

China

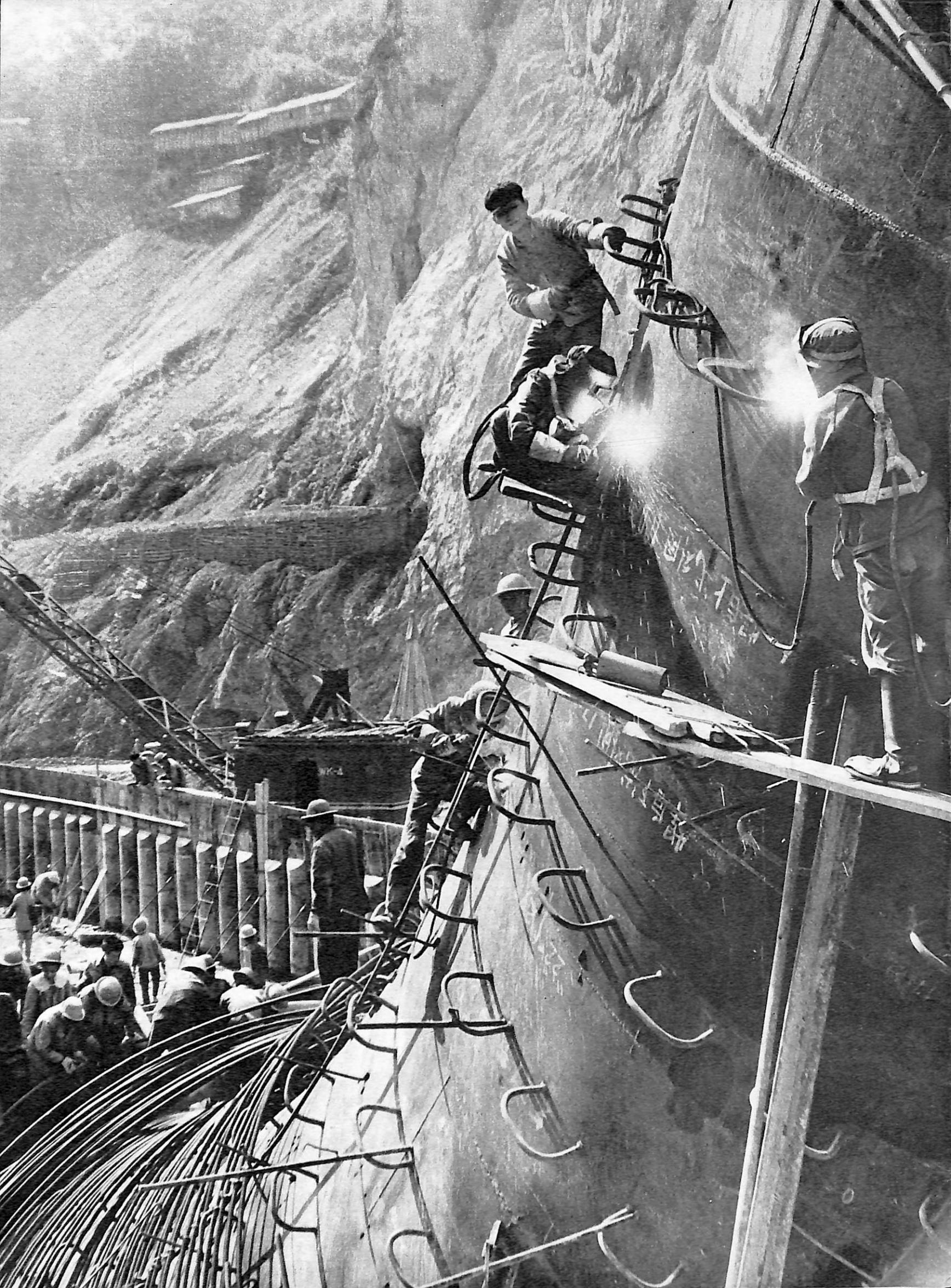
*The Drive to Modernize
Science and Technology*

Reconstructs

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COVER PICTURES:

Front: Chinese Mountaineers crossed slopes of ice and snow (lower right) to advance on the peak of Mt. Tomur (lower left) — highest peak in the Tianshan Mountains of Sinkiang — which they reached last July 25 (upper right). The expedition enabled surveyors and mapmakers (upper left) to gather much new data.

Back: Magnolias.

Inside front: Building a large hydropower station in Wuchiangtu, Kweichow province.

Inside back: A junior gymnast on the balance beam.

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A satellite communications ground station, made in China.

The Drive to Modernize

CHINA's science and technology is entering a new stage. The people are mobilizing to build the country into a powerful socialist state by the end of the century. This means the modernization of agriculture, industry, national defense, science and technology — a task making heavy demands on science. To organize for this task, a national conference on science will be held in Peking in the spring this year. It will exchange experience, draw up plans and commend advanced personnel — especially scientists, engineers, technicians, workers, peasants and

TSIEN SAN-TSIANG is Deputy Secretary-General of the Chinese Academy of Sciences.

soldiers who have made inventions and innovations.

China's contributions in past centuries to the natural sciences are well-known. Gunpowder, moveable type, the compass and others were early inventions. In astronomy, mathematics and medicine, China long occupied a leading position in the world in some aspects. After Europe entered capitalist society, the natural sciences there developed rapidly. But China, still under corrupt feudal regimes and subjected to over a century of imperialist aggression, could not release her productive forces and the natural sciences stagnated.

This situation ended when new China was established in 1949. In his opening address at the Chinese People's Political Consultative Conference in September that year, Chairman Mao Tsetung said, "The era in which the Chinese people were regarded as uncivilized is now ended. We shall emerge in the world as a nation with an advanced culture." The succeeding 28 years, under the leadership of the Chinese Communist Party and Chairman Mao, have seen the foundations for his prediction realized.

Since 1949 China has broken the blockades set up against her first by the imperialists and then

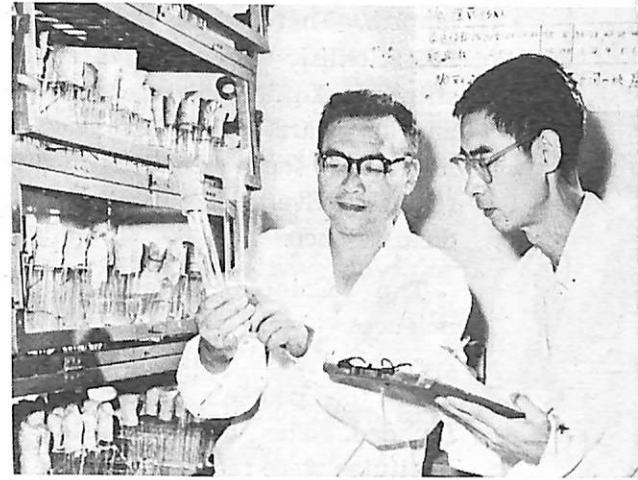


Scientists at the Institute of Genetics in Peking study the haploid method of breeding wheat.

has increased a hundredfold since 1949. All this has laid the foundation for big progress in the future.

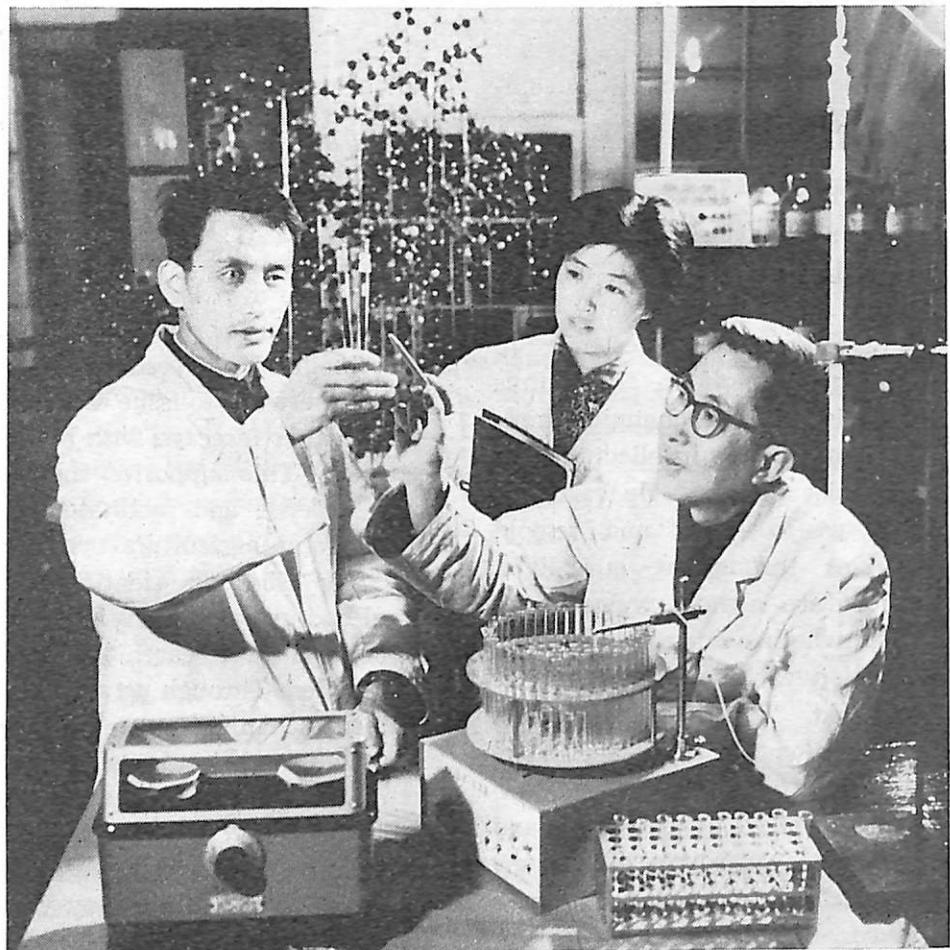
MODERN natural science was introduced into China after the anti-imperialist and anti-feudal May 4th Movement in 1919. Due mainly to efforts by Chinese scientists, geology and biology began to develop. Chemistry, mathematics, physics and geophysics came much later. The technical sciences were the weakest.

Before 1949, scientific research was without leadership and discipline and therefore seriously divorced from the practical needs of society. Many branches of science and technology were lacking, while the work of established research institutes often over-



Investigating Sinkiang's Kurban-Tungut desert in preparation for work on creating oases in the desert.

Scientists at the Shanghai Institute of Biology follow up their success in producing synthetic insulin with new achievements on the origin of life.



