the Communist Party. They would kidnap the gentry, take them into town, force them to write declarations of surrender and then release them. The Japanese spread the word that if one person refused to submit all the people of his village would be punished as spies of the New Fourth Army.

The Japanese distorted Chinese legends to deceive the people. They said, for example, that the Japanese were descendants of Hsu Fu, a man of Chin Shih Huang's times (3rd century B.C.) who had sailed from China in search of immortality. The Japanese, they said now, were therefore only returning to their ancestral home, so the Chinese should welcome them, fraternize with them and share prosperity with them. They hoped thus to erase from Chinese minds the



Back from victory.
Drawings by Kao Chuan

wrathful urge for resistance against aggression. It was the invaders' new policy for this spring and it was not entirely ineffective, for in some places people believed it. We actually heard people say, "The Japanese army has changed for the better."

Now as the 200 Japanese approached, a New Fourth Army company and two local guerrilla units lay in ambush along the route they would take when returning to the county town. The men lay flat on their stomachs in the fields along a rise in the ground. Several hours went by and some became impatient. "Maybe they're not coming this way." "Maybe they took another road." "Let's go back. We've waited long enough." But the company commander warned every now and then in a firm voice, "Quiet! Don't let your attention wander." "Don't go to sleep." "Keep your heads down." "We need silence and patience for an ambush. Expose yourselves and the ambush is a failure."

The sun was sinking fast. Suddenly word was passed along, "They're coming!" Excitement rippled through the watchers but nobody moved. The company commander was the only one with his head up.

Now he said in a low voice, "Eighth Company, advance at a crouch along the wheat field and get into position to intercept the enemy. Don't open fire until they're very close." Eighth Company moved off.

"Chintan guerrillas, as soon as the enemy crosses the bridge, run for the bridge and hold it to cut off their retreat, then open fire and force them into Eighth Company's firing range." The Chintan guerrillas went off.

"Tanyang guerrillas, follow me. Support Eighth Company and be ready to take over."

A shot, then hand grenades and the rattle of machine guns. The Chintan guerrillas had opened fire. The Tanyang men straightened up and leaped shooting at the enemy's marching column.

As the Chintan guerrillas took the bridge, the Japanese swerved in the direction of Eighth Company, right into machine-gun and rifle fire from the fields. Stunned, they wheeled in confusion and ran straight into the Tanyang fire. Stunned again, they fled. Our men pursued them. By the time reinforcements came to help them the fighting was over. The enemy ran off, leaving 17 dead. We captured two wounded Japanese, an interpreter and 12 rifles. Our casualties were one dead and three wounded.

The company commander made a brief sum-up. "The Chintan guerrillas fired too soon, before Eighth Company got to its position and had the enemy within range of fire. This enabled the enemy to retreat southward. Then the Tanyang men were a bit slow. They had time to fire but not to get close enough to fight hand to hand, so that the enemy escaped. These are big faults. Still, on the whole it was a successful ambush, a good example of seasonal warfare and utilizing terrain and standing objects. I dare say from now on the Japanese will be afraid of wheat

fields. We should also be on the alert for enemy ambush."

The men marched back with the captives and captured rifles, overcoats and flags to the cheers of the villagers who had lined the streets to watch.

"The guerrillas couldn't have done it without the army," one old man was overheard saying.

Back in camp some two dozen villagers came up pushing a Japanese captive. "This devil was hiding in a wheat field and didn't dare come out." Several people tried to tell the story at the same time. "At first we thought he might shoot, but when we got near him we saw he was kowtowing. So we've brought him over."

"Where's your gun?" the commander asked through our interpreter.

"I dropped it in the pond over there."

Epilogue

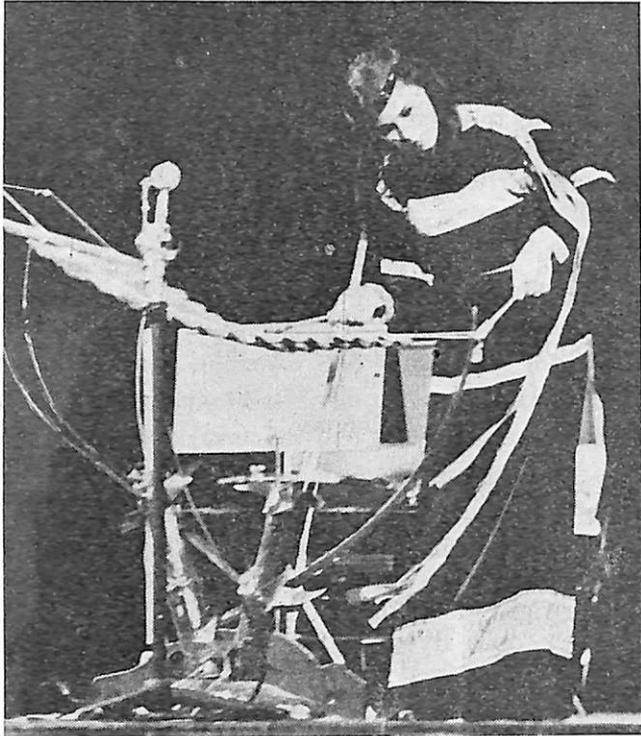
A year ago when our army first came to southern Kiangsu the Japanese were riding roughshod over the people, killing, looting and burning. Chinese army and local armed units of various designations either didn't dare fight them or simply couldn't hold their own. The people lived in perpetual fear and felt there was no hope in resisting. They wouldn't have slogans written on the walls of their houses for fear the Japanese would burn them. They wouldn't let New Fourth Army men live in their homes or ancestral temples because they knew the Japanese would kill indiscriminately. They wouldn't let our troops wreck roads and rails because the Japanese would come back with reprisals. Everywhere we went we were told, "Don't do your fighting here. Do it somewhere else." "Better go away, Commander Chen, you've only got seven rifles in your headquarters. If the enemy should surround you, you won't be able to get away even if you disguise yourself as a peasant."

Things were quite different by 1939. In a talk I gave to army cadres in April I summed it up this way: "We are fighting a successful guerrilla war here in southern Kiangsu, a situation we worked hard to create. By constantly harassing and hitting at the enemy the New Fourth Army has inspired the people. The rise in the people's morale has in turn helped our resistance effort. We can draw this conclusion: China is weaker than Japan in military strength, but Chinese military strength combined with the strength of the Chinese people will be far greater than Japan's military strength. Cooperation between the Chinese army and the people will lead to victory over the Japanese aggressors. We are making full use of our military strength, but there is still great potential to be tapped among the people. This is a weak point in our work. We must not be complacent in the least. We must mobilize all anti-Japanese forces, expand army-people cooperation, and extend our forces and influence eastward toward Shanghai, northward across the Yangtze and establish connections with the Eighth Route Army in Shantung province. Then victory will be ours."

Cultural Notes

"Song of Unification" by a member of the Vietnamese National Music Ensemble.

Performing on the *tarung*, a traditional Vietnamese folk instrument.



Stage Art from Vietnam, Bangladesh and Romania

AMONG stage art from abroad Chinese audiences saw last year was that from Vietnam, Bangladesh and Romania. Bringing their national art and their people's friendship for the Chinese people, troupes from the three countries were welcomed enthusiastically by audiences in Peking and the many other cities they visited.

Through the performances of the Vietnamese National Music Ensemble, which came on a 22-day summer tour, Chinese audiences gained a view of the Vietnamese people's revolutionary life and struggles. As they heard the "Song of Unification", a soprano solo sung in folksong style, they tasted the Vietnamese people's joy in victory after the long battle for

A dance from Transylvania by the Doena troupe.



unification of the north and south. With the tenor solo "Vietnam-China" — well-known in both countries — the audience recalled the fraternal friendship and militant unity between the two peoples.

The repertoire also included many pieces played on Vietnamese national instruments: the single-stringed *dan bau* with its soft lyrical tones, the bamboo *klong-put* with its rich clear tones, the *tarung*, a bamboo percussion instrument with deep resonance.

THE ATMOSPHERE of rural Bangladesh was evoked by the Manipuri Dance, a tribal dance of the Sylhet region with which the Bangladesh Cultural Delegation began its programs during its two-week tour in July. In the silvery moonlight on a quiet tropical evening, country girls in beautiful costumes portrayed in dance their dreams of a happy life. In an added expression of friendship for the Chinese people at the end, the dancers, carrying silver trays piled high with fresh blossoms, stepped down from the stage, and, to the accompaniment of drumbeats and soft music, passed among the audience showering them with petals as they responded with thunderous applause.

The troupe brought altogether eight dances and 18 songs repre-



The Fishing Season, a Bangladesh dance.



A movement in the Manipuri, a Bangladesh dance.

sentative of its country. Many numbers reflected the Bangladesh people's determination and glorious tradition of struggle against imperialism, colonialism and hegemonism. "The time to smash the chains has come. Our days of oppression will soon be over. Let us hold our banners high and smash the enemy's plots," sings the chorus in the song "The Sun Has Risen in the East". Another song runs, "The rainy night has passed. How bright the rainbow-colored dawn. I love this land. I love this beautiful sunlight."

THE CHINESE audience felt very close to the Doena Art Troupe of the Romanian Army, for this (September 26-November 1) was its fourth visit to China. This troupe with a revolutionary history performs some of Romania's finest traditional stage art. Songs in the rich voices and harmony of its male chorus express the loyalty and love of the Romanian people and armymen for their socialist motherland and their determination to defend the fruits of the revolution and their national independence and sovereignty. The troupe's lively, colorful folk dances are filled with the Romanian people's love for their native soil, their confidence and pride. The unique tones of the *nai* (Romanian-type panpipes), the *cimpoi* (a Romanian flute) and melodies like "The Skylark", long familiar in China, call up scenes of life amidst Romania's lovely mountains and rivers.

The Romanian Doena troupe's male chorus.



Rational Close Planting

The Eight-Point Charter for Agriculture covers soil, fertilizer, water conservation, seed selection, rational close planting, plant protection, reform of tools and field management. Formulated by Chairman Mao in 1958 to promote the development of agriculture, it summed up the rich experience of the Chinese peasants and laid down these main principles for scientific farming. In August 1976 and June, July and November last year, *China Reconstructs* carried articles on the first four points of the charter.

CLOSE PLANTING, done in a rational way, ensures full use of land while still guaranteeing that plants have enough sunlight and fertilizer. It has been widely adopted by communes all over China in the drive to increase harvests.

Close planting involves a scientific assessment of the density with which crops can be sown. Under this point intercropping and the cultivation of two, three or four crops on the same field in a year are included.

Generally speaking, the density with which plants can now be sown reflects the progress made in soil improvement, fertilizer application, drainage and irrigation, seed improvement and field management. In many parts of China the density in planting has been increased many times since liberation.

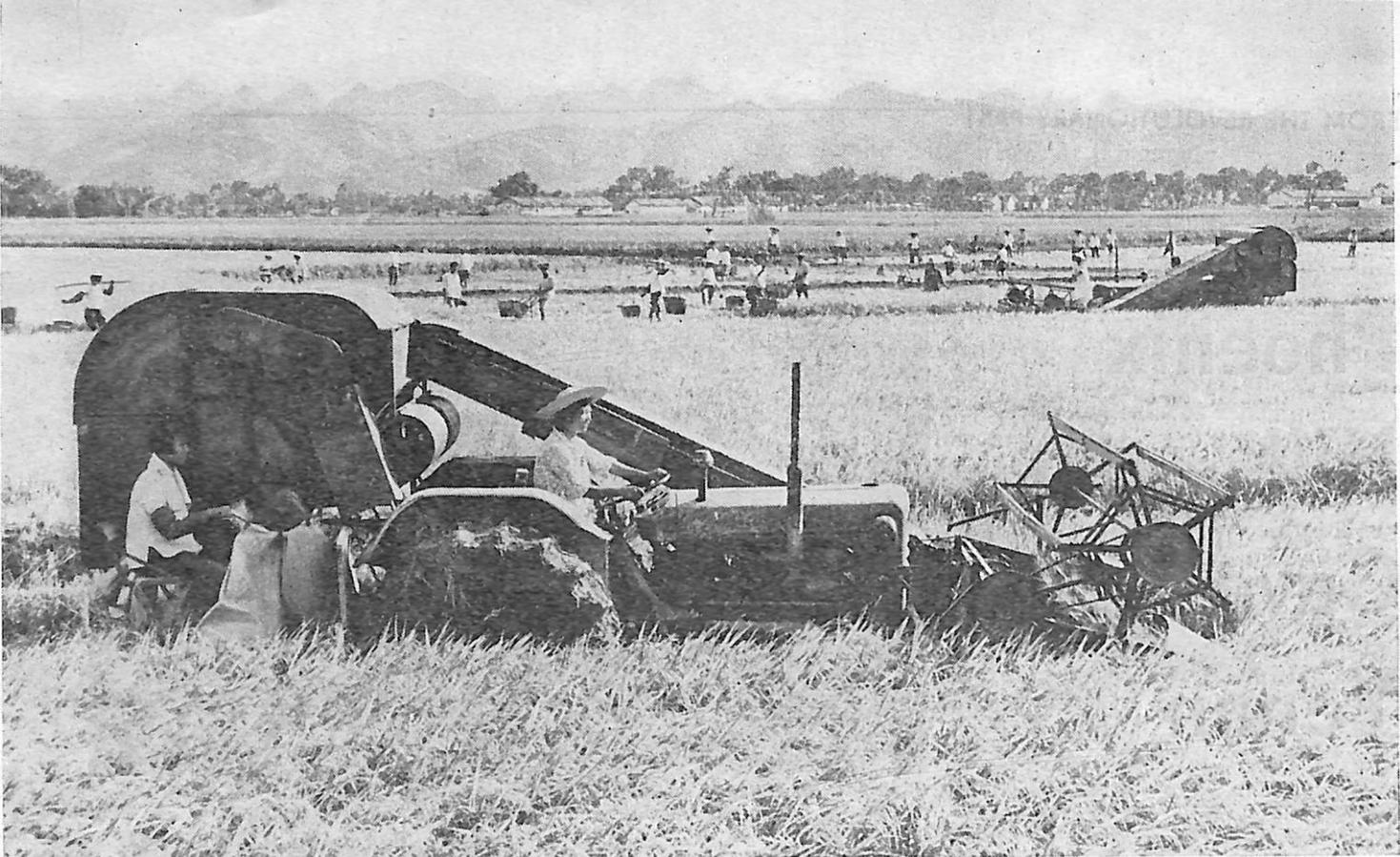
Before liberation, Chinese farmers spaced rice seedlings 10 inches between clusters and 14 inches between rows. Today the space is about 4 and 7 inches. This

means that where 90,000 to 150,000 clusters of rice seedlings were planted per hectare before liberation, 300,000 to 600,000 clusters are now set out. Some southern communes have got 7.5 tons per hectare in a single crop. Rational close planting is also used for cotton and wheat.

The interplanting of two or three crops is an old practice of Chinese peasants. Since the communes were set up in 1958, it has spread far. It is common to see fields where one crop is about to be harvested and another sprouting between the rows. Much land is farmed through all the seasons of the year.

In a field intercropped with wheat and cotton, members of Shihchiao commune in Shantung province accumulate data on increasing wheat production.





Rational close planting brings a good harvest of early rice in the Kwangsi Chuang Autonomous Region.

Intercropping differs widely in different areas. To get two crops a year in north China where the growing season is short, planting corn or cotton between the rows of wheat is the common pattern. In some places, after the wheat has been harvested, late corn is sown or transplanted in the vacated rows as a third crop. In the south where the frost-free period is longer, the intercropping patterns are more diversified.

In both north and south, tall-stalked crops (such as corn and sugarcane) are grown with short-stalked plants (such as soybeans, tobacco and potato) in combinations which give full use of sunshine and air. Crops having tap roots (such as cotton) and those having fibrous roots (such as wheat) are often interplanted to help keep the soil loose. The peasants also interplant early-ripening crops (such as vegetables) with late-ripening crops (such as cereals). These crops

absorb nutriment at different times in their growing periods and make possible a more efficient use of the fertilizers in the soil.

Changes in cultivation methods have replaced the one crop a year or three crops in two years common in the north. Now two crops a year are grown in the north and even three in some places. More and more areas in the south have switched from one or two crops a year to two or three crops. Fields producing three crops a year in the south are generally planted twice to rice and once to wheat, beans, rape, tubers, tobacco or a green manure crop. In China's southernmost province of Kwangtung, some places are experimenting with growing four crops a year.

The patterns for close planting in different areas have been selected after being tested through mass scientific experimentation. Many communes, brigades and teams keep plots for comparative experi-

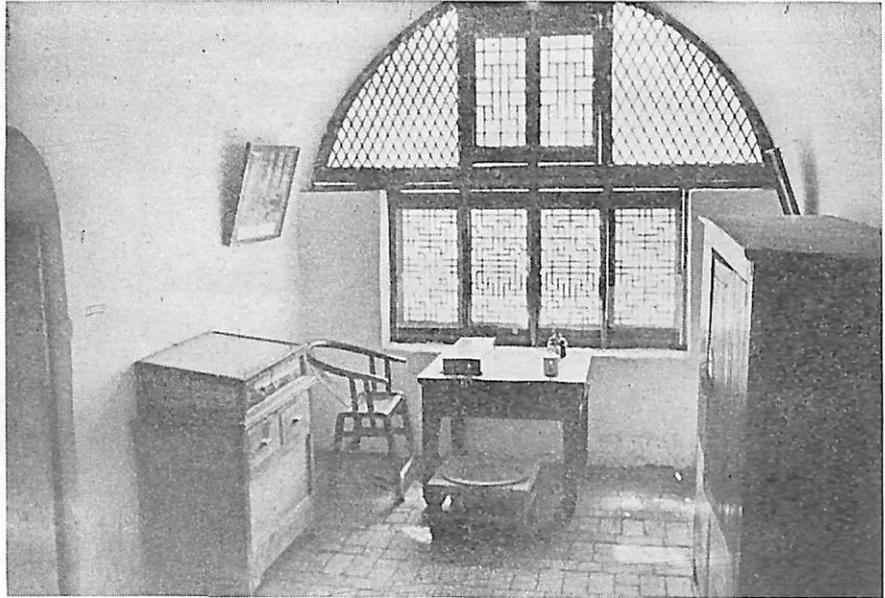
ments in close planting. The Liuchuang brigade, Chiliying People's Commune, Honan province, known for its scientific farming, experimented using 15,000 up to 150,000 plants per hectare of improved varieties of cotton.

In determining the density in planting, the whole process of growth from the seedling to the ear and ripe grain must be taken into consideration. Other factors are economy, raising total output and field management.

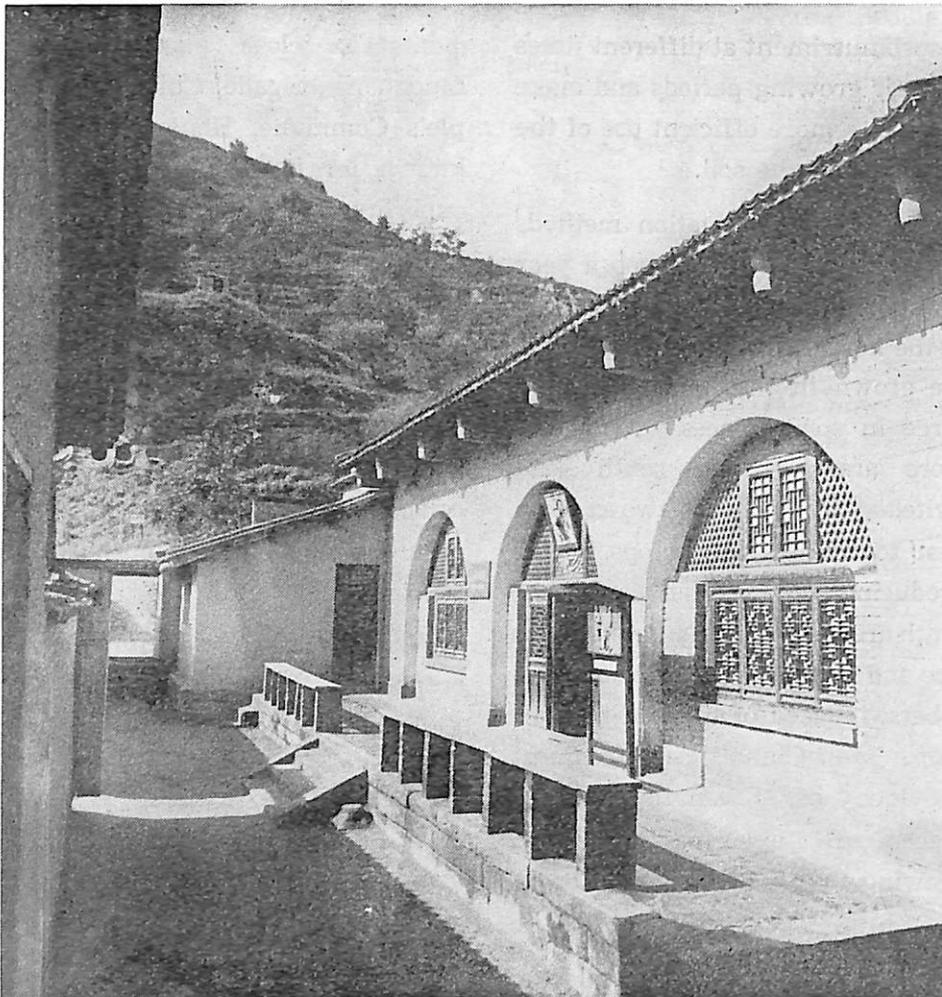
What density and number of crops per year will bring the highest total yield? The people's knowledge of these questions is deepening with their progress in scientific farming. Model peasant Li Kwang-ching achieved a record yield of 8.5 tons on an experimental plot one-third of a hectare in size.

"Everything keeps developing," he said, "including man's knowledge. The land can be made to give much more."

Phoenix Hill Cave, Yenan



Chairman Mao's cave-dwelling at Phoenix Hill where he lived in 1937-38, and an inside view of his bedroom-office.



IN JANUARY 1937, after the Long March (1934-1936) by the Chinese Workers' and Peasants' Red Army, Chairman Mao and the Communist Party Central Committee settled down around the small town of Yenan in northern Shensi province, made it their center and from there led the Chinese people in their struggle for liberation. Conditions were hard in that impoverished area. Red Army leaders and soldiers alike made themselves cave homes carved out of the loess hillsides along the Yen River.

Chairman Mao's first cave-dwelling was at the foot of Phoenix Hill just west of the center of Yenan. It consisted of three adjoining rooms facing south. The center was the reception-living room. On the west side was his bedroom and office, and the other his study. Within these walls of earth, by daylight through paper-covered windows and late into the night by the flame of a candle or an oil lamp, Chairman Mao wrote

(Continued from p. 7)

many of his most important works of the early period of the War of Resistance Against Japan: *On Practice, On Contradiction*, and works that expounded the Chinese Communist Party's policy for a national united front against Japanese aggression and laid down the military strategy for the resistance war, such as *Problems of Strategy in Guerrilla War Against Japan* and *On Protracted War*.

THE JAPANESE imperialists had launched an all-out war of aggression against China in July 1937. After repeated urging by the Communist Party and under strong pressure from the people, the Kuomintang government had been forced to join with the Communist Party in a united front to fight the invaders.

The Communist-led Red Army was reorganized into the Eighth Route Army and the guerrilla units that remained in the south, into the New Fourth Army. Both went into the thick of battle and made their way behind the enemy's lines where they carried on extensive guerrilla warfare and set up revolutionary bases.