Science

TSIEN SAN-TSIANG

by the social-imperialists. She has also broken their monopoly of science and technology, establishing and developing a number of new branches of research. She has successfully tested atomic and hydrogen bombs and guided missiles. She has launched and accurately recovered satellites. These achievements marked a new level in science and technology. A number of creative advances in theoretical research and the applied sciences have been made which equal advanced world levels. A mass movement for scientific experiment has been growing, involving millions of people. The number of professional scientists and technicians

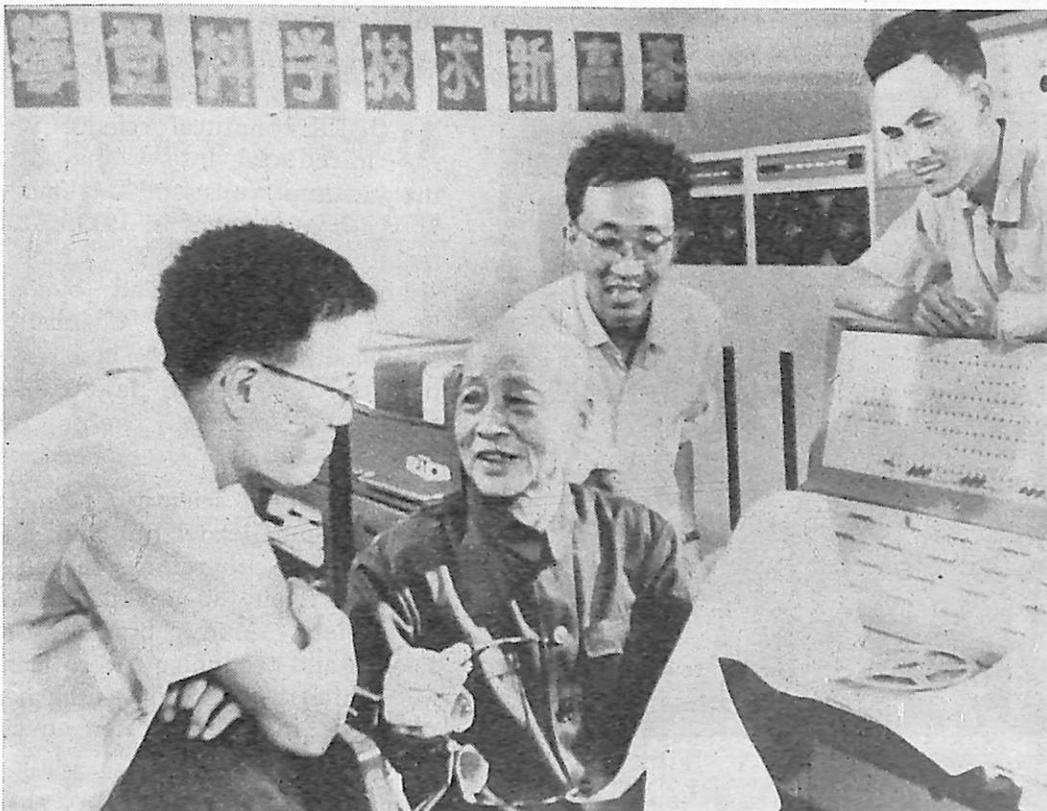
lapped. There were only about 200 scientific workers in these institutes. Equipment was obsolete and backward. China's science at liberation faced enormous difficulties. Everything needed to be done at once.

The Chinese Academy of Sciences was established in November 1949, only one month after the people's republic was founded. The original research institutes were reorganized into 17 institutes, and new ones were set up for nuclear physics, experimental biology and several other branches. The scientists relied on their own efforts to design and make the research instruments and apparatus they needed. Large numbers of new forces were enrolled for research work and quicker training of more scientific workers.

CHAIRMAN MAO and Premier Chou paid a great deal of attention to the welfare of scientific workers. They urged us to work hard to build up the new China. They taught us that theory had to be integrated with practice, that scientific research should be combined with the actual needs of economic construction, and that every one of us should study Marxism-Leninism and become proletarian in our world outlook. Premier Chou told us many times of his personal experience in tempering himself in the storms of revolution and changing himself from a young intellectual to a communist fighter. He earnestly urged us to study and remold ourselves throughout our lives. Patriots are always welcome no matter whether they come to the revolution early or late, Premier Chou said. The people will trust them as long as they serve the building of socialism. We were greatly inspired by his words and resolved to contribute all our efforts to the development of China's science.

Dr. Yang Chen-ning, American physicist, delivers a report to his Chinese colleagues. ▶

Prof. Su Pu-ching, noted mathematician, helps young Fudan University teachers with their research work.



Soon after Tibet was liberated in 1950, a team of scientists in geology, agriculture, forestry and water conservation entered the Tibet Plateau to carry out scientific investigations under extremely hard conditions. Later, when an emergency demanded it, Chinese biologists and medical experts mobilized for the struggle at the risk of their own lives. Within a few years after liberation our meteorologists had established a national network to issue medium-term weather forecasts with higher accuracy. This supported the national defense and facilitated industrial and agricultural production. By 1954 our scientific personnel had grown by ten times and the number of research institutes had doubled. Through personal experience, scientists were realizing that science could only gain a new birth in socialist China under the leadership of the Communist Party. They were changing their political thinking while they were changing the objective world.

Some of them joined the Communist Party.

From 1955 to 1958 there was a vigorous development of science and technology in China. In early 1955 Chairman Mao decided to set up research in atomic energy. In early 1956, at a meeting on the question of intellectuals initiated by the Party Central Committee, Chairman Mao called on the Party to study the problems of science, unite with the intellectuals outside the Party and strive to help science catch up with advanced world levels. At this meeting Premier Chou delivered an important report. He outlined the Party's policy of uniting with, educating and remolding the intellectuals, and asked them to study hard, transform their world outlook and make contributions to socialist construction.

Under the direct concern and leadership of the Party Central Committee, a 12-year plan for scientific development was worked



out with emphasis on atomic energy, semiconductors, computers, electronics, automation and jet technology. It stressed the importance of the basic sciences which provide the theoretical basis for the development of the applied sciences and production techniques. At the same time the applied sciences were to be developed. This would organically link the applied and the basic sciences, and integrate the immediate needs and the long-term planning. It was a turning point in China's science and technology and played an important role in their development.

A big leap forward movement started in 1958 released the enthusiasm of the people and the professional scientists and technicians. A mass movement to challenge nature swept the country and continued in a sustained way. At this moment, as China's science and technology pressed ahead, the Soviet revisionist clique

headed by Khrushchov treacherously tore up contracts and withdrew all its specialists in an attempt to cut off China and sabotage her socialist construction.

THE Chinese people were not intimidated. Chairman Mao emphasized self-reliance and vigorous coordination. Led and organized personally by Premier Chou, scientific workers in many branches cooperated and, on October 16, 1964, China's first atomic bomb was successfully exploded. Her first satellite was launched in 1970. It took China about 15 years, developing from nothing, to expand her forces and enter advanced world levels in these two fields. In industry it has taken China 28 years to build up to what it is today, an advance which took many capitalist countries more than half a century to make. In agriculture China has fed more than one fifth of the world's population on only seven percent of the world's cultivated land.

In the fields of natural science, Li Sze-kuang, an outstanding geologist, creatively applied the theory and methods of geomechanics to the location of mineral resources and pointed out that there should be abundant oil reserves in China (see page 7). After surveying and drilling, oil workers located a vast field in the northeast, as he had indicated, and rapidly built a modern oil base there. China is now self-sufficient in oil and has located vast oil reserves.

After Chinese biochemists produced synthetic bovine insulin for the first time in the world, they succeeded in determining the spatial structure of a molecule of crystalline pig insulin at a resolution of 1.8 angstroms. Recently they studied and analyzed the role of insulin with similar molecules. This work occupies a leading world position in this branch of science. Experimental biologist Tung Ti-chou and the American scientist Man-chiang Niu proved that the cytoplasm plays a certain role with the nucleus in the development of animals (see page 12).

Chinese mathematician Chen Jing-run (see page 10) published a paper of worldwide interest entitled "On the Representation of a Larger Even Integer as the Sum of a Prime and the Product of at Most Two Primes". Young mathematicians Yang Lo and Chang Kuang-hou created a world first by finding an organic link between deficient value and singular direction — two main concepts of value distribution in the theory of functions. Applied mathematician Feng Kang independently established and developed the method of finite element. Basing themselves on Chairman Mao's point of view that matter can be divided without limit, Chinese theoretical physicists put forth a straton model theory of elementary particles. Scientists studying



Chang Kuo-liang, a well-known model worker, shares his experience in advanced cutting-tools at a meeting for technical cooperation in the northeast.

cosmic rays found a new particle ten times heavier than proton. Theoretical chemists Tang Aoching and Chiang Yuan-sheng established a graph theory of molecular orbitals, which is a development of the current theory of molecular orbitals in quantum chemistry. Chemists of high polymer, using as catalysts rare earth elements abundant in China, made high cis-polybutadiene and cis-polyisoprene rubber.

In the past few years large-scale multi-purpose scientific investigations have been carried out on the Chinghai-Tibet Plateau, on subterranean water sources in Hopei province and in the wastelands of Heilungkiang province. Especially outstanding among these investigations was the work of the Tibet Scientific Survey Team which in May 1975 accurately surveyed the height of the Qomolangma Feng (Mt. Jolmo Lungma) at 8,848.13 meters above sea level. The team accumulated much first-hand data involving geology, paleontology, Quaternary geology, natural geography, modern glaciology, geomorphology, meteorology, solar radiation, biology, high-altitude physiology, survey-cartography and geophysics.

In agriculture haploid breeding method has produced new varieties of tobacco, wheat and rice. With the aid of this technique in pollen culture, the new varieties have advantages such as high yields, resistance to diseases and lodging, more tillers and stronger stalks. The method greatly shortens the time needed for breeding seed strains. More than 400 units (including research institutes, schools and communes) in 27 provinces, municipalities and autonomous regions have studied this method and applied it.

CHINA's technical progress was seriously damaged by the interference and sabotage of the "gang of four". They charged that efforts to modernize agriculture, industry, national defense and science and technology were only attempts to swing the country back to capitalism. They negated the role of science in promoting production. They even spread the idea that "the more knowledge one has, the more reactionary one becomes" and persecuted intellectuals. On the pretense of stressing application, they negated theoretical work in natural science and opposed the principle ad-

vanced by Chairman Mao of "letting a hundred schools of thought contend". They opposed learning from advanced foreign technology and at the same time strangled efforts to create things in China. All this led to the deterioration of laboratory equipment and the disbanding of research institutes. It turned science and technology into a brake on the development of the national economy and widened the gap with world scientific levels, which at one time was being narrowed.

After Chairman Hua and the Party Central Committee smashed the "gang of four", the political and economic situation in China turned for the better. The situation in science and technology is good, especially after the Party Central Committee's call for a national conference on science. The masses of workers, peasants and soldiers and scientific personnel are determined to approach (for most branches of science and technology), catch up with (for a considerable number of branches) and surpass (for individual items) advanced world levels. To reach this aim we must strive to learn from other countries. We must promote further international academic exchange and introduce necessary advanced technology.