In some of his articles from this period Chairman Mao explained the Communist Party's policy for the united front. In this united front, the Communist Party was for uncompromisingly resisting the invaders—total resistance based on arousing, organizing and arming the masses. The Kuomintang, on the other hand, following the interests of the big landlords and big bourgeoisie, feared the revolutionary strength of the people. It was passive about resisting. It did not mobilize the masses, but in fact suppressed them. The fighting strength of the Kuomintang-led army deteriorated. It lost large areas of China's territory to the invaders.

It was a time when many erroneous views were circulating and causing confusion. One was

that national subjugation was inevitable, that China, being inferior in arms, was bound to lose the war. Another underestimated the revolutionary potential of the people under Communist Party leadership and placed hope in the Kuomintang army's winning a quick victory.

In *On Protracted War* written in May 1938 Chairman Mao refuted these views and laid down the strategy for the resistance war. He pointed out: **"In the eyes of the subjugationists the enemy are supermen and we Chinese are worthless, while in the eyes of the theorists of quick victory we Chinese are supermen and the enemy are worthless. Both are wrong. We take a different view: the War of Resistance Against Japan is a protracted war, and the final victory will be China's."**

IN THIS protracted war the strategic line of fighting a people's war was basic. He explained this and the strategic role of guerrilla warfare. **"The army and the people are the foundation of victory,"** he emphasized. He predicted that the war would go through three stages: strategic defense, the enemy's strategic consolidation and our preparation for the counter-offensive, and strategic counteroffense, and that **"from the viewpoint of all three stages . . . guerrilla warfare is definitely indispensable. Our guerrilla war will present a great drama unparalleled in the annals of war."**

In *Problems of Strategy in Guerrilla War Against Japan* he refuted the idea of trying to win through regular warfare and underestimating the strategic importance of guerrilla warfare and systematically laid down the strategic principles for it.

Carrying out Chairman Mao's military theories, the Chinese people gradually wore down the enemy, built up their own strength and won final victory over the Japanese invaders.

institution of a new type. Speaking of his experience over the past 20 years, he said, "The combination of the two schools of medicine has opened a new horizon for me. In the past, as a surgeon of western training, I used to judge a disease merely by local and external symptoms and relied on my skill in using the scalpel. This limited my methods of treatment. Now I've learned to combine the strong points of both schools. Instead of stressing only symptoms and external causes, I pay attention to the patient's general physical condition and increasing his power of resistance. This has broadened my view and led me to find more ways of treating patients."

"Take the treatment of acute intestinal obstruction, for example," he continued. "The main thing is to open up the intestinal tract. So first we reduce the pressure in the gastrointestinal tract and thus open the way for traditional Chinese medicine to take effect. Then we apply intravenous drip to counter dehydration and restore the proper functioning of the organs, and if necessary give atropine to prevent vomiting. When all this is ready we give the patient a large dose of traditional Chinese medicine to stimulate intestinal peristalsis. When this takes full effect we give an enema of herbal medicine or soap solution, thus washing out the obstruction. Isn't that better than surgery?"

"Once we break through conventional habits of thinking, we begin to feel there are more and more topics for study and our interest mounts. In the past we only studied western medicine. Now we're on a road of our own, with new horizons ahead. The combination of the two schools of medicine holds much promise. But while we've obtained satisfactory results in treating many diseases, we still have much to do, especially the theoretical integration of the two schools."

Eye Exercises

Improve Sight

THE second class of the morning in Peking's Chiutaowan Primary School is over and it's time for recess. But the children remain in their seats for a few more minutes to do their regular eye exercises. Rhythmic music comes from the loudspeaker. Closing their eyes, the children do a series of movements. They begin by putting their thumbs between the eyes and pressing toward the nose. Three and a half minutes later, the children run off to the playground.

These exercises, based on an ancient method in traditional Chinese medicine for preventing nearsightedness, are done in many of China's primary and middle schools. Massage of points around the eyes improves the functioning of the nerves and blood vessels connected with the eyes and relaxes the eye muscles. Schools of course pay attention to proper lighting in classrooms and correct reading and writing postures. Classroom seating is changed at regular intervals

to give each child a chance to look at the blackboard from various distances.

When looking at unfamiliar things — as in schoolroom learning — the eyes strain to see them. It has long been known that this produces an error of refraction. Experience has shown that doing the eye exercises every day reduces and helps to eliminate this "false nearsightedness", improves the vision and prevents nearsighted cases from getting worse.

Twelve-year-old Chang Hui-ming, for example, used to have perfect eyesight. But constant reading while lying in bed or in inadequate light at home caused

The Exercises

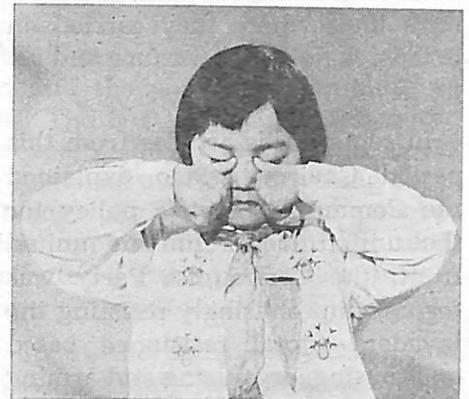
Exercise 1. Close eyes, put thumbs on the *jingming* points, squeeze and press toward the bridge of the nose (8 counts, 4 times).

Exercise 2. Press *taiyang* points with thumbs and with the side of the second section of index fingers massage the upper and lower parts of the sockets, first the upper part and then the lower part (4 counts). Then massage the *taiyang* points with thumbs (4 counts). (Altogether 8 counts, 4 times).

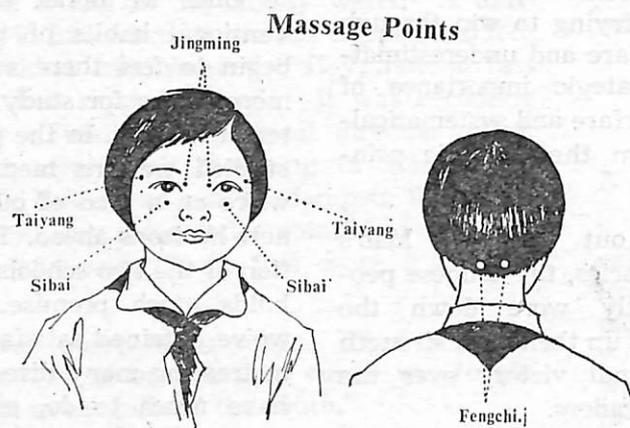
Exercise 3. Massage the *sibai* points at the middle of the lower part of the sockets with index fingers (8 counts, 4 times).

Exercise 4. With index and middle fingers massage the *fengchi* points (8 counts, 4 times).

Exercise 5. Bring fingers together, place them on the sides of the nose, move up to the forehead, pass through the *taiyang* points on both sides and come down (8 counts, 4 times).



Exercise 1



Things to remember:

1. Hands should be clean and fingernails short.
2. Do not do the exercises if there are boils or warts on the hands or face, or the eyes are injured or inflamed.
3. Concentrate your attention when doing the exercises. Be sure you are massaging the correct points. The movements should be gentle and slow. Increase the pressure until you feel the beginnings of discomfort.
4. It is better to do the exercises after reading or writing. Doing them regularly once or twice daily will bring good results.

her vision to drop to 0.6-0.7. Her teacher asked her to do the eye exercises every day and made her pay attention to her sitting posture and the proper use of her eyes. In a few months her sight returned to normal. She does the exercises every morning and again before going to bed. "When I do them," she says, "I can feel my eyes relax and I see better."

Of the 27 children in one third-grade class in Peking's Hsiaojung-hsien Hutung Primary School, before the eye exercises were introduced, eight were nearsighted. Six months later the sight of six of these had become normal.

A class in Shanghai's Meichuan Road Primary School No. 1 has a

good record in protecting its children's eyesight. Since they entered the school two years ago, the sight of none of the children has deteriorated and that of some has even improved. In addition to the eye exercises, they remind each other to sit correctly while reading and writing, keeping their eyes about 33 cm. away from the book and their chest a fist away from the desk. Naturally children won't sit in the same position for long. Some keep a string about 30 centimeters long around the neck and tie the other end to the right thumb. When reading or writing, a taut string means the correct reading distance. A slack string reminds the child to correct his posture.



Do you see better now?

Drawing by Miao Ti



Exercise 2



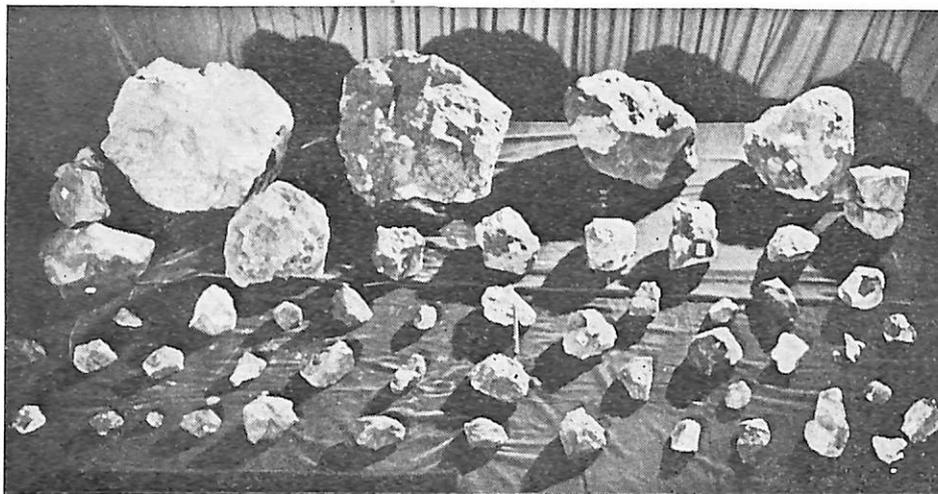
Exercise 3



Exercise 4



Exercise 5



The World's Largest Meteorite Shower

CHANG PEI-SHAN

THE world's largest meteorite shower fell in the Kirin area of northeast China on March 8, 1976. (See *China Reconstructs*, August 1976.) The Chinese Academy of Sciences organized an on-site investigation and conducted studies of the shower from the point of view of astronomy, astrophysics, mechanics, geology, geochemistry, nuclear physics and biochemistry. A year later Chinese scientists had a preliminary idea of where it came from and proposed a model for its formation and evolution. Some 60 papers on the results of these studies were presented at a forum on the Kirin meteorite shower held by the academy last September.

The Kirin shower was caused by a single stone meteor entering the earth's atmosphere. Meteors generally burn up after entering the atmosphere at high speed. But over 150 specimens were collected in the Kirin shower area of almost 500 square kilometers. Their total weight was about 2,700 kilograms (2.7 tons) and the largest (Kirin Meteorite No. 1) weighed 1,770 kg.

CHANG PEI-SHAN works at the Institute of Geology in the Chinese Academy of Sciences.

This is rare in the world. In the 469 years from 1492 to 1961 about 12.5 tons of stone meteorites falling to earth have been preserved.

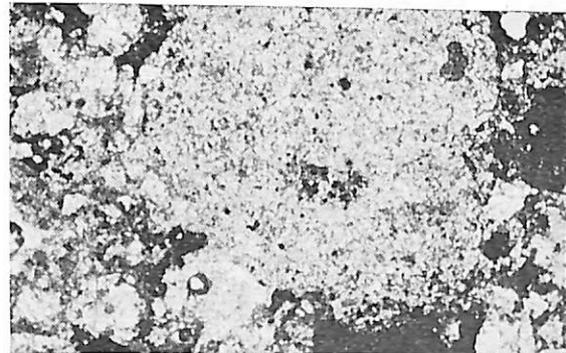
What Are They?

Meteorites were generally formed about 4.6 billion years ago, around 800 million years earlier than the oldest terrestrial rock, so they are called "archeological samples of the solar system". Potassium-argon, rubidium-strontium and uranium-lead datings show that the Kirin meteorites were formed at the same time as other meteorites. Their parent body was an asteroid which broke up after colliding with another asteroid or other cosmic material. The pieces followed their own orbits in the solar system.

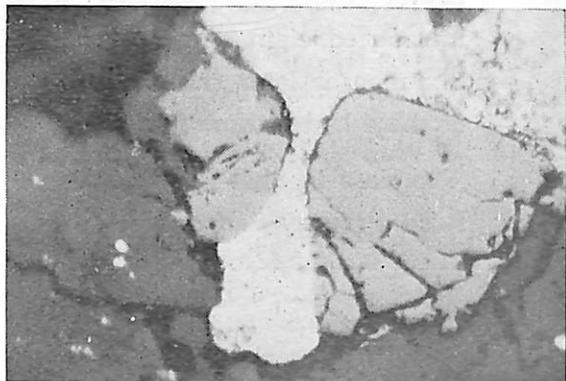
The Kirin meteor entered the earth's atmosphere at high speed at about 15:01 on March 8, 1976. The shock wave created surface temperatures of about 3,500° C. and thermal stress of around 1,000 kg./cm.² The surrounding air reached almost 20,000° C., turning the meteor into a dazzling fireball with a bluish-yellow corona and a brilliant trail. While still quite high it underwent one big explo-

Some of the meteorite samples collected.

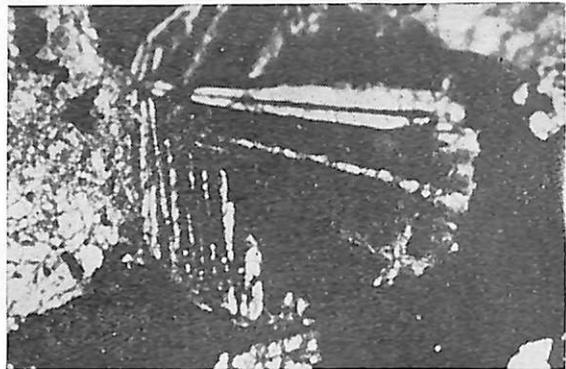
Photomicrograph of a thin section of a Kirin meteorite showing breccia texture, in plane-polarized light, mag. 37 x.



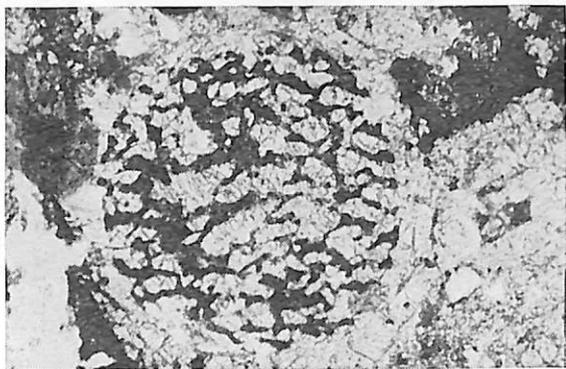
Photomicrograph of a polished section of a Kirin meteorite showing troilite (center, white) and chromite (semicircles, gray), mag. 445 x.



Photomicrograph of a thin section of a Kirin meteorite showing a radiated olivine chondrule, in plane-polarized light, mag. 110 x.



Photomicrograph of a thin section of a Kirin meteorite showing a pyroxene chondrule, between crossed nicol prisms, mag. 66 x.





When the largest meteorite of the shower fell to earth, it penetrated 1.7 meters of frozen soil and buried itself 6.5 meters deep, making a crater over two meters wide at the surface. It sent up earth several dozen meters high, and clumps landed 100 meters away.

sion and several smaller breakups. The shock waves produced a thunderous sound. High-altitude winds scattered smaller fragments, producing a large meteorite shower. The fragments fell over an area 70 kilometers long, the smaller ones in the east and the larger ones in the west. The relatively intact meteorites were covered with a thin black fusion crust, as if they had been in a blast furnace for a short while. The fallen meteorites were hot to the touch.

Astromechanical calculations based on the speed of fall and other physiochemical parameters show that the meteor was in an elliptical orbit around the sun, with the aphelion between Jupiter and Mars, and the perihelion just inside the earth's orbit.

While in space cosmic rays from the Milky Way and solar radiation caused high and low energy nuclear reactions in the meteor, producing a series of radioactive and stable isotopes. Analysis of the isotope content indicates the time during which the meteor was exposed to cosmic radiation. The Kirin meteor broke away from its parent body about eight million years ago.

Study of the chemical and mineral composition of the meteorites and their rock structure shows that they are H-group chondrites, and petrologically chrysolite-bronzite chondrites. The minerals are mainly olivine, bronzite, kamacite, taenite, troilite, chromite and whitlockite.

Analysis of the Objects

The composition of the chondrules is the same as that of the meteorites as a whole. The chondrules are of various sizes, the largest visible to the naked eye. Most of them are less than one millimeter in diameter. There are many theories of the origin of the chondrules, as of the meteorites themselves. We believe the chondrules of the Kirin meteorites to be the result of rapid cooling of molten drops of the original silicate.

The Kirin meteorites are similar in composition to the earth and moon, the differences mainly quantitative. Type I carbonaceous chondrites contain all the stable elements of the sun and are considered the most primitive known samples of matter. The composition of the silicate facies in the Kirin meteorites is the same as that of the earth's crust and

mantle taken together. This shows that the earth was formed through a long process of differentiation which has distributed the material in layers from the crust to the core. Meteors are smaller and the differentiation is not as complete. They preserve a primitive state in the formation of planets, providing important clues for investigating the origin and evolution of the earth. Especially since gneiss, the oldest rock on earth, is 800 million years younger than meteorites, the only way to find out about that period is with their help.

Formation and Evolution

A meteorite's minerals and structure are a record of development and change since its formation. The creation of minerals begins the period of geological evolution, which is preceded by the astronomical period of evolution of the primitive nebula, when the elements are created by thermonuclear fusion. The creation of elements and the creation of minerals represent two different stages in the evolution of celestial bodies.

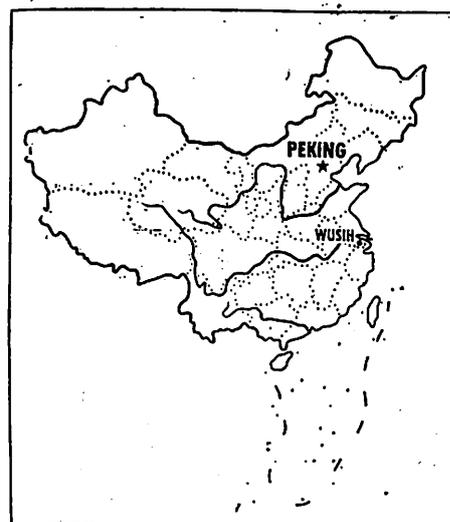
Through study it is possible to make a model of the formation and evolution of the Kirin meteorites from the coalescence and aggregation of the solar nebula and formation of the parent body to its metamorphosis, impact metamorphosis, breakup and fall.

We are still investigating the organic matter in the Kirin meteorites. Many amino acids, organic pigments and hydrocarbons are preserved in carbonaceous chondrites. These are of great significance in investigating the process of chemical evolution leading to life and can provide important clues to its origin. It is generally considered that the leap from inorganic to organic and from chemical evolution to life occurred about 3.2 billion years ago.

WUSIH

—Scenic Lake City

TANG HSIA



COMING to Wusih is like stepping into a traditional Chinese painting of water scenery and low mountains. Wusih in Kiangsu province is the most famous of the many scenic small and medium-sized cities around Lake Taihu in the lower Yangtze valley. It has been a favorite pleasure spot through the ages. The Grand Canal was built to run through it, as does the Peking-Shanghai rail line.

The first known notable to single out Wusih was Prince Taipo, son of a king of the Chou dynasty. More than 3,000 years ago he made it the capital of the state of Kouwu. A hall erected in after-centuries in his memory stands in Hsihui Park, three kilometers from the center of the city. The park also encloses Hsishan Hill, where tin was once mined. It recalls the story of Wusih's name. After tin was discovered there during the Western Han dynasty (206 B.C.-A.D. 24) the place began to be called Yousih, literally "has tin". But by A. D. 25 the tin was mined out and the name was changed to Wusih — "no tin".

A clear spring at the foot of Huishan Hill was made famous by the Tang-dynasty writer Lu Yu (733-804) in his *Book of Tea*. In this classic he rated the water of Huishan spring "second under heaven" for making tea.

Wusih is also known for its exquisite scenic gardens. One of these, the Chichang Garden, built 470 years ago, epitomizes Chinese art and culture of the Ming dynasty

(1368-1644). The tiny park, only one fifteenth of a hectare, is famous for the way it makes the surrounding landscape part of its own scenery. The garden wall is hidden by ancient trees so that Hsishan and Huishan hills behind them seem an integral part of the garden. Within the walls, winding covered galleries connect pavilions around a pond, and a stream meanders among intriguing rockeries.

The Lake and the Hills

Since liberation the people's government has spent large sums to restore the many historic buildings, park pavilions and landscape scenic spots.

The Plum Garden on Hsushan Hill seven km. west of the city has been enlarged to six times its original size. In the spring people come to enjoy the plum blossoms and in the autumn to inhale the fragrance of its sweet osmanthus flowers. From its 10,000 trees the park administration gathers the plums and over 500 kilograms of osmanthus blossoms for making osmanthus-flavored honeyed plums, a well-known Wusih delicacy.

A spot 15 km. from the city known as Turtle Head (Yuantouchu), a peninsula jutting into the lake, is the best spot for viewing the scenery. A million or so years ago the sea extended as a bay into the Taihu area. Turtle Head is the remnant of an eroded rock platform in the sea. Later silt

from the Yangtze and Chientang rivers filled in the bay, cutting off the 2,250-sq.-km. Lake Taihu from the sea. It became China's fourth largest fresh-water lake.

Viewed from Turtle Head in the spring, the water shimmers in the soft breeze and warm sunshine. In the autumn, tossed by the wind it flies high in spray against the banks. At dawn the misty surface of the lake fuses with the sky, and the lights of the fishing boats make it seem a continuation of the starry sky above. As the sun dispels the mist, the water separates itself from the distant hills. At sunset its dazzling silvery expanse is dotted with white sails. After liberation the city park administration set out 130,000 trees there and built new pavilions and tea houses on Turtle Head from which people can enjoy the view.

Across the water west from Turtle Head is Three-hill Island. It used to be a refuge for pirates, and on its wild slopes many revolutionaries were executed by the reactionaries. This is now history. Since 1958 these slopes have been covered with luxuriant greenery. From a teahouse on the slope of one of the hills one can view the lake spreading southward as far as the eye can see. Looking northward one sees among the trees the red walls and green tile roofs of the pavilions, hotels and villas.

The quiet, tasteful Lakeside Hotel faces Lake Lihu which lies behind Turtle Head. The hotel, in the style of a villa right over the water's edge, was built in 1961.

Both here and in the Taihu Hotel, one can view the scenery even while lying in bed. Wusih is one of the five Chinese cities with the greatest number of visitors from abroad — over 10,000 last year. A 10-story hotel is under construction to accommodate more.

Artists in Clay

Another thing Wusih is known for is its clay dolls. For more than 400 years families living at the foot of Huishan Hill have been making them from a special kind of black clay found a meter down in the earth. They used to sell these in stalls at the foot of the mountain. Because many hawked them in the streets from baskets carried on shoulder poles, these folk artists were known as the “clay beggars”. After liberation the government brought them together and built a modern studio for them to work in.

In the handwork shop one can see the sculptors taking a gob of clay, patting it on the table, rolling it between their palms and shaping it with their fingers into lively figurines. The studio produces fat clay babies in traditional Wusih folk style and other designs as well. All are characterized by the simplicity of line and bold exaggeration which have made the Wusih figures famous. Now the studio has developed another line — plaster figurines cast from moulds made from the clay originals.