Chairman Mao viewed scientific experiment as a revolutionary movement combining the efforts of both professionals and the masses. We follow the principles of combining the efforts of leaders, scientists and technicians with those of the masses of workers, peasants and soldiers, combining scientific research with production and use, and combining popularization with the raising of standards. The role of the professionals as the core force must be brought into full play. The mass movement for scientific experiment must be developed persistently and raised to higher levels. Big mass movements will open up inexhaustible springs of creativity, produce a large number of outstanding scientists and technicians and enable China's science and technology to advance rapidly.

Li Sze-kuang and Geomechanics

CHOU KUO-CHUN

THE LATE LI SZE-KUANG, known in world geological circles as Prof. J. S. Lee, was an outstanding pioneer in the study of geomechanics.* His work was largely responsible for the discovery of rich oil reserves in China, a contribution of great importance to the country's socialist construction.

CHOU KUO-CHUN was secretary to the late Li Sze-kuang.

Highly creative in theory and meticulous in work, he was not bound by traditional concepts in scientific research. He once told his daughter, "I don't want fame or money. I just want to quietly do something of benefit to the people."

Li Sze-kuang guided his studies with materialist dialectics. He dug into reality, constantly went among the people to learn from them and

blazed a path of his own. He established geomechanics, one of his important theoretical contributions to geology.

In 1921, in a study of Permian carboniferous stratigraphy in

* Geomechanics applies the principles of mechanics to the study of mechanism, development and origin of the deformation of the earth's crust.

Lecturing to an advanced class run by the Institute of Geomechanics.



connection with coal mining in eastern China, he found a striking contrast in sedimentation: dominantly continental facies in the north and extensive marine carbonates in the south. A further analysis led him to the conclusion that in the northern hemisphere, in late Paleozoic times the southward invasion of boreal waters resulted in regression in the north and transgression in the south, and vice versa. This phenomenon demonstrates that the sea had moved from the two poles to the equator and from the equator to the two poles.

Why such alternation? Li Sze-kuang first thought that it was possible that over the long geological eras the earth might have intermittently changed its speed of rotation. When the rotation is faster the sea water should move toward the equator and invade lands in the south in the northern hemisphere. When the earth's rotation slows down the sea water should move toward the two poles and invade northern lands.

A New Theory

Later he furthered the study of the geological structures of all China. Proceeding from the analysis of the individual phenomena, he gradually came to the concept of the tectonic system and divided China's geological structures into three systems. 1. Latitudinal structures: several parallel east-west mountain ranges at an interval of about eight degrees of latitude between. These are the Yinshan-Tianshan ranges in the north, the Chinling-Kulun ranges in central China and the Nanling Mountains in the south. 2. Meridional structures — either compression or tension, represented in China largely by strongly compressed fold belts, e.g., the Great Snow Mountains in western Szechuan and Yunnan provinces. 3. Various shear forms.

These three categories of tectonic systems interlace, join together, interfere with and interact on one another, constituting the main features of China and the East Asian continent. It is interesting to note that this bears out Engels'

conclusion that "the whole of nature accessible to us forms a system, an interconnected totality of bodies".

From the distribution of these latitudinal, meridional tectonic belts and the various shear forms Li Sze-kuang found that the movement of the earth's crust follows a general direction — latitudinal or meridional horizontal displacement. Longitudinal movement tends to push materials of the upper crust from higher to lower latitudes, thus forming latitudinal compressional structural zones parallel to the equator. On the other hand, latitudinal movement tends to split continents into east and west parts, shift the north continent from the south continent and compress the western margins of the continents into fold mountains. Segments of the crust do not, as some people thought, drift at random.

Crustal movement, whether involving the continents or the oceans, or both, is mainly horizontal. Vertical movement is generally a secondary effect. The driving force inducing such horizontal movements seems to come from only one source — the centrifugal force of the earth's rotation under the control of its gravity.

Lyell's *Principles of Geology*, published in 1830, summarized the experience of his time. The concept of uniformitarianism introduced first by Hutton and restated by Lyell marked the first revolution in geology. Lyell regarded the stratigraphic sequence as essential material for studying the earth's evolution. This view later became the main method and foundation of modern geology.

Lyell conceived that the forces at work on the earth had remained unchanged, both in quality and quantity, and that the earth developed not in any definite direction but merely in a disconnected fortuitous manner. This adversely influenced the development of tectonic geology. It led people to the analysis of the crustal structure merely from its construction and neglect the forces and their changes that bring about the earth's movement. It also led people to separate

geological phenomena mechanically and make isolated morphological descriptions instead of probing for the essence of these phenomena and discovering the laws of their interrelations.

Li Sze-kuang brought materialist dialectics into geology. He looked at matter from the viewpoint of movement, applied the principles of mechanics to the study of crustal structure and crustal movement and explored the relations between the crustal movements and the distribution of mineral resources. He regarded all kinds of tectonic features as the results of action of the stress. He advanced the concept of tectonic system, the basic concept of geomechanics. Thus he got at the essence of matter by breaking through phenomenalism. Li Sze-kuang blazed a new path in geology.

Refuting the "No-oil" Theory

Petroleum experts in imperialist countries claimed that China was poor in oil. As China began its First Five-Year Plan (1953-57), Chairman Mao was deeply concerned about the future of China's oil industry. He asked Li Sze-kuang whether we should resort to developing synthetic oil or to exploring for natural oil. Li Sze-kuang asserted that China has rich oil reserves on the basis of his study of the geological structures of China from the viewpoint of geomechanics. He maintained that the three subsidence zones in the Neocathaysian system provided bright prospects for finding oil.

Li Sze-kuang suggested that instead of concentrating efforts on the country's northwest area alone there should be a countrywide exploratory survey. He particularly stressed an overall survey in the Sung-Liao and North China plains. Chairman Mao and Premier Chou En-lai approved this proposal, and in 1955 geologists concentrated manpower and equipment in the east and northeast. Li Sze-kuang now turned his main attention to oil exploration. In four years petroleum explorers and geologists struck oil in the Sung-Liao Plain — and the great Taching oil field



Li Sze-kuang (fourth from right) on an observation tour in Peking district's Yen-ching county.

was found. This was followed by the location of oil reserves in several depressions in the North China Plain and the Shengli, Takang and other fields were set up. Li Sze-kuang's scientific predictions were correct. The theory that China was poor in oil was refuted.

Premier Chou En-lai once said, "The Taching oil field, set up during the Second Five-Year Plan period, was explored according to the theory of petroleum geology created by China's own geologists."

Earthquake Prediction

After the March 1966 Hsingtai earthquake in Hopei province, earthquake forecasting became an

urgent task. Li Sze-kuang concentrated on seismological studies. Some specialists maintained that underground conditions were too complex for successful earthquake prediction and that China could not succeed where other countries had failed.

Li Sze-kuang used the theory of geomechanics to analyze the causes of earthquakes. "An earthquake," he pointed out, "is the result of the intensification of the main contradiction between the action of stress and the resistance of the rocks forming the earth's crust. It occurs when the rocks are strained to failure. Earthquakes, therefore, are expressions of the modern movements of the earth's crust and can be predicted."

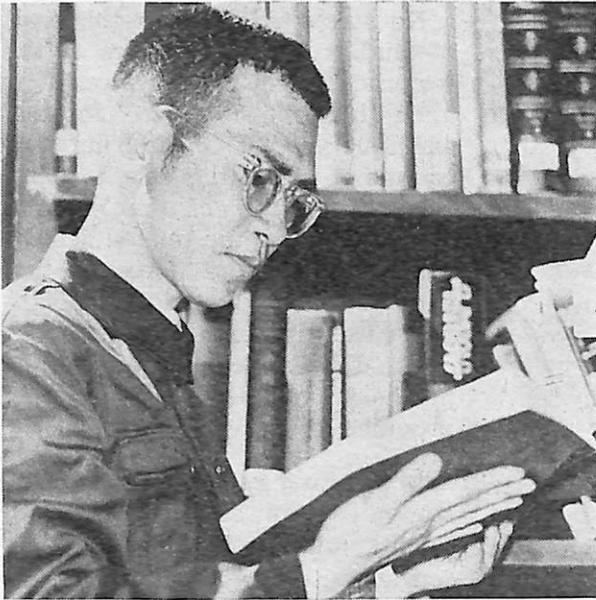
He suggested that, on the basis of studies of the activities of the tectonic systems of a region, it is altogether possible to forecast earthquakes by monitoring the change of the earth's stress. After a detailed study of the Hsingtai earthquake and the related geological structure, he foresaw that earthquakes would migrate north-eastward. In March 1967 an earthquake did hit Hochien county to the northeast of Hsingtai in Hopei province.

Li Sze-kuang soon urged that the study of seismic geology be speeded up in northeast China, and many seismological workers went to Liaoning province to make observations. In the beginning of 1975 they successfully forecast the Yingkou-Haicheng earthquake.

Concerned about the safety of the Peking-Tientsin area, Li Sze-kuang studied observation data day and night. At 80 and troubled with an aneurysm, he crossed mountains and rivers to study geological conditions in the mountains of the Peking district and north Hopei province. On the afternoon before his death in 1971 he told the doctor, "If I could live another six months, I'd be able to see the results of my studies."

Li Sze-kuang was also interested in the utilization of geothermal energy. He often said that "the earth is a huge storehouse of thermal energy. But until now no comprehensive geothermal surveys have been carried out to make it serve human life and production." In October 1970 he was overjoyed to learn that geothermal water had been located and put to use in Tientsin. He visited the site and praised the people's efforts. He said, "Even with plenty of oil, we still must pay attention to conserving energy." His warm support and guidance helped develop research in geothermal energy.

Geomechanics has provided a new and valuable way for exploring the movements of the earth's crust and the laws governing mineral distribution. It is one of the conceptual breakthroughs in geology over the last hundred years or so. Geomechanics is proving its worth in China.



Chen Jing-run, a Dedicated Mathematician

Staff Reporter

CHEN JING-RUN'S work on the theory of numbers leads the field internationally and has been accorded high praise both at home and abroad. Recently he was promoted from assistant research fellow to research fellow at the Institute of Mathematics in the Chinese Academy of Sciences. The announcement before a meeting of the whole academy was greeted by enthusiastic applause, and the news was an encouragement to researchers throughout the country to redouble their efforts to modernize China's science and technology.

Chen's outstanding achievement has been to take a big step toward proving the conjecture made 200 years ago by the German mathematician Goldbach that "any even number can be represented as the sum of two primes" ((1,1) for short). Chen has proved that any sufficiently large even number can be represented as one prime plus the product of at most two primes ((1,2) for short).

But when Lin Piao and the "gang of four" were opposing basic research, claiming to be "criticizing divorce from reality", Chen's achievements were being called "révisionist pseudo-science". He was ridiculed and attacked for devotion to his work.

Of medium height, behind his glasses at 44 Chen gives an impression of frailty that belies his

fierce will. I had called to interview him at his office in the Institute of Mathematics in Peking's western suburbs, but he led me to a corner in the stacks of the institute library. There, surrounded by books on all sides, he often reads and works. "It's quieter here," he observed with his Foochow accent. He is a warm and easily approachable man.

In middle school, he said, in the city of Foochow on the southeast coast, he had loved mathematics, but because of financial difficulties at home he was forced to quit school before graduation. It wasn't till 1950, the year after liberation, that he had the chance to take a college entrance examination and enroll in the mathematics department of Amoy University.

He became more and more interested in mathematics. He conscientiously completed all the recommended reading on time and did every homework problem a dozen times to increase his facility. Wanting to use every spare moment, he undid the pages of noted Chinese mathematician Hua Lo-keng's *Additive Theory of Prime Numbers* and would keep a few in his pocket to study between classes or before going to sleep at night.

After graduation he worked at the university as a librarian. That's when he began his research in mathematics. Within two years he had read most of Hua Lo-keng's

works. In 1956 he wrote a paper on Tarry's problem which improved on Hua's results.

That year Chairman Mao called on the people to advance on science and Premier Chou led the work of drawing up a long-term state plan for the development of science. This was a great stimulus to Chen. The next year he was transferred to the Institute of Mathematics.

CHEN JING-RUN began working on Goldbach's conjecture in 1963. The conjecture is reasonable but difficult to prove. In the course of proving it one must introduce new methods and study new laws. This will enrich human understanding of the theory of numbers and of the relation between this and other branches of mathematics, and help develop them. Many mathematicians have tried their hand at this problem over the past two centuries only to drop it. One went so far as to exclaim, "Its solution is beyond the ability of mathematicians."

With a firm will, Chen Jing-run groped his way forward. He was from the first class of university graduates trained in the new China, he told himself. As a scientist in socialist China, he should not be bound by the limitations of bourgeois scholars. He should "do away with all fetishes and superstitions and emancipate the mind" as Chairman Mao

taught, and dare to scale the heights of science.

After three years of effort, in 1966 Chen proved (1,2) for sufficiently large even integers. He published a sketch proof in the May, 1966 issue of *Kexue Tongbao* (Scientific Communications).

There is no end to research. In 1969 while continuing his work on Goldbach's conjecture Chen realized that the method of calculation he had been using was too complicated and the number of representations rather small. To get closer to Goldbach's conjecture, he decided to use a new, simple method of calculation and increase the number of representations. This meant a new assault.

After seven years of hard work and calculations covering several thousand sheets of paper, Chen Jing-run finally achieved outstanding results in research on Goldbach's conjecture. His paper "On the Representation of a Larger Even Integer as the Sum of a Prime and the Product of at Most Two Primes" was published in *Scientia Sinica* (Chinese Science) in 1973. His research was very creative in its application of the methods of number theory. The method of calculation was much simpler and the number of representations notably larger than in his 1966 results. He came close to Goldbach's conjecture.

His paper had strong repercussions in mathematical circles both at home and abroad. Hua Lo-keng and other Chinese mathematicians thought highly of Chen's research. Halberstam of Britain and Richert of West Germany had their book *Sieve Methods* at the printer's when they saw the (1,2) paper. They added an 11th chapter titled "Chen's Theorem" in which they praised it as the "splendid climax" in the application of sieve methods. Many noted mathematicians and scientific organizations abroad later used his results.

Prolonged mathematical research has developed in Chen Jing-run the habit of careful attention to detail in his work. He often uses several or even dozens of methods

to prove a theorem in different ways. His calculations, the record of his successes and failures, fill several sacks of paper in his home. Every day he buries himself in endless numbers, formulas and symbols. This is dry, monotonous mental labor, but it is just in this endeavor that he finds the joy of struggle and the meaning in his life.

"Time's the problem," he says. For the past dozen years he has regularly risen at dawn to study and work. After spending the day in the library he continues far into the night. Engrossed in his task, he has often forgotten that the library was closing and has been locked inside several times. "That was all right," he said. "I could read a while longer." To confirm a figure, he often works through the night. He never goes to places of amusement.

THE Communist Party branch secretary of Chen Jing-run's department told me that Chen had a difficult life as a child. His father worked for the post office. Before liberation their family of seven was sometimes cold and hungry. His mother got tuberculosis and died because they couldn't afford treatment. Chen has been in poor health since childhood and suffered from tubercular peritonitis in recent years, but he never rests. "There's really nothing we can do," the secretary said. "Nobody can convince him to rest." When people try to persuade him to, Chen replies, "Research takes hard work plus revolution. You can't work when you're resting."

The secretary told of an incident in 1974 when Chen Jing-run was in the hospital. He was there for a rest, but had been able to attend the state banquet on the eve of National Day (October 1). The next morning the secretary had gone to the hospital to go with him to one of the celebrations in the parks. He pushed open the door to find the curtains still drawn and the armchair stacked with books, conspicuous among them a table of logarithms. The desk and floor were covered with papers, and

Chen was crouched on the floor staring intently at them.

"Another sleepless night!" the secretary scolded him.

"At the banquet last night it pained me to see Premier Chou even thinner from illness, but still selflessly handling affairs of state. I must redouble my own efforts."

Chen Jing-run is a diligent worker. He says that whenever he makes progress or gets results he feels a joy which no words can describe. He loves science and gives all his attention to research, and lives very simply. Sometimes he takes a few steamed rolls to the library and works there all day.

Leaders at all levels consider Chen Jing-run's achievements important and are concerned about his health and well-being. The institute leadership arranged for him to move into better housing, but he declined. "We should compare our work with those above us," he said, "and our standard of living with those below." A leading member of the Party Central Committee got someone to tell Chen not to go to bed at 11 p.m. and get up at 2 a.m. Another Central Committee leader enjoined the academy and institute heads to take good care of Chen, have him pay attention to medical treatment and rest as well as work so that he could make an even bigger contribution.

Chen Jing-run has published over 40 papers since 1956. Though he was attacked by the "gang of four", his outstanding contributions continued to be respected and honored by the people. He was selected as a delegate to the Fourth National People's Congress in 1974.

At the end of our interview Chen Jing-run told me that he is investigating some new problems in number theory. He has just published three papers and is writing others. Chairman Hua and the Party Central Committee have such confidence in scientists, he said, that he is bursting with energy like the rest of the people. "I'm confident that any difficulty on China's march to modernization can be overcome."

New Research in Cell Genetics



The normal goldfish with double caudal fins.

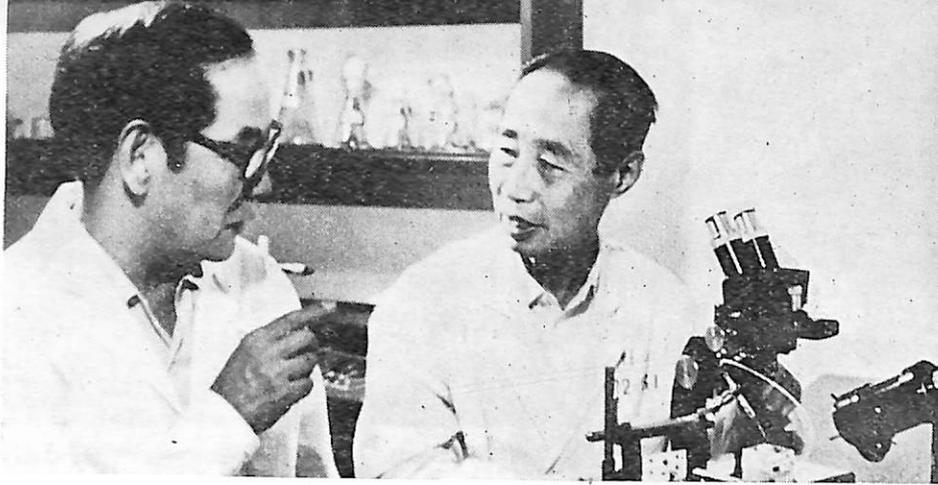


The common carp.



The goldfish with a single caudal fin developed after the fertilized eggs have been injected with mRNA isolated from the mature eggs of the common carp.





Biologist Tung Ti-chou (right) and American scientist Man-chiang Niu at work.

GOLDFISH swim in a pond in the Peking Institute of Zoology under the Chinese Academy of Sciences. They all have double caudal fins, and were bred for experiments in heredity and variations. Nearby, in a huge jar are goldfish with a single caudal fin or varied single caudal fin. These are the results of cytogenetics experiments made by the Chinese biologist Tung Ti-chou and his research group and the American scientist Man-chiang Niu with his wife Pao-ying Chang from Temple University.

Their research has proved that the messenger ribonucleic acid (mRNA) in the cytoplasm (the protoplasm of a cell, exclusive of the nucleus) plays a significant role in the development and heredity of animals. They have also discovered that the deoxyribonucleic acid (DNA) in the cell nucleus plays an induction role in the development and heredity of distantly related animals.

Many theories in cytogenetics have been formulated on the relationship between the cell nucleus and the cytoplasm. In general, most scientists are of the opinion that the cytoplasm is controlled by the cell nucleus which is the principal factor in controlling cell differentiation, development and hereditary characteristics. Tung Ti-chou and his research group have studied this question for a long time. In the light of Chairman Mao's dialectical thinking, however, they regard cell differentiation, development and hereditary characteristics not as the result of control by the cell nucleus but as the result of interaction between the nucleus, the cytoplasm and other factors in the unified organism of the cell. With this as

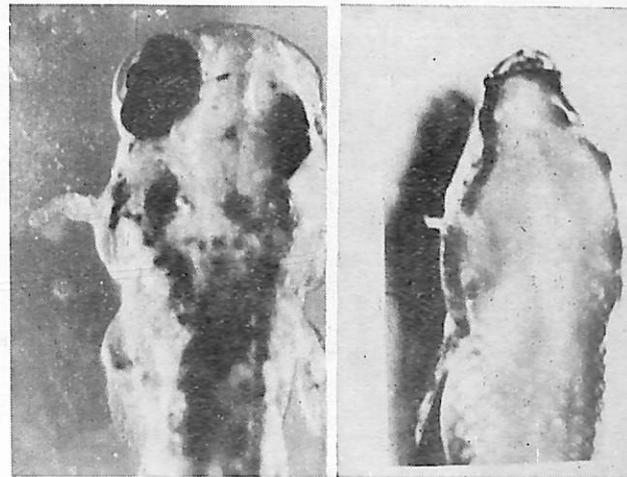
the guideline, they conducted their experiments.

On a tour to China in 1972 to visit relatives, Man-chiang Niu and his wife visited the institute of zoology. They were greatly interested in Tung Ti-chou's research work. They asked to be permitted to do joint research on the subject with Tung.

Man-chiang Niu and his wife came to Peking in 1973 for the first period of joint work. Since 1975 they have spent four months every year in China, working in the laboratory together with Tung Ti-chou and other Chinese scientists. In their cooperative research they isolated mRNA from the mature eggs of the ovary of the crucian carp and injected it into the fertilized eggs of the goldfish. One-third of the goldfish and their descendants turned from double caudal fins into a single caudal fin which exhibited characteristics of the crucian caudal fin. Their experiments indicate that stored mRNA in the cytoplasm of mature ovarian eggs plays a remarkable role in the development and heredity of animals.