Silk and Other Factories

The Wusih area has been a prime raiser of silkworms fed on mulberry leaves for 1,500 years.

Silk reeling, grain processing and some cotton spinning were its only industries before liberation. Now it has many more. It is known both in China and abroad for its raw silk, cotton cloth and machine tools. In 1958 during the big leap forward the city set up machine-building, electronics and chemical industries and built a small steel plant. During the cultural revolution the city administration opened a small coal mine to meet the needs of the new processing industries and began producing chemical raw materials. Today precision machine tools, electronic components, diesel engines, textile machinery, boiler equipment, watches, cameras and television sets are manufactured here.

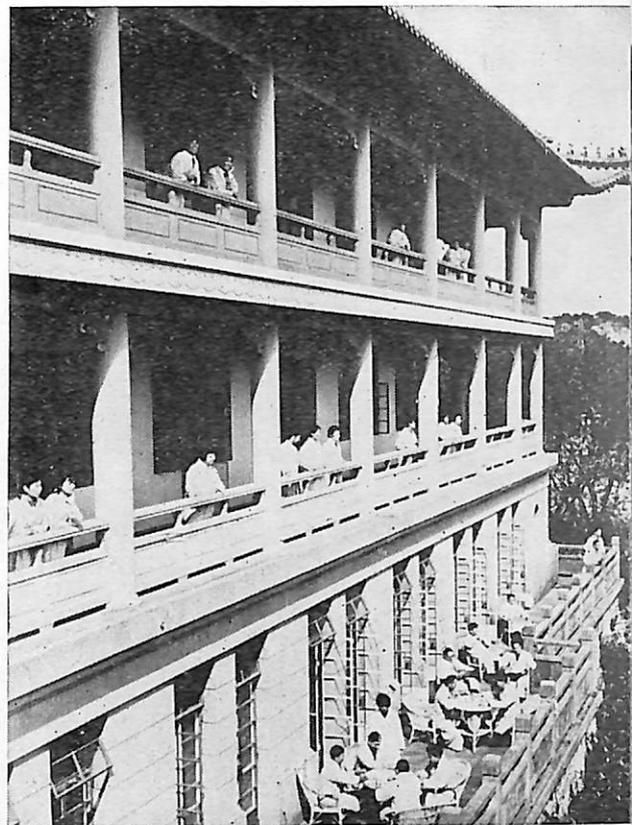
In 1977 the total value of industrial output was 26 times that at the time of liberation. The city has a population of 450,000, of whom 250,000 are workers (189,000 in industry, compared with 40,000 at the time of liberation). The rapid industrial growth has absorbed practically all the city's labor force.

The privately-owned workshops where silk reeling was done manually became jointly state-private owned after liberation and later were amalgamated to form larger state factories. The present State Silk Reeling Mill No. 1 used to be owned by bureaucrat capital. It is an example of the many old enterprises that have been transformed since liberation. Now as masters of the mill the workers have improved labor conditions greatly and changed the old mill mainly on their own efforts. They

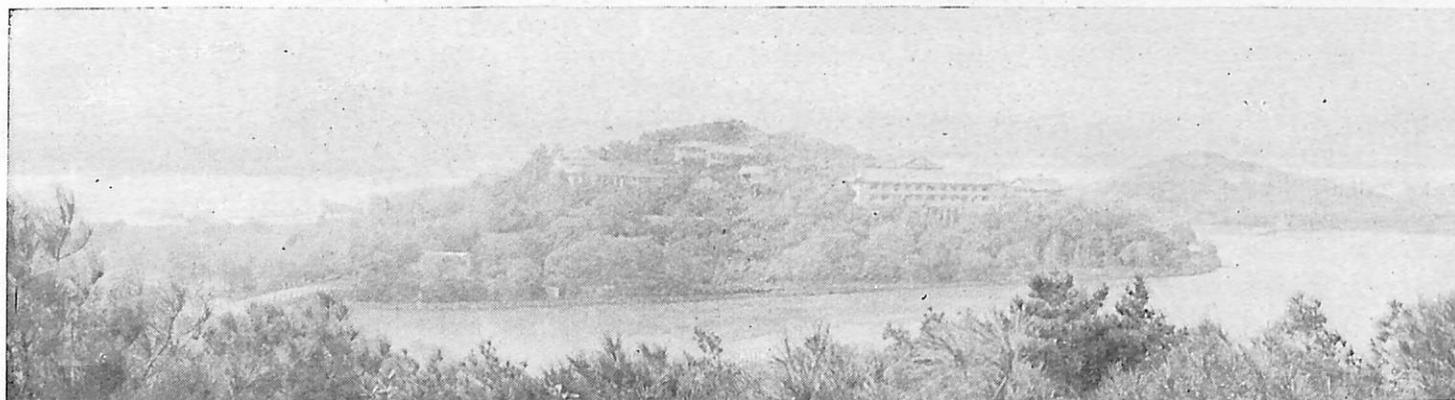
transformed the reeling machines and now produce nine times as much as before with only twice the work force.

The best international grade of raw silk is listed as AAAAAA, but this mill's Plum Blossom brand is of higher AAAAAAAA quality. During the cultural revolution automatic reeling machines were installed. A worker who used to reel only 20 threads on the old hand-tended machines can now handle 60 threads.

Eighty percent of the mill hands are veteran women workers. Four of the seven deputy heads of the



The Taihu Workers' Sanatorium



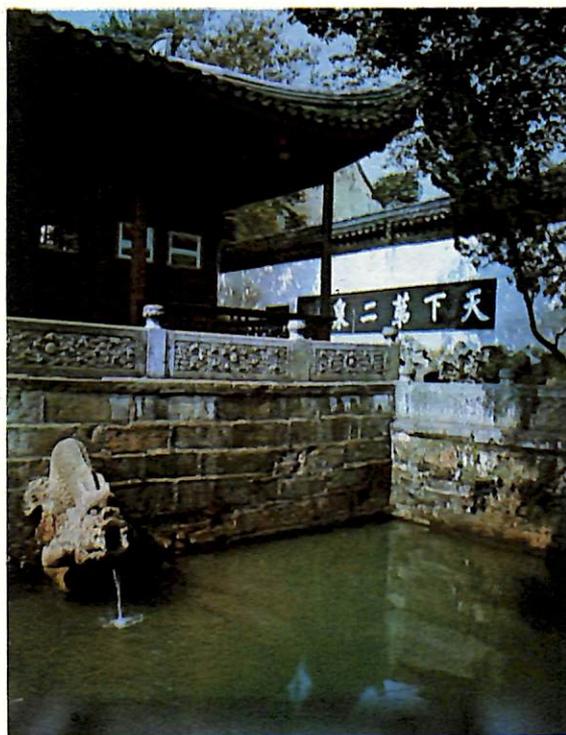


Lake Taihu



Chichang Garden

The Spring Second Only to One under Heaven



The Bridge of Ten Thousand Waves after a snowfall.





The Huishan Clay Figurine Studio

mill's revolutionary committee are women. All began work as child laborers before liberation. Now one is in charge of production and each of the others of political work, management and affairs of daily life.

After similar transformation of its old textile industry, Wusih has become one of China's production bases for high-grade textiles. State Cotton Mill No. 1, an old factory, has some pneumatic spinning machines designed and made by the mill's engineers and workers with help from the city's textile machinery plant. These modern-type machines turn sliver directly into yarn, omitting the intermediate processes.

Representing the city's new industry is the Wusih Machine Tool Plant which produces internal and centerless grinding machines and bearing grinders for use in farm machinery, automobile, aircraft and petrochemical plants all over the country. It has 3,600 workers. During the cultural revolution the workers and engineers designed and made 39 kinds of automatic precision grinding machines. The automatic centerless grinder which went into production in 1976 can produce a hole one millimeter in

diameter with a precision of 0.6 microns, approximately 1/130 the thickness of a human hair.

Beauty and Industry Too?

Can Wusih develop as an industrial city and still keep her famed natural environment? Lake Taihu, for instance, is one of China's most important fishing centers. Over 30 kinds of aquatic products come from it, among them its specialties: translucent, scaleless icefish, freshwater perch, blue crabs and white shrimps, all served in restaurants around the lake. Taihu is also the source of drinking water for several cities. Soon after liberation Premier Chou En-lai emphasized the necessity for keeping the lake and its surroundings clean and unspoiled.

The Wusih city administration has given the problem much consideration. Refuse dumping is strictly prohibited. To combat air pollution the city allows chemical factories to be built only on the northern side of the city away from the direction of the prevailing wind. Only comparatively clean industries like electronic equipment and instrument-and-meter factories are allowed in the scenic areas. In recent years people's

communes around the lake have been allowed to build only factories which create no pollution and require little water transport. New factories are required to have pollution-prevention equipment, and measures are being taken in the old factories. The city authorities consider the problem mainly under control.

Rest Home

Situated on Chungtu Hill overlooking the lake is the Taihu Workers' Sanatorium where about 1,000 people a year from the city come to recuperate—industrial workers, teachers, medical workers, writers and other cultural workers and a small number of leading cadres. They are all patients who are able to care for themselves and are recuperating from surgery or non-infectious chronic ailments.

A quota of patients is allotted to each work unit, and medical personnel in charge of it draw up a list of names. If the revolutionary committee at his place of work approves, the patient takes his physical checkup card and his case history and goes for a three-month stay at the sanatorium. He continues to receive his regular wages, and the government takes care of medical and room expenses and adds a nine-yuan-per-month subsidy for better nutrition.

The sanatorium combines use of Chinese traditional and western medicine and uses physical therapy, acupuncture and massage. Taking advantage of its natural surroundings, it is outstanding for its exercise therapy. At daybreak one can see the patients in twos or threes making for Turtle Head Peninsula at a quick walk or slow jog, or doing graceful *tai chi chuan* or sword dance exercises beside the Bridge of Ten Thousand Waves. Other groups climb the hills accompanied by doctors. Last year the hospital had 50 coronary heart disease patients who engaged in hill climbing, but because the exercising was done in suitable

amounts, none of them suffered myocardial infarction, the doctor in charge says, and as a result of their physical training those suffering from angina pectoris found their pain alleviated or eliminated altogether.

A Tale of Chungtu Hill

One of the patients at the sanatorium was Chien Ah-wu, 51. In 1946 he was a laborer building a villa for a capitalist on this very Chungtu Hill. While fetching water for the worksite he was swept into the lake by the wind. The others pulled him out but the

boss would not let him change his soaked clothes. He had to go on carrying water. A few days later he came down with a kidney infection. He was swollen all over. Because he could not go to work, he was fired. He was to lose jobs twice more because of this illness before liberation came, but since he had no money for treatment he never knew what it was.

After liberation he became a machine repairman in a textile mill. He worked enthusiastically and was elected a labor model. Later he joined the Communist Party. He is at present deputy

head of the municipal textile bureau's machinery maintenance section. He lives very well, he says. All six members of his family work in state factories.

Last year when his old illness recurred he was recommended for the sanatorium. A combination of Chinese and western medical treatment restored his kidney function, aided by *tai chi chuan* exercises and hill climbing.

"I have gone up Chungtu Hill twice," he said. "The first time as a slave, the second time as a master of the country."



The Memorial Hall

I was happy to read that the Chairman Mao Memorial Hall had been completed. The building is very impressive but what astonished me was the speed of the Chinese construction workers. Six months for such a building in Poland would be incredible.

S. K.

Rzeszow, Poland

Cultural Reportage Weak

It is a year now that I have been reading *China Reconstructs*. I have found it a most valuable publication for all-around coverage of the new China. Cultural reportage was a little weak this year, though I realize that 1976-77 was an important period for China. The deaths of three great Marxist-Leninists, Chairman Mao, Chou En-lai and Chu Teh, were great blows to the Chinese people and to the international communist movement. Likewise, the purging of the gang of four was an important event. Most important, the election of Hua Kuo-feng as Chairman of the Central Committee of the Communist Party of China was very, very important to China and the revolutionary peoples worldwide. In the upcoming year I would like to see more coverage of cultural significance as well as more stories concerning agriculture, experimental farms, communes, etc. All things considered, I was not disappointed with *China Reconstructs*. I hope that you will maintain

the high quality of layout and photos which were both top-rate.