For the convenience of scientific research, scientists classify animals into species, genus, family, order, class and phylum in accordance with distant or near relationships. Can mRNA in the cytoplasm of mature eggs bring about changes in the hereditary characteristics of different species of animals as well as in the same species of animals (as in the crucian and the goldfish)? Professor Tung Ti-chou and his group and Professor Man-chiang Niu and his wife isolated mRNA from the mature eggs of the common carp and injected it into the fertilized eggs of goldfish. About

20 percent of the goldfish turned from double caudal fins to the single caudal fin characteristic of the common carp. Evidently the egg-mRNA also plays a remarkable induction role in the development and heredity of different genera of animals (as here in the common carp and the goldfish).



A balancer of the larval goldfish, as in the larval salamander, developed as a result of the nucleic acid's induction role.

Can egg-mRNA change the internal as well as external characteristics of animals? The scientists made a comparative study of the patterns of liver lactate dehydrogenase (LDH) isozyme of the goldfish, the common carp, a cross breed between the goldfish and the common carp, and larval fish developed from the eggs of goldfish into which the mRNA from the eggs of the common carp was injected. LDH isozyme is a chemical substance in fish liver regarded as a mark of classification in genetics. The pattern of the isozyme of the larval fish developed from goldfish eggs into which the mRNA from the eggs of the common carp had been injected was similar to those of the crossbred fish, and not to that of goldfish or the common carp. The mRNA can thus bring about both external and internal changes in animals.

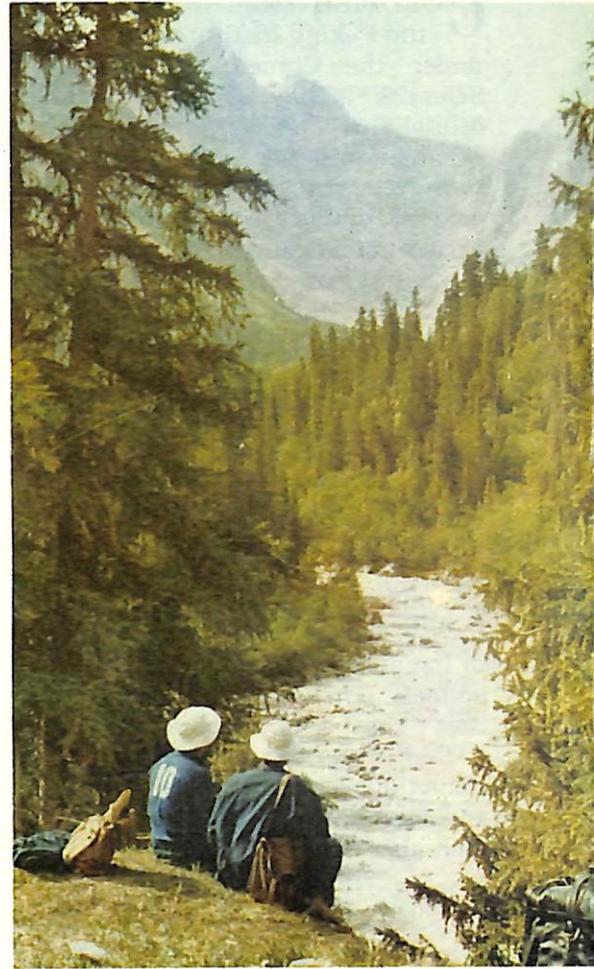
Can nucleic acid's induction role in the development and heredity of animals manifest itself between more distantly related animals? Tung Ti-chou, Man-chiang Niu and their co-workers made experiments

(Continued on p. 50)



Mt. Tomur, highest peak in the Tianshan Mountains.

Forests along a river in the Mt. Tomur area.



A herd of sheep on the Taklak pasture at the foot of Mt. Tomur.



The Tianshan Mountains

CHOU TING-JU

THE TIENSHANS, which bisect the Sinkiang Uighur Autonomous Region in northwest China, are one of the largest mountain systems in central Asia. Composed of several parallel east-west ranges, they cover one fifth of the region's area and divide it into its northern and southern parts.

The mountains stretch for over 2,000 kilometers from east to west and about 300 km. from north to south. They enclose numerous basins and valleys which divide the system into dozens of chains and mountain knots. The mountains in the west are particularly high and precipitous. Mount Tomur in the Aksu prefecture is the tallest — 7,435.3 meters above sea level. Along with 6,995-m. Mt. Khan Tengri to the north, it forms a formidable mountain knot.

The passes in the western Tianshans generally lie above 3,000 m. The lowest — 2,900-m. Muzart Davan — connects northern and southern Sinkiang. Twelve km. of the road run alongside a modern glacier, and are muddy, slippery and dangerous.

CHOU TING-JU is a professor at Peking Teachers' University.

The eastern Tianshans are slightly lower, generally between 3,000 m. and 4,000 m. Here the highest is Bogdo Ula, 5,445 m. Sharp peaks nearby stand up like the teeth on a comb. On its northwest slope at 1,980 m. is Heavenly Lake, a dammed lake about four km. from north to south and two km. from east to west. The surrounding forests and snowcapped peaks reflected in its clear water create a scene of unusual magnificence. It stores precious water, and provides a fine place for the sanatorium for working people located there.

World of Ice and Snow

The Tianshan peaks are a panorama of ice and snow the year round. Ice-covered mountains and silver glaciers are linked one to another. Winter temperatures often drop to 30-40°C. below zero, and there are frequent heavy snows even in summer.

The Tianshan glaciers comprise one of China's largest glacial regions. There are over 400 modern glaciers in the area around Mt. Tomur, covering over 2,800 square km. Standing atop a glacier, one can see waves of cold air cascading down the ice cliffs below.

The marvellous array of ice-coated rivers formed by melting snow and ice, ice bridges over crevices, ice mushrooms and ice fountains spraying water in all directions create a fairyland atmosphere.

Glaciers flow downward extremely slowly; their motion is imperceptible to the eye. From April to September each year part of the Tianshan glaciers melt just when agriculture needs water most. The runoff irrigates pastures and forests, crops, flowers and fruit, causing oases to blossom in the desert. The working people of various nationalities living at the foot of the Tianshans regard the glaciers as "mountain reservoirs".

Rich Natural Resources

The Tianshans have not only beautiful scenery, but also rich resources. The vast majority of the north-slope forests are tall, straight-trunked, thick-needled dragon spruce which stays green the year round.

In some of the western Tianshan valleys wild apples grow, remnants of a geological period tens of millions of years ago. There are natural orchards of these and other ancient species — the wild apricot,

Mt. Tomur Scaled

TEN Chinese mountaineers and a filmmaker scaled Mt. Tomur — the Tianshan's highest peak — on July 25, 1977. Seventeen others repeated the feat on the 30th.

Mt. Tomur — meaning Iron Mountain in Uighur, a precipitous 7,435.3-m.-high peak in Sinkiang's Aksu prefecture, is covered with snow the year round.

The Mt. Tomur expedition was composed of men and women from eight of China's nationali-

ties — Han, Tibetan, Uighur, Mongolian, Korean, Pai, Manchu and Monba. Among them were workers, peasants, People's Liberation Army men, university students, scientists, surveyors, map-makers and mountaineers. The scientists surveyed the peak and the surrounding area and carried out a study of its glaciology, hydrology, geology and biology, which will be of great significance to China's national defense and economic construction. (See photos on pp. 14, 16, 17.)



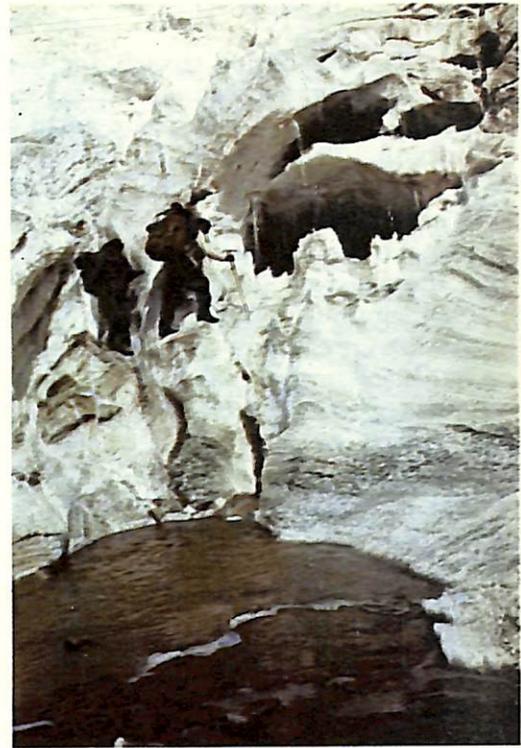
Mountaineers are careful of open and hidden fissures as they advance across an ice cascade. ▶



Hydrological observation post on the Tailan River at the foot of Mt. Tomur.



Gathering wild plants in the Mt. Tomur area.



Twin ice caverns and a frozen lake at 4,500 m.

Scientists mount specimens of wild animals caught in the Mt. Tomur area.

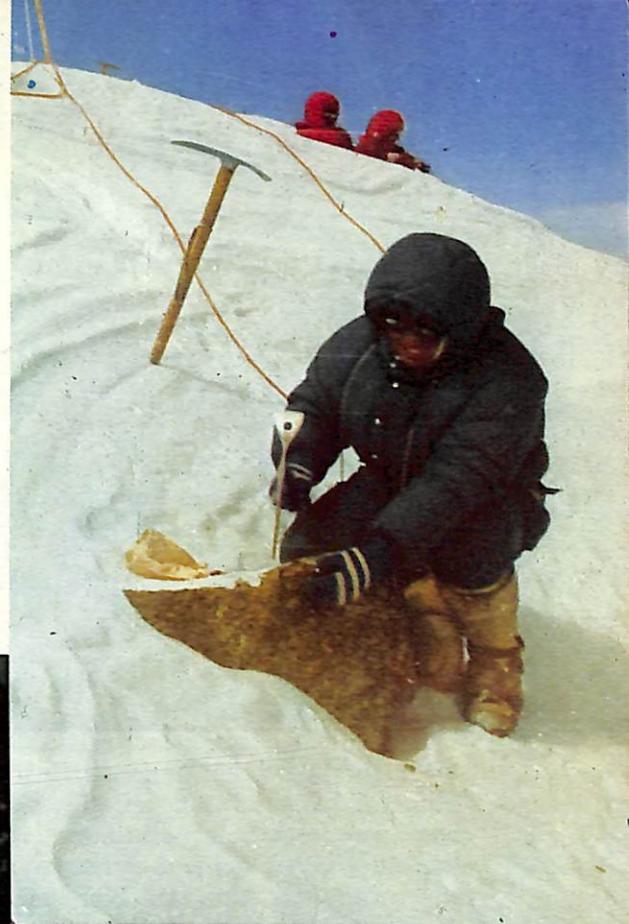


Ancient plant and animal fossils discovered and collected for the first time on Mt. Tomur's south slope.





Mountains amidst a sea of clouds:
view from the assault camp at 7,000 m.



Collecting rock samples on
the summit of Mt. Tomur.



Ice fissures at 5,400 m.

Glacier at 4,200 m.





Scene at Heavenly Lake.

walnut, hawthorn and ash — and of modern species.

There is a wealth of medicinal plants here. The “snow lotus”, which grows between 4,000 m. and 5,000 m. in a sea of snow and glaciers, is used to treat rheumatic arthritis. Snow-white, it has extremely tenacious vitality, growing even at 20-30°C. below zero. On clear days its petals open to receive the sunlight; on cloudy days they close.

The Tienshans also have many wild animals, among them the Siberian ibex, argali and marmot. The nimble Siberian ibex lives among high, sheer cliffs. The argali has large spiral horns and generally weighs around 50 kilograms. It is a typical central Asian animal.

Fertile Valleys and Basins

Irrigated by the Tienshans' melting snow, basins and valleys among the mountains contain lush pastures and fields. Best known are the Turfan Basin in the east and the Ili Valley in the west.

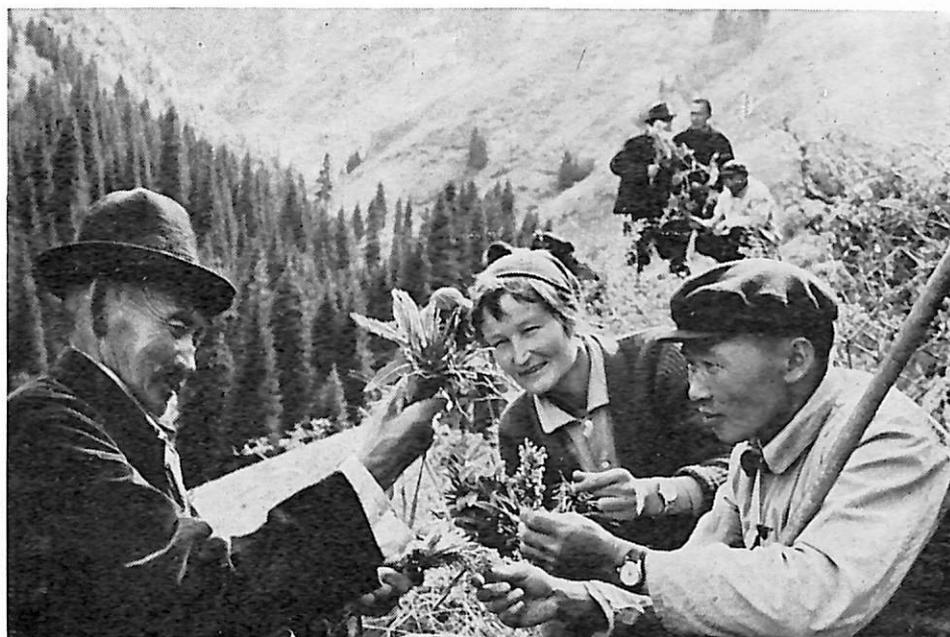
The lowest, hottest place in China, the Turfan Basin is one of Sinkiang's important agricultural areas. Irrigation is well-developed. The basin produces quantities of Hami melons, seedless grapes, long-staple cotton known throughout

China and rice. (See “The Turfan Basin” in the September 1977 *China Reconstructs*.)

The broad Ili Valley lies between the northern and southern Tienshans. It opens to the west, so that warm, moist air from the west can enter, while the dry, hot air from deserts north and south of the mountains cannot. This gives the valley a particularly warm, moist climate and an annual rainfall of 250-600 millimeters. There is deep snow in winter. Rain and melting snow carry large quantities of

fertile soil from the Tienshans into the valley. The Kash, Kunges and Tekes rivers with their sources in the Tienshans' snowy peaks merge to form the Ili River, which flows the length of the valley and nourishes the well-known Kunges Grasslands. This is the home of the famous Ili horse and the fine-wool Sinkiang sheep, also known for its meat. Both breeds were developed by herders in the area. The valley also produces quantities of wheat, rapeseed and fruit of many varieties.

Gathering medicinal herbs high in the mountains.





Chairman Mao's Analysis of the Three Worlds

TAN WEN-JUI

THE concept of the three worlds, as formulated by Chairman Mao Tsetung in 1974, views the contemporary world as divided into three parts. The two superpowers—the Soviet Union and the United States—make up the first world; the developing countries—in Asia, Africa and Latin America, including China and some other socialist countries—make up the third world; and the developed countries between the two make up the second world. In his talk with the leader of a third world country in February 1974, Chairman Mao said, **“In my view, the United States and the Soviet Union form the first world. Japan, Europe and Canada, the middle section, belong to the second world. We are the third world.”** He went on to explain, **“The third world has a huge population. With the exception of Japan, Asia belongs to the third world. The whole of Africa belongs to the third world, and Latin America too.”** The international situation in recent years has shown that this analysis conforms to the realities of world politics. Therefore it is being supported by more and more people.

Changes Since the 1960s

Since the 1960s the world has undergone a big change, one involving great upheaval, disintegration and reorganization. National liberation movements in Asia,

Africa and Latin America are increasing their activity. Many countries which have achieved independence are continuing to struggle against imperialism and colonialism. They have become a strong and independent political force in the international arena.

Taking advantage of its greatly enlarged economic and military strength after World War II, U.S. imperialism climbed to the position of a tyrant in the capitalist world, but has declined as a result of repeated setbacks in its aggression and expansion. The western European countries and Japan, weakened at the end of World War II, have rapidly regained their strength and made advances. They are engaged in sharp contention with the United States. The imperialist camp with U.S. imperialism at its head has split.

In the Soviet Union, Khrushchov and Brezhnev usurped Party and state power, have restored capitalism in an all-round way and begun a policy of aggression and expansion. The socialist Soviet Union has gradually become a social-imperialist state. Some socialist countries in eastern Europe also changed color. The socialist camp headed by the Soviet Union which existed for a time after World War II is no longer a reality. Within the Soviet Union's “socialist community”, which it controls, a struggle against control and enslavement is gaining momentum.

How to view this complicated situation of great disorder under

the heavens has become an urgent matter of concern for the people of the world.

Some United States political figures stress “mutual dependence” in today's world. This is really an attempt to deny the contradiction between the exploiters and the exploited, the oppressors and the oppressed, and the aggressors and their victims in order to maintain the old world order and make other countries “depend on” the United States. The Soviet revisionist clique, on the other hand, in spite of the facts declares that there is still such a thing as a socialist camp and a capitalist camp and that their opposition is the main contradiction in world politics. The aim of this is to cover up the nature of Soviet social-imperialism and its sharp contradiction with the world's people, especially with the peoples of the third world, and thus maintain its “community” colonial empire and contend with the United States for world hegemony.

There is an essential similarity between the two views advanced by the United States and the Soviet Union. Both want to prevent the people of the world from distinguishing between our enemies and our friends, to aid them in their rivalry for world hegemony and to undermine the people's struggle against it. Chairman Mao's three-world analysis refutes the superpowers' fallacies, points out the orientation for the current international struggle and clarifies the question of who are

TAN WEN-JUI is a commentator on international affairs.



the main revolutionary forces, who are the principal enemies and who are the middle forces that can be won over and united with. It can help the people of the world unite all forces that can be united, isolate to the maximum and oppose their principal enemies, and carry on the struggle victoriously against imperialism and hegemonism.

How the Concept Developed

Chairman Mao developed his concept over years of observation and study of the international situation. As early as 1946 when U.S. imperialism stood in opposition to the Soviet Union as a socialist country, Chairman Mao remarked, **"The United States and the Soviet Union are separated by a vast zone which includes many capitalist, colonial and semi-colonial countries in Europe, Asia and Africa."** He also pointed out that U.S. imperialism had made a large number of the countries in this intermediate zone its first target for oppression and aggression.

In 1957 when Chairman Mao saw the contradiction between the imperialist countries revealed in the Suez Canal incident, he pointed out that the capitalist world was not a monolithic bloc, but that in it there were two kinds of contradictions and three kinds of forces. **"The two kinds of contradictions are: first, those between different imperialist powers, that is, between the United States and Britain and between the United States and France and, second, those between imperialist powers and the oppressed nations. The three kinds of forces are: one, the United States, the biggest imperialist power, two, Britain and France, second-rate imperialist powers and three, the oppressed nations."** Early in the seventies, Chairman

Mao analyzed the change and development in the basic contradictions in the world, the disintegration and reorganization of various political forces, and the political and economic position of different countries and in 1974 officially put forth his concept of the three worlds as a scientific analysis. It sharply pointed up the situation in international class relationships.

Is in fact today's world divided into these three mutually contradictory and interrelated spheres? Viewing the world situation objectively, one cannot deny the following facts: The two first world superpowers, the Soviet Union and the United States, both want to oppress and bully the other countries and bring them under their control and enslavement. To this end they spare no effort to prepare for a new world war, therefore placing themselves in opposition to the third and second worlds. As the developing countries of the third world have suffered the deepest oppression, their resistance is the strongest. So they have become the main force for opposing imperialism and colonialism, and hegemonism in particular.

The developed countries of the second world also oppress and exploit the third world, but they themselves suffer in varying degrees from control, threats and bullying by one or other of the superpowers. In varying degrees they want to shake off superpower control. These contradictions among the three worlds, and their struggles, make up the present complex scene in world politics.

First World: Enemy of World's People

Postwar historical developments elevated the Soviet Union and the

United States to the position of imperialist superpowers. Vying for world hegemony, they possess economic and military strength far superior to that of other countries. Their combined gross national product amounts to 40 percent of the world total. The gross value of industrial output of either one surpasses the total of the three main European capitalist countries — West Germany, France and Britain. Both superpowers have thousands of strategic nuclear weapons, tens of thousands of war planes, hundreds of major warships and large quantities of weapons and equipment for conventional warfare. Their armed forces number 4,000,000 (U.S.S.R.) and 2,000,000 (U.S.). Combined military expenditure of the two accounts for over 70 percent of the world total. They are maintaining a peacetime war machine of a scale unprecedented in history. Using their great economic and military might, they have wantonly carried on plunder, aggression and expansion in other countries as they compete with each other for world hegemony.

Because all the other countries are subject to their aggression, threat and bullying, the two superpowers' contention is the root cause of disorder in the world. The Soviet Union and the United States are the biggest exploiters and oppressors, the biggest forces for aggression and war, the common enemy of the people of the world. A point that must be emphasized is: As Soviet social-imperialism is a latecomer among the imperialist powers, it is the more vicious and adventurous. In its contention with U.S. imperialism, it is taking the strategic offensive. Moreover, being still behind the United States economically, it must rely to a



From left to right:

Heads of many third world countries met together at the 5th Conference of Heads of State and Government of Non-Aligned Countries held in Colombo in August 1976.

Men of the Kampuchean revolutionary army. After more than five years of dauntless struggle in the national liberation war, the Kampuchean people defeated U.S. imperialism and its lackeys the Lon Nol clique and established people's power.