M. S. A.

Amherst, U.S.A.

Sports

I think *China Reconstructs* is important because it touches on a wide range of important subjects. I hope your magazine will carry more articles and pictures about mass sports activities, a subject you have ignored in past issues.

Y. S. L.

Gigante, Colombia

Chinese Peasants

I believe the peasant class is an advanced class in Chinese society. As a peasant myself, I want to know more about the Chinese peasants' experience in struggle and production, and also about their position in China.

B. A. M.

Casablanca, Morocco

A Family Comments

My 73-year-old father is a coach and liked your articles on sports training.

The article about cancer interested me very much.

The article "The Revolutionary Woodcut" was good. The woodcuts in the center spread might be reproduced as posters or separate pictures. My 14-year-old brother suggested that it would be still better to insert the pictures in the magazine.

We were all surprised and happy to read the children's column about a toy exhibition. I liked the embroidered silk elephant best. Is it for sale?

M. V. V.

Valparaiso, Chile

History

China has a longer history than any other country in the world (together with Egypt) but your magazine does not publish anything, besides some archeological research in the field. I think your foreign readers would like to see facts and analysis of things that happened in the past or the economic improvements achieved in some region because of certain historical conditions, etc.

F. S. F.

Iguatemi, Brazil

I have a special interest in China not only because she is one of the most important countries, but also because she has one of the oldest civilizations. China's civilization has produced many inventions such as gunpowder, the compass, movable type and paper — all of which have brought revolution to human society. Therefore, I would like to see more articles on the history of China.

K. T.

Port Moresby, Papua New Guinea

Folk Culture

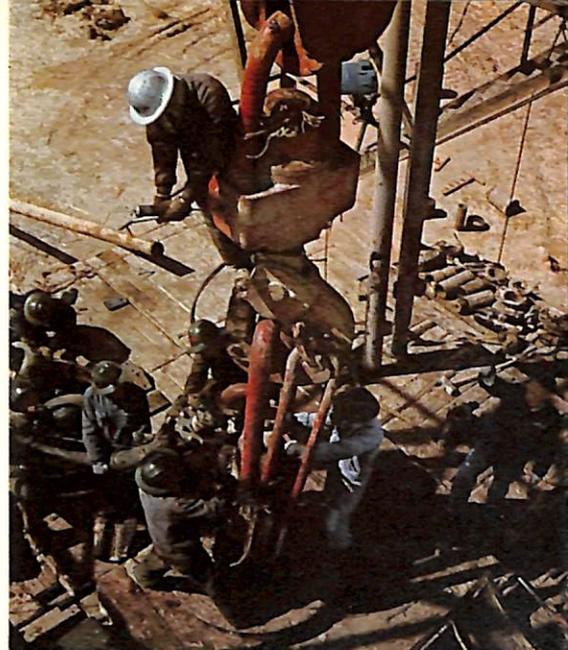
Personally, I would like to see a section on Chinese folk culture — for example: maybe a full size popular paper cut pattern for someone to trace and cut, a recipe, an embroidery pattern, pattern and directions for making a toy, words, music, translations for a folk song or directions for a dance, etc. I realize such things are very small but they might give readers a chance to actually participate in some aspects of Chinese culture. As a teacher, I would certainly use such material with my students.

B. K.

Berwyn, U.S.A.



Diesel-engine operator.

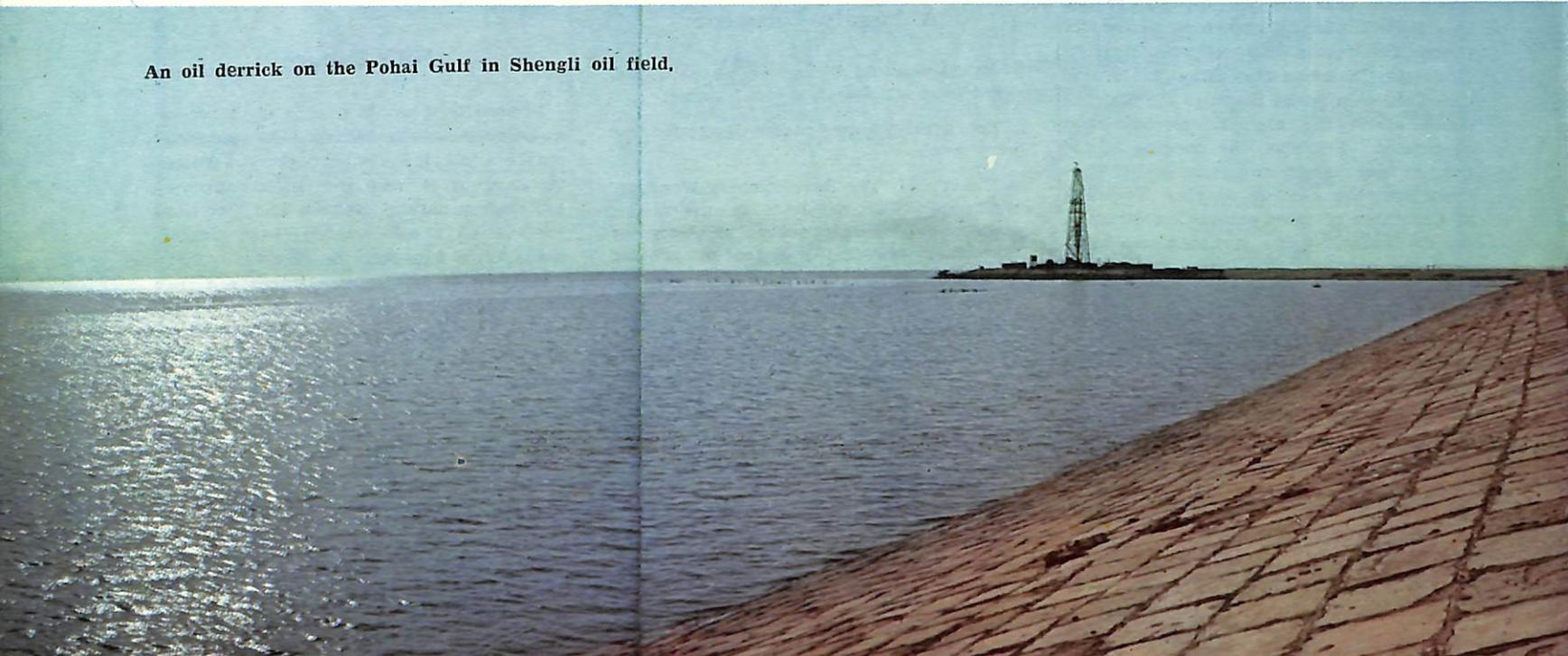


Drill team No. 3252 gets things ready for drilling.



Pumping station.

An oil derrick on the Pohai Gulf in Shengli oil field.



The Shengli Oil Field

Staff Reporter

CHINA'S first 1,000-ton-per-day oil well was finished in early 1965 near the village of Shengli on the shores of the Pohai Gulf in Shantung province. Since 1966 the Shengli oil field has been overfulfilling its annual quota every year with an average increase rate of 31.8 percent.

The underground strata of the Shengli field is a large depression basin sedimented by an ancient lake. After finding oil and gas and a high-producing gusher around the Shengto district, geologists set out a long row of test wells over an oil structure, hoping this would rapidly give them a picture of the whole field.

Unveiling Underground Structure

Progress was more complicated than expected. Some wells struck oil very deep, others did not. Some brought up only water, some much oil, others little. Investigations showed that the anticlinal structure of the pool had been distorted by freakish underground faults and as a result water, oil and gas were all mixed up.

How to locate oil in a fault basin? Geologists selected a complicated fault zone and ran seismic tests and exploratory wells to gather first-hand data. They discovered 258 faults in this four-square-kilometer area. Movements of faults at different periods in geological history had completely changed the under-

Seismic explosions for studying the underground structure.



Shipping out crude oil.



ground structure. On one side of a fault would be oil, on the other water, or there would be little oil on one side, much on the other. Sometimes the oil-bearing layer on one side would lie several hundred meters above or below that on the other side.

How had these faults changed the distribution and concentration of oil and gas? Chairman Mao had said that **"in studying any complex process in which there are two or more contradictions, we must devote every effort to finding its principal contradiction. Once this principal contradiction is grasped, all problems can be readily solved."** What was the principal contradiction here? Tests and experiments revealed that areas near the main fault had more oil, those far from it, less. Obviously the main fault controlled the concentration and movement of oil and gas, therefore it was the principal contradiction. Drilling near the main fault brought in high-production wells, which helped define the oil-rich areas.

With experience they gained more complete knowledge of the faulted field. Although the faults had displaced the oil-bearing strata, sometimes in fact this made the oil easier to reach because it had risen from its original strata, and shallow wells cost less. Shengli's experience in the fault basin greatly enriched the theory and methods of prospecting and exploiting China's oil fields.

Setting World Record

Visiting Shengli's world-record setting drill team No. 3252, we saw three young workers join the drill pipes in only 45 seconds. It used to take them five minutes.

The team lived in five green wooden houses near their work site. Here they eat, study and have their recreation. The walls of the team's "history" room are decorated with

two dozen colored flags representing 20 national records in the past twelve years. In 1973 they drilled more than 150,000 meters, realizing the wish of the late Wang Chin-hsi, an outstanding oil worker in the Taching oil field.

"How have you been able to achieve all this when our country's general technological level is still rather low?" we asked.

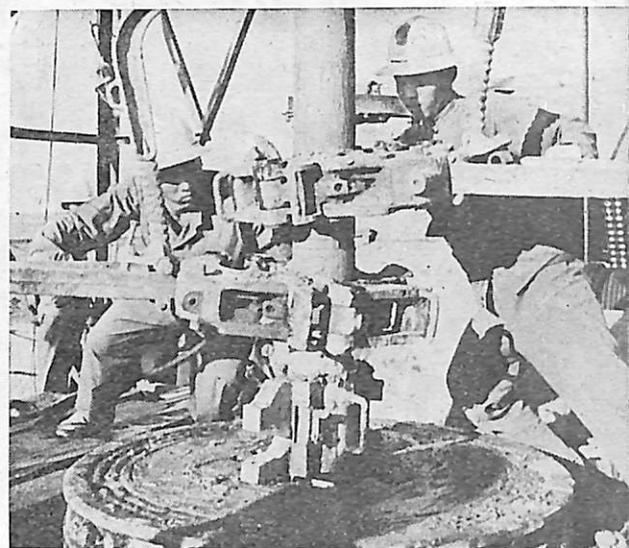
"Technology is important," said Wang Yun-li, the team's 26-year-old leader, "but it isn't everything. Our rig was made in the 40s. Although we've stepped up the horsepower of the diesel engine and the pressure of the mud pump, it's still twenty years behind the times. Most of our drillers haven't been at their jobs very long, but they are eager to do their best and always go all out on the job. This is a key factor."

At the beginning of 1973 drill team No. 3252 began an all-out battle to drill over 150,000 meters for the year. They had already reached 1,000 meters per shift. Now they got ready to install their rig, newly overhauled. It was New Year's Day and the temperature was 20° C. below zero. If drilling was not to be interrupted they needed to dig a mud pool. The Party branch asked 11 young workers to do the job, but the site chosen was on ground so hard that picks scarcely dented it. Yet three and a half hours later the task was finished, a job which would normally have taken 20 workers a whole day.

One night in July, just as the workers were going on the midnight shift, a violent storm suddenly blew up. The three-ton pulley in the derrick began to swing like a pendulum. But if they did not start work it would mean many hours wasted. Team leader Yang Hung-tai, who is now vice-director of the field, called a meeting of the workers, who insisted on going ahead with the drilling.