Sudanese women parade to oppose Soviet interference in African affairs.

Palestinian guerrillas at military training for the armed struggle for national independence and liberation.

greater extent on its military strength in pursuing expansion. Therefore, Soviet social-imperialism, flying the banner of "socialism" to deceive other countries, is more dangerous than U.S. imperialism and has become the most dangerous source of world war today.

Third World: Main Force Opposing Imperialism, Colonialism and Hegemonism

The central questions of world politics today are: the contention between the two superpowers, their threat to the world's people and the world people's opposition to them. The main role in the struggle against imperialism, colonialism and particularly against the hegemonism of the two superpowers has been played by the third world countries and people. This has been decided by their position and the tide of history.

The third world consists of over 120 countries and regions, mainly in Asia, Africa and Latin America. They account for over 70 percent of the world's population. Since World War II their revolutionary anti-imperialist struggles have been the main force in weakening and striking at imperialism. Wars of national liberation have been victorious. In 1966 Chairman Mao said, "The revolutionary storm in Asia, Africa and Latin America is sure to deal the whole of the old world a decisive and crushing blow."

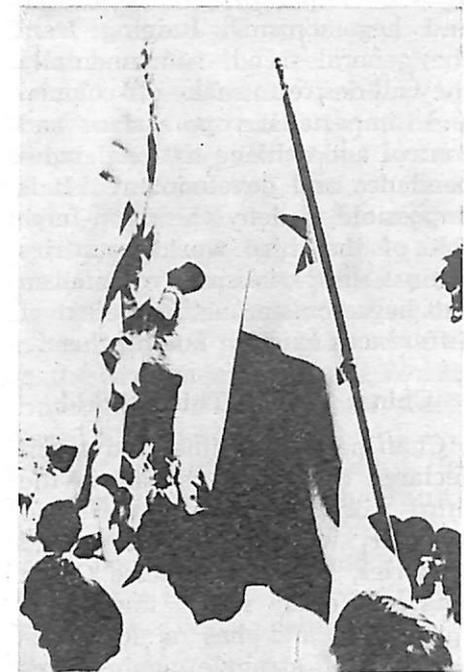
Today in some regions the people are continuing to wage armed struggle for independence and national liberation, while countries which have achieved independence still face the task of safeguarding and consolidating it and of securing their development. As these coun-

tries were long subjected to the ruthless oppression and exploitation of imperialism and colonialism, they have not yet gained complete economic independence and are still backward economically. After independence they have continued to suffer from oppression, exploitation and plunder at the hands of imperialism, especially the two superpowers. If they want to achieve complete political and economic independence, they have to wage a life-and-death struggle against the aggression, intervention, control and plunder of imperialism and social-imperialism.

The two superpowers in their contention for world hegemony have done everything to grab strategic resources, areas and sea passages in the third world countries. The contradiction and struggle between the third world countries and the two superpowers have sharpened. The spearhead of these countries' struggle against hegemony naturally is pointed toward the two superpowers, the Soviet Union and the United States, directly and indirectly. In the meantime, the newly-independent third world countries with power in their own hands, have acquired more means and a wider arena for struggle. Their unity and cooperation have grown in their common struggle and this has enabled them to batter at the two superpowers' hegemonism and aggressive policy more effectively.

Recent years have seen some major struggles by the third world countries against the superpowers — over control of territorial waters, for raising the price of oil and against keeping the purchasing prices of other raw materials low. These manifest the tremendous power the third world countries can have when they

After half a century, in September 1977 the Panamanian people forced the U.S. government to sign a new treaty. It provides that the U.S. government will step by step transfer sovereignty and administration of the canal and the Canal Zone to Panama before December 31, 1999. Below, students in the Canal Zone hoisting the Panamanian flag and lowering the U.S. flag during a demonstration in June, 1977.



A petition campaign in Japan to demand the Soviet Union return their northern territory.



work together. People have come to see more and more clearly that today it is the imperialists and social-imperialists who are afraid of the third world countries and people, rather than the other way round. In short, the role the third world has played in the actual struggle and their position and the trend of history all show that it is truly the main force in the struggle against imperialism, colonialism and hegemonism and it is the revolutionary motive force propelling the wheel of world history forward today.

We do not deny the differences in the social system, economic level and political attitude among the third world countries. The conditions of these countries are complex and in the process of change. However, these differences cannot alter the main fact that the third world countries *as a whole* are against imperialism, colonialism and hegemonism. Judging from the general trend, fundamentally they all desire to shake off colonial and imperialist oppression and control and achieve national independence and development. It is impossible to deny the main-force role of the third world countries against imperialism, colonialism and hegemonism on the pretext of differences existing among them.

China: Part of Third World

Chairman Mao time and again declared that China is part of the third world, and can only stand together with the third world countries. This is because China long suffered from imperialist oppression and has a long experience of struggle against imperialism. China has a socialist system, but, like other lands of the third world, she is still a developing country facing the task of waging persistent struggle against the imperialist superpowers.

Even after China has become a strong socialist country with a more developed economy, she will still remain a third world country and stand with the oppressed peoples. Having a socialist system and following Chairman Mao's revolutionary line, China can never allow herself to become a superpower or to seek hegemony. As Vice-Premier Teng Hsiao-ping said

on April 10, 1974, at the special session of the United Nations General Assembly, "If one day China should change her color and turn into a superpower, if she too should play the tyrant in the world, and everywhere subject others to her bullying, aggression and exploitation, the people of the world should identify her as social-imperialism, expose it, oppose it and work together with the Chinese people to overthrow it."

Second World: Can Be Won Over

The second world consists of developed countries with contradictions with countries of both the first and the third world. The second world lands, comprising the European countries (western and eastern Europe), Japan, Canada, Australia and New Zealand, on the one hand have a thousand connections, politically, economically and militarily, with the two superpowers, depend on or follow one or the other of superpowers, and oppress and exploit the third world countries. On the other hand they are subjected to varying degrees of aggression, threats and bullying by the two superpowers, so they desire in varying degrees to free themselves from superpower enslavement and control and to safeguard their national independence and territorial integrity. Thus there is a tendency to increase unity with the third world countries.

Today with the world's basic contradictions and the contention of the two superpowers sharpening, the power of the third world countries and threat of war visibly increasing, the second world countries are tending to increase their resistance to hegemony and their unity with the third world. Their contradiction with the two superpowers, with Soviet social-imperialism in particular, is increasing. The second world countries all face the serious problem of defending their national independence. Thus in the struggle against hegemonism they are forces that can be won over and united with.

Broadest United Front Against Hegemonism

To resist the two superpowers and frustrate their scheme for

world war, it is essential to unite all who can be united and to organize a mighty force against hegemonism to carry on an unremitting struggle against the enemy's aggression and war, Chairman Mao's concept of the three worlds has provided a clear strategy for the world's people and their efforts to set up an international united front in the struggle against hegemonism. In the present international situation it is necessary to unite the third world and to bring its main-force role into full play, to actively win over and unite with the second world, to isolate the two superpowers as much as possible and oppose them, Soviet social-imperialism in particular.

A new historical period of opposition to Soviet social-imperialism and U.S. imperialism has begun. A broad international united front opposing their aggression, intervention, control, subversion and bullying is developing. Chairman Mao's analysis of the three worlds is a blow to the heart of Soviet social-imperialism, and has become a powerful ideological weapon for mobilizing the people of the world for struggle against hegemonism. This is why the Soviet revisionist clique so hate this theory and attack it. The growth of an international united front against the two superpowers, with the third world as its main force, will prove to be an irresistible tide.

The world is moving toward progress, not toward reaction. The superpowers' desire for world domination is only a dream. Although they swagger like conquering heroes, their strength is a superficial and temporary phenomenon. They are beset with increasingly sharp contradictions and rocked by crises both at home and abroad. They want to free themselves from their predicament by means of war, but this will only lead to their doom. The oppressed nations and peoples and those that suffer from superpower aggression, intervention, subversion, control and bullying will inevitably unite to struggle to the end to defeat the hegemonism and war of the two superpowers. The victory will go to the people of the world.

My Memories of Chou En-lai

PA CHIN

IT IS two years since Chou En-lai died but every time I see his picture — his alert eyes, his heavy black brows — it seems that my meetings with him over the last 25 years took place only yesterday.

I first met Chou En-lai in early 1941 in Chungking during the anti-Japanese war. He came to a meeting held by the Literature and Arts Circles' Anti-Enemy Association to welcome some poets and writers from out of town. He was then a representative of the Chinese Communist Party stationed in Chungking. For me, his warm talk, hearty laughter and firm handshake dispersed the heavy atmosphere of foggy Chungking under Kuomintang rule.

Toward the end of 1944 Chiang Kai-shek's army in Hunan province suffered a heavy defeat. His troops in Hunan surrendered to the Japanese, and the Kuomintang army started to withdraw from Hunan and Kwangsi. The Japanese invaders pursued them into Kweichow province. Refugees from Hunan, Kwangsi and Kweichow streamed into Szechuan after untold hardships on the way. The Kuomintang government, instead of reporting the truth, filled their papers with news of "victories", which created even greater confusion in people's minds.

Writers and artists in Chungking, in eastern Szechuan, were furious over the Kuomintang's flight yet did not know what to do, for no one was giving us any guidance. The Anti-Enemy Association

PA CHIN, 74, is a well-known novelist. His works, one of the most famous of which is *The Family*, were banned by the "gang of four" for ten years. *The Family* has recently been republished.



Chou En-lai in Chungking during the anti-Japanese war.

ciation invited Chou En-lai to a forum to present his views on the situation. He gave us facts proving that the Kuomintang government was only making a show of resistance and was actually planning to capitulate to the enemy. He described how the Eighth Route Army led by the Communist Party was successfully resisting the Japanese, making us see that the enemy, though possessing superior weapons, could be defeated. If the situation became dangerous and we wished to go to the liberated areas and join the guerrilla war there, he said, he would be glad to make this possible. Chou En-lai's confidence was infectious. Here, we felt, was a rock-solid force we could rely on, a guide to lead us

forward in this time of danger. We no longer felt at a loss, but stuck to our posts and did what we could to oppose the Kuomintang's capitulation.

AFTER the victory in the war with Japan Chou En-lai again accepted an invitation from our association in Chungking to talk about making literature and art serve the workers, peasants and soldiers, the orientation for the arts put forward by Chairman Mao. He told us about how writers and artists in the liberated areas had gone to live among the working people and take part in collective labor, what they had gained through the experience.

His talk opened up new horizons for me. I saw that there could be a bright future for intellectuals like myself. Ever since my first novel *Destruction* in 1927 I had been writing about the darkness and misery of the old society. In my books people were always suffering and dying, there was no end of tears. I tormented my readers with my own agony. For nearly 20 years I had kept appealing for a change in the life around me, yet I never had the courage to go about changing it. His tales of writers in the liberated areas attracted me and I wanted to throw away the pen that had always described pain and suffering. But I did not yet have the courage to break with the old life, I was afraid of the painful process of remolding myself, so I had delayed taking the new road. Now I had come in touch with the ideas of Mao Tsetung, and these would eventually guide me onto a new road. By the time the People's Republic of China was born I had begun writing about the victories and joys of the people.