Getting ready for drilling.



The record-setting drill team No. 3252.

A crew of well operators.



Sun Mao-hua, operating the brake lever on the platform, couldn't see the stratigraphic-pressure meter in the rain. Another worker watched the instrument and called out the pressure to him. After a while the power line broke and plunged the derrick into dark-

ness. Team leader Yang and young electrician Ting Shih-ho climbed 30 meters up the derrick in the slashing wind and rain to splice the line. Everyone below held his breath. Suddenly the lights came on again and the drilling continued. Later one of the workers

wrote a poem about the fight against the storm:

*Heavy rain beat our derrick
like a drum,*

*Howling wind played it like
an organ.*

*But our drilling was louder
than the rain,*

*Our songs drowned out the
wind.*

*Heads high, we oil workers,
Never retreat before a storm.*

Big as it is, it's nothing

*To men drilling for oil for the
country.*

The rain lasted two months that year, yet drill team No. 3252 sank 20 high-production wells. On December 22, eight days ahead of schedule, they touched their 150,000-meter mark—which meant an average of 1.8 wells per team member that year.

At the National Conference on Learning from Taching Chairman Hua called on the petroleum industry to build another ten oil fields like the model in the northeast, Taching. To do their part, on January 2, 1977 Shengli's drill team No. 3252, using an artificial diamond bit, finished a new well 2,777.69 meters deep. It was another national record.

Technical workers discuss measures for keeping well production high and stable.



A New Edition —

CHINA RECONSTRUCTS in German, bimonthly

The first will be the Jan.-Feb. issue in 1978.

China Reconstructs is an illustrated magazine of general coverage on how China builds socialism. It carries articles and features on China's politics, economy, education, health, science, literature, art, women, history, geography and her relations with other countries. There are columns such as Cultural Notes, Sports, Children and Stamps.

It is also published monthly in English, French, Spanish, Arabic and Russian.

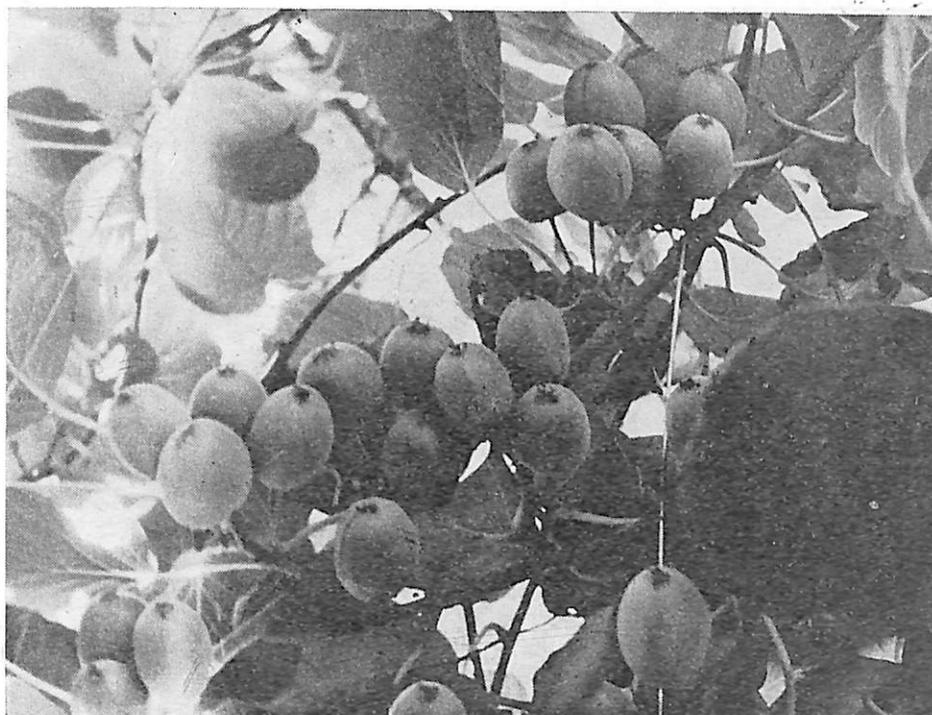
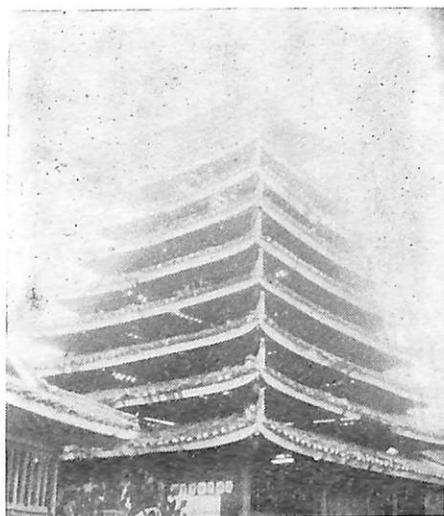
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The 'Monkey' Peach — Fruit of Many Uses

Mortared with a mixture of lime and the glue derived from the vine, the roof and flying eaves of 60-year-old Patuan Tower in the Kwangsi Chuang Autonomous Region's Sanchiang county are still in perfect shape.



The Chinese "monkey" peach.

A FRUIT peculiar to China is the "monkey" peach (*Actinidia chinensis Planch.*). The Chinese people have been making use of this vine in its wild state for two to three thousand years. It gets its name from a description of it in *The Compendium of Materia Medica* by the great Chinese pharmacologist Li Shih-chen (1518-1593). "It is shaped like a pear, its color is like the peach, monkeys like to eat it." The smooth-skinned oval fruit, varying in size somewhere between a hen's egg and a goose egg, has a fresh, sweet-sour taste.

The "monkey" peach grows in 16 provinces in south and east China, including Taiwan. Honan province is the biggest grower.

The fruit is an excellent source of vitamin C, having 100-420 mg. per 100 grams of fruit, five to ten times more than oranges or tangerines and 15 to 30 times more than tomatoes. It also has some sugar and contains many kinds of amino acids.

The seed, resembling the sesame seed, has a high oil content and is edible too. The leaves, containing

starch, protein and vitamin C, make excellent fodder. The root has long been used in traditional medicine for alleviating fever, as a diuretic and as an aid to stopping bleeding and dispersing extravasated blood. The vine, after soaking, yields a glue-like substance used in paper-making and building construction.

The plant, of the polyoicous type (in which the male and female are sometimes on the same plant, sometimes on different plants), is easily multiplied, mainly through cuttings. It grows quickly, gives a big yield and is not readily attacked by insect pests. It is easy to grow on mountain slopes.

It has been cultivated for a very long time. There is a hundred-year-old vine in Huangyen county, Chekiang province. In recent years the people's government has been promoting fuller use of the wild plant and cultivation of it. Yields have been raised through using selected seed and improved methods of growing. Many people's communes now have "monkey" peach vineyards. The plant is also now grown successfully in some other countries.



Lin Chung doing a sword dance in the temple.

THE REVIVAL of the historical Peking opera *Driven to Join the Liangshan Mountain Rebels* in Peking and some other major cities was warmly acclaimed. It was first produced 34 years ago by dramatists of the revolutionary center Yen-an.

The opera is based on an incident described in the well-known classical novel *Water Margin*, written in the 14th century, and related historical writings. Set in early 12th century, the last years of the northern Sung dynasty, it tells how Lin Chung, a military officer with a sense of justice, turns against the ruling class and joins the ordinary people in resisting the feudal

Rebel battling imperial soldier.



Historical Peking Opera Revived

Lin Chung and people from the uprising head for Liangshan Mountain. Sketch by Ma Yuan



CHIN TZU-KUANG

government. What sets this opera apart from traditional versions of the Lin Chung story is that it also presents some vivid portrayal of heroes from among the ordinary people, thus underlining the theme that the people are the makers of history.

The northern Sung dynasty in its last years is controlled by corrupt and treacherous ministers. The people, impoverished by exploitation and uprooted by famine, have no means of making a living. Lin Chung, a military instructor in the 800,000-man imperial army, feels deeply concerned for the country and the people. He refuses to associate himself with the oppressive supreme military commander Kao Chiu. He has offended the government by trying to aid refugees forced by the officials to leave the capital and his introduction of a new military tactic in the army has also aroused Kao Chiu's jealousy. On top of all this, Kao Chiu's son has become enamored of Lin's wife, a well-known beauty, and is trying to take her away from him. Kao Chiu and his henchman Lu Chien plot to frame Lin Chung. They have him falsely charged with breaking into the chambers of the privy council and attempting to assassinate the supreme military commander. He is tortured and sentenced to exile in a remote place.

On his way to exile he is maltreated by his escorts who have been bribed by Kao Chiu to do away with him in Wild Boar Forest. He is rescued by Lu Chih-shen, a monk and champion of the oppressed. Though Lin Chung hates Kao Chiu, he still harbors illusions about the government. In exile he swallows his pride and conscientiously discharges the duties he is given as caretaker of an army fodder yard, still hoping one day to serve the country in his own capacity again.

Kao Chiu sends Lu Chien to Lin Chung's place of exile to set fire to the fodder yard. His intention is that either Lin will perish in the

CHIN TZU-KUANG is a dramatist and one of the producers of the original production 34 years ago, in which he played the part of Lin Chung. He assisted in the current restaging.



A scene from the original production of the opera in Yen-an in which the monk Lu Chih-shen (left) rescues Lin Chung (center) in Wild Boar Forest.

fire or will be blamed for it and sentenced to death. Meanwhile Lin Chung has learned that his wife has committed suicide after learning that Kao Chiu's son was planning to seize her.

In a temple Lin Chung comes face to face with Lu Chien and kills him in rage and grief. His illusions smashed, Lin joins an uprising which defeats the imperial troops and heads for Liangshan Mountain, stronghold of a peasant rebel group.

Among the finely-delineated characters in the opera are Tsao Cheng, Lin Chung's apprentice who helps the refugees; the monk Lu Chih-shen who is dedicated to punishing those who oppress; Li Tieh, a bankrupt peasant turned rebel; and Li Hsiao-erh, waiter in a wineshop. Through them Lin Chung's fight against his own persecution and his revolt is shown as part of the torrent in which the masses of the people, driven by oppression, rise against the ruling class.

CHAIRMAN MAO first saw this opera version of the Lin Chung story on New Year's Day 1944 and later read the handwritten script with great interest. After seeing it for a second time on January 9, 1944 he wrote a letter to the producers in which he said, "Having seen your performance, I wish to express my thanks to you for the excellent work you have done. Please convey my thanks to the comrades of the cast! History is made by the people, yet the old opera (and all the old literature and art, which are divorced from the people) presents the people as

though they were dirt, and the stage is dominated by lords and ladies and their pampered sons and daughters. Now you have reversed this reversal of history and restored historical truth, and thus a new life is opening up for the old opera. That is why this merits congratulations. The initiative you have taken marks an epoch-making beginning in the revolutionization of the old opera. I am very happy at the thought of this. I hope you will write more plays and give more performances, and so help make this practice a common one which will prevail throughout the country."

This letter, in fact, pointed out the orientation for revolutionizing Peking opera, which, with its rich artistic legacy, has a history of some two hundred years. It has always been popular with the people. But in the past the operas propagated feudal ideas. After the outbreak of the war against Japan in 1937 some dramatists and artists began experimenting with this traditional form for portraying the idea of national resistance to Japanese aggression. While the approach was correct, much remained to be done to adapt the old form to real-life revolutionary themes. But in the main, the historical operas continued to sing the praise of feudal aristocrats and did not show the role of the masses of the people as makers of history.

Chairman Mao's 1942 *Talks at the Yen-an Forum on Literature and Art* pointed out for the first time that "all our literature and art are for the masses of the people, and in the first place for the workers,

(Continued on p. 52)

New Bird Fossil



Photo of the Shanwang-Shantung bird fossil with the surrounding rock washed out (left) and its impression in the rock (right).

An artist's conception of the bird.

THE most complete bird fossil found in China to date was unearthed in 1976 at Shanwang in Linchu county, Shantung province. Now known as the Shanwang-Shantung bird, it has been judged to be a member of the Phasianidae family that lived 20 million years ago, during the middle Miocene epoch of the Tertiary period. It was discovered by workers mining diatomite, an earthy deposit used as an abrasive, absorbent or filter.

Apparently trapped there millions of years ago, the bird had left a clear impression of its form in the rock which developed around it—head turned to one side, neck curved, wings unfurled, legs nearly straight. Fragments of bones of the legs and wings were preserved in fossilized form.

The bird is about the size of the present-day pigeon, but with a relatively large head, a short, thick cone-shaped beak, rather long tarsometatarsus (shank) and a hind toe set higher than the other three toes. No similar fossil bird has been found anywhere, so it was given the name Shanwang-Shantung bird (*Shandongornis shanwanensis* Yeh) by the Institute of Vertebrate Paleontology and

Paleoanthropology of the Chinese Academy of Sciences.

While there are about 10,000 species of birds in the world today, fossils of birds are very rare—fewer of them have been found than of any of the other major vertebrates (fishes, amphibians, reptiles, and mammals). The hollow, thin-walled bones are easily destroyed. Most birds live in forests where the environment is not favorable for fossilization. Those of water birds are generally washed away. Bird fossils can only be preserved where there are strata of fine-grain deposits such as limestone, bitumen or diatomite, and in an undisturbed environment. The five well-known archaeopteryx from Solnhofen, Bavaria were found in lithographic limestone. Well-preserved fossils of birds have been discovered in diatomite deposits in California. The Shanwang-Shantung specimen was well-preserved because it was also buried in diatomite. The Shanwang stratum has already yielded quantities of animal and plant fossils.

Struthionous eggs make up the largest number of fossil bird remains discovered in China. Most

were found in loess soil deposits. Fossilized struthionous eggs and the leg of a struthionous and fragments of other fossil birds of existing varieties have been discovered in Choukoutien near Peking.

Sporo-pollen analysis of the rocks in which the Shanwang-Shantung bird was found help us form a picture of its habitat in that remote time—a warm, humid climate, a forest of broad-leaf deciduous trees growing among thick brush and herbaceous plants. Not far from the forest was a rather large lake of calm waters in which diatoms—a form of algae which when fossilized create diatomite—grew luxuriantly. Probably the birds made their home among the herbage near the lake and fed on seeds, young shoots and insects. Perhaps one fell into the lake while drinking at the shore or was injured. It sank to the bottom and was unable to lift itself from the mud. It was preserved through petrification.

Great changes took place on earth during the following 20 million years. The forest disappeared, the bottom of the lake thrust up to become hills, the diatoms in the lake became diatomite. Then one day some miners cut into a rock, and there was the form the bird had left. The fossil was turned over to the Shantung Province Museum where it is now preserved.

Lesson 12

More on Characters

Careful attention to the way a character is written will help you in recognizing and writing them. In lesson 4 we learned the 8 basic strokes for writing and the order in which they are written. Here are some points to keep in mind.

1. One stroke more or less may create a different word.

大 dà (big) 白 bái (white) 小 xiǎo (little)
太 tài (too) 百 bǎi (hundred) 少 shǎo (few)
犬 quǎn (dog)

厂 那个同志在工厂工作。
chǎng Nà ge tóngzhì zài gōngchǎng gōngzuò.
factory That comrade in (a) factory works.

广 我每天都听新闻广播。
guǎng Wǒ měitiān dōu tīng xīnwén guǎngbō.
broad I every day all listen (to) news broadcast.

休(息) 休息的时候我们去散步。
xiū(xi) Xiūxi de shíhòu wǒmen qù sǎnbù.
rest Rest time we go (for a) walk.

体 他的身体很好。
tǐ Tā de shēntǐ hěn hǎo.
body His health (is) very good.

木 这张床是木头的。
mù Zhè zhāng chuáng shì mùtóu de.
wood This bed is (made of) wood.

(技)术 他的技术不错。
(jì)shu Tā de jìshu búcuò.
skill His skill (is) not bad.

2. Others may look very much alike, but are actually different.

人 rén person 买 mǎi buy
入 rù enter 卖 mài sell

因(为) 因为天气冷,所以下雪。
yīn(wei) Yīnwei tiānqì lěng, suǒyǐ xià xuě.
because Because (the) weather (is) cold, so (it) snows.

团 他是代表团团员。
tuán Tā shì dàibiǎotuán tuányuán.
group He is (a) delegation member.

北 我住在北京。
běi Wǒ zhù zài Běijīng.
north I live in Peking.

(因)此 他没给我打电话,因此我不去了。
(yīn)cǐ Tā méi gěi wǒ dǎ diànhuà, yīncǐ wǒ
therefore He not to me telephoned, therefore I
bú qùle.
am not going.

(自)己 这个工具是他自己做的。
(zì)jǐ Zhè ge gōngjù shì tā zìjǐ zuò de.
self This tool is (by) he himself made.

已(经) 她已经走了。
yǐ(jīng) Tā yǐjīng zǒu le.
already She (has) already gone.

气 今天天气很冷。
qì Jīntiān tiānqì hěn lěng.
air Today (the) weather (is) very cold.

吃 那个孩子吃了一个苹果。
chī Nà ge háizi chīle yí ge píngguǒ.
eat That child has eaten an apple.

(Note that the hooks are different on these two.)

3. Radicals. In lesson 3 you learned about the radical, the component of a character that may give some indication of its meaning. Some of them may look quite similar.

目 目 mù is an old character for eye. It is used as a radical in 睡 shuì (sleep) — the eyes are closed in sleep.

日 日 rì is the character for sun. 晴 qíng (clear sky), means the sun is clear and bright.

Compare the following radicals.

木 associated with wood or trees, as in 椅子 yǐzi (chair)

扌 associated with the hand, as in 打 dǎ (strike)

衤 associated with clothing, as in 衬衣 chèn yī (shirt)

氵 associated with water, as in 洗 xǐ (wash)

Some radicals have no clear relation to the meaning of a character.

亻 in 信 xìn (letter)

彳 in 很 hěn (very)

Sometimes radicals are written in different ways. They help determine the shape of a character.

早上 zǎoshang (morning)

晚上 wǎnshang (evening)

For Advanced Students:

水上商店

我乘 (chéng ride) 一条渔船 (yúchuán fishing boat), 穿 (chuān cross) 过洞庭湖 (Dòngtíng hú Tungting Lake),

访问星火人民公社。沿途(yántú along the way)看到有几十条渔船在撒(sā spread)网(wǎng net)捕(bǔ catch)鱼。大量活鱼被扔(rēng throw)进船舱(chuāncāng ship's hold)。

突然从东南方面驶(shǐ sail)来一只帆船(fānchuán sailboat),桅杆(wéigān ship's mast)上挂着“水上商店”的牌子(páizi signboard),船上两个人朝(cháo toward)捕鱼队高声嚷(rǎng shout)着:“同志们,我们送货(huò goods)来了!”

渔民(yúmín fishing people)们热烈欢迎他们。售货员(Shòuhuòyuán salesperson)杨大爷(dàye uncle)忙(máng busy)着从纸箱里取(qǔ take)出商品(shāngpǐn merchandise)。他把一些商品交给这条船,又把一些商品交给那一条船。“这尼龙丝(nílóngsi nylon thread)是你上次要的...你们船上用的机油(jīyóu machine oil)带来了...这瓶(píng bottle)药酒(jiǔ wine)请给你大伯(dàbó uncle),治他的关节炎(guānjiéyán arthritis)...”

这时有的渔民又提出新的要求:“杨大爷,下次请给我带二斤白糖(báitáng white sugar)。”

“同志,我们需要二十米(mǐ meter)粗(cū thick)铁丝(tiēsī iron wire)。”

这位售货员一面点头,一面把这些要求记在一个小本子上。

在前舱(qiáncāng front cabin),年轻的售货员小红也摆开(baīkai spread out)货摊(huòtān goods stand)。油、盐(yán salt)、肥皂(féizào soap)、火柴(huǒchái matches)、香烟(xiāngyān cigarettes)....另一批(pī group)渔船围着他。渔民们忙着选购(xuǎngòu select and buy),同时把捕到的鱼虾交售(jiāoshòu hand over and sell)给他。

杨大爷过去在国营(guóyíng state-owned)商店工作。他见到渔民很忙,向商店建议(jiànyì suggest)在湖上设立(shèlì set up)一个流动(liúdòng mobile)分店(fēndiàn branch store)。他的建议得到了采纳(cǎinà adopt)。一年来杨大爷的“水上商店”为渔民服务,始终(shǐzhōng beginning to end)不间断(jiànduàn interrupt)。

A Waterborne Store

I went on a fishing boat across Tungting Lake to visit the Hsinghuo (Spark) People's Commune. On the way I saw several tens of fishing boats casting nets to catch fish. Large quantities of live fish were being thrown into the holds.

Suddenly from the southeast came a sailboat. From its mast hung a sign, "Waterborne Store". Two people in the boat were shouting toward the fishing fleet, "Comrades, we've come to deliver the goods!"

The fishermen welcomed them heartily. Uncle Yang the salesman was busy taking merchandise out of cartons. He took some of the merchandise and gave it to this boat and took some and gave it to that boat. "This nylon thread is what you ordered last time.... The machine oil for your boat.... Please give this bottle of medicinal wine to your uncle to treat his arthritis...."

Then some of the fishermen made new requests. "Uncle Yang, please bring me two jin of white sugar next time."

"Comrade, we need 20 meters of heavy wire."

The salesman nodded as he wrote down these requests in a small notebook.

In the front cabin the young salesman Hsiao Hung had also opened up a goods stand. Oil, salt, soap, matches, cigarettes.... Another group of fishing boats collected around him. The fishermen were busy choosing and buying goods and selling him their fish and shrimps.

Uncle Yang had worked in a state-owned store. He saw that the fishermen were very busy and suggested to the store that it set up a mobile branch store on the lake. His suggestion was adopted and over the past year Uncle Yang's "Waterborne Store" has been serving the fisherfolk without interruption.

HISTORICAL PEKING OPERA REVIVED

(Continued from p. 49)

peasants and soldiers; they are created for the workers, peasants and soldiers and are for their use."

Writers and artists in Yen-an went among the workers, peasants and soldiers to learn about them and their life. From the peasants they learned the yangko, a simple folk dance evolved from work rhythms and often accompanied with singing or acting, and developed it into the new yangko opera depicting workers, peasants and soldiers. At Chairman Mao's urging the yangko was widely danced in Yen-an to promote a movement for people's literature and art. Students at the Central Party School were enthusiastic about the new art form. If this folk form

could be turned into new revolutionary art, why couldn't the traditional opera? To put their ideas to practice they produced *Driven to Join the Liangshan Mountain Rebels* in autumn 1943.

While the opera dealt with history, the theme was pertinent to the reality of the moment. China was then in the most difficult years of the war against Japan. The Kuomintang was passive about resisting, ready to capitulate any time, but active about opposing the Communist Party and conserving their strength for a civil war. They pressganged people into their army, seized grain and extorted money from the people, bullied and persecuted them.

The people fought back in different ways. Yen-an under the leadership of Chairman Mao and

the Communist Party became a beacon of hope. Patriotic people, especially students with revolutionary ideals, flocked to it and other anti-Japanese bases. Performances of the Liangshan opera inspired the revolutionary people to fight imperialism and the feudal forces and strengthened their faith in victory under Chairman Mao and the Chinese Communist Party.

Banned for years by the "gang of four", the opera has been revived along with many other landmark productions. These are viewed as harbingers of a new flowering in the arts in line with Chairman Mao's principles of letting a hundred flowers blossom, weeding through the old to bring forth the new, making the past serve the present and foreign things serve China.





包孕吴越

横空