The situation in 1946 in Chungking was complex. Behind the smokescreen of negotiations with the Communist Party, the Kuomintang reactionaries were actually stepping up efforts for a large-scale civil war. Chou En-lai was Vice-Chairman of the Military Commission of the Chinese Communist Party and representing it at the negotiations, and was under close surveillance by Kuomintang special agents. Even his life was threatened. But he came and went unruffled, unflinching in carrying out his mission.

One evening in 1946, after giving a talk at our association, Chou En-lai put on his much-worn black overcoat and he and I and a comrade who had come with him walked up the hundred or so stone steps that led to the street level. I asked him when he was going to Nanking to continue the negotiations. He was leaving the next day, he said, and added that the Kuomintang was not in the least sincere about the negotiations, but the Communist Party was ready to

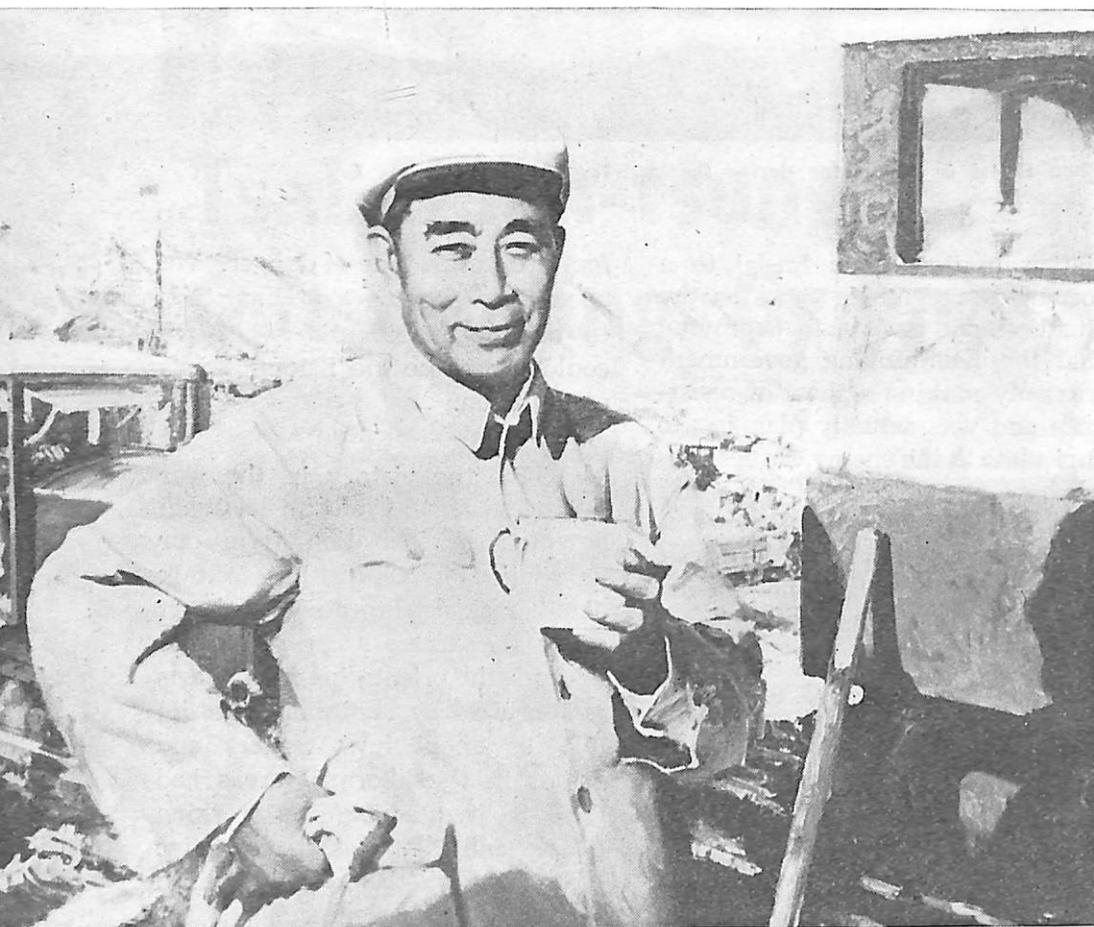
carry them on for as long as possible, for this would eventually expose the Kuomintang's intentions of civil war. Night in Chungking gave one a feeling of suffocation. All was quiet and not a soul was in sight, yet I knew that the KMT agents were hard at work and they would stop at nothing to achieve their ends. I was worried for Chou En-lai. But I knew, too, that he would be able to cope with any critical situation coolly and he never worried about his own safety.

A friend had once told me of an incident that happened while she was flying from Chungking back to Yen-an in the same plane with Chou En-lai. Something went wrong with the aircraft. They had already dumped the baggage to be ready for an emergency. Chou En-lai kept seeing that nobody panicked and that everybody got ready to bail out. "As long as you're with Vice-Chairman Chou," my friend had said, "even if there's danger, you feel safe just looking at his strong, calm face." The thought comforted me that cold Chungking night. As we parted after we had gained the street, I said, "I see a hard struggle ahead. Do take good care of yourself."

"As long as we persist in struggle the people will win," he replied. Even today I can hear his confident words.

AFTER LIBERATION Chou En-lai became Premier of the new China. In 1950 the Chinese Volunteers went to Korea to help resist U.S. aggression. About the same time I was named one of the Chinese delegates to attend the Second World Peace Congress in Warsaw. Before leaving we were received by Premier Chou in Chungnanhai, the Central People's Government offices. It was midnight, but it was the only time he could spare from his thousand and one duties. He talked to us for more than two hours on the world situation and the significance of our campaign to resist U.S. aggression and aid Korea. He spoke in response to something some of the delegates had said. "Our country has barely settled down,"

The oil painting "Our Good Premier" by Ho Kung-teh and Kao Hung pictures Chou En-lai at work on a construction site.





A recent oil painting "In the Hearts of Millions" by Lin Kang and Keh Peng-jen pictures the public demonstration of grief that the press was not allowed to report as Chou En-lai's remains pass through Tien An Men Square.

was their observation. "We have just begun reconstruction and we need peace. Sending volunteers to Korea now will affect our reconstruction."

In reply the Premier pointed out that peace in only one corner was not real peace. When fire had reached our doors, we could not very well close them and try building up the country with ease of mind. Nor could we watch a fire rage on the other side of a river and do nothing about it. He talked about the revolutionary friendship between the people of China and Korea. He drove home the point that in essence U.S. imperialism was a paper tiger. His talk was vivid, forceful, full of feeling. I felt as if cloudy skies had suddenly cleared. I could almost feel the doubts and worries among us disappearing.

I was seated in the back and the Premier did not see me when he came in. He had looked at the list of delegates and asked if I had come. Later he came over and asked about my work and life. When the meeting was over we stepped out into the chilly dawn air, but I felt warm in the heart, as if I already saw the sun that was to rise a few hours later.

With my own doubts dispelled, on my return to the hotel, I threw myself more fully into the battle. I picked up my pen and wrote a piece that was published as *A Letter to Writers of the West*. In it I said, "The thousands of tons of bombs dropped on the Korean soil are a grave threat to world

civilization. The Korean people's suffering is rousing the conscience of the whole world. . . . As writers with a conscience, we have the responsibility to unite mankind and promote the great solidarity of the people of the world. . . . Let us unite and fight to defend world peace and create a new world civilization."

A year and half later I too went to the Korean battlefield. I lived for a whole year among the Korean people and the Chinese Volunteers. The experience and the outcome of the war were to make me recall that talk by the Premier and realize the power of Mao Tsetung's thinking, for things had turned out just as the Premier had predicted. My year in Korea was the most meaningful in my life. What I saw and heard of the Chinese Volunteers was a profound education to me. I wrote about them. I wanted the world to know about these selfless young fighters. Very recently I again dug into that experience of a quarter century ago and wrote several short stories about them.

IN SUMMER 1957 at the beginning of the anti-Rightist campaign the Premier called a meeting with people in literature and art, again in Chungnanhai. The bourgeois Rightists, on the pretext of helping the Communist Party in its rectification campaign, had attacked it and demanded that it give up its rule of the country. The Rightists' talk had confused a small number of intellectuals. They had wavered in their faith in the Communist

Party, but had begun to see that they had been wrong. In that crucial time it was easy to lose one's bearings. The Premier explained why it was necessary to strike back at the Rightists. He made clear to us Chairman Mao's policy toward intellectuals, which included writers and artists: to unite with them, educate them and help them remold themselves. With deep sincerity he expressed hope that we would be firm in our stand, integrate with the workers, peasants and soldiers and earnestly remold our world outlook.

He told us of his own experience. He was from a family of the exploiting class but he had completely broken with it. His younger brother had once joined the revolution, but left it when he fell in love with someone who had no sympathy for the revolution. To this day I remember something he said at that meeting. "Don't make too much of the impressions of your adolescent days," he had said. "You remember the houses, places and things of those days as very large, but on seeing them again you will find they are not so." I tried analyzing some of my old impressions objectively with these words in mind, and had found them to be indeed different from reality. Such was the way the Premier encouraged one to look forward and not long for the past, to always try hard to serve the people.

The Premier kept in mind the interest of not just a certain person or persons but the whole country and people. Take the time right after the *Kashmir Princess* incident

in April 1955. A chartered Indian plane taking Chinese reporters to the Bandung Conference in Indonesia, *Kashmir Princess*, exploded in the air and everyone on board was killed. Kuomintang special agents in Hongkong had planted a time bomb designed to kill Premier Chou, who was going to the Bandung Conference. I was then with a large delegation in New Delhi attending another meeting. We had flown from Hongkong to New Delhi on another chartered Indian plane. After the 10-day meeting we were to fly back to Hongkong on the same plane, but then we were told that Premier Chou wanted us to wait for a plane that would take us directly back to Kunming. It moved us all deeply to know that the Premier, busy as he was with important affairs, wanted to make sure we traveled safely.

ONE DAY in July 1966 the Premier arrived early in the evening at the Great Hall of the People in Peking for a banquet for the delegates to the Afro-Asian Writers' Emergency Meeting, which condemned U.S. aggression in Vietnam. As a writer of the host country I had also got there early. The Premier saw me and came over to shake hands. "You got here even earlier than I did," he said with a smile.

"You're the busy one, Premier. I'm afraid you don't get enough rest," I said.

"I'm used to it," he said, "so I don't feel I'm so busy."

He sat down and listened to a briefing of the preparations for the banquet, asking detailed questions. I never dreamed that that brief conversation was to be our last.

The next day I saw him again, in the Great Hall of the People at a rally in support of the Vietnamese people's resistance to U.S. aggression at which the Chinese people pledged to become a strong rear area for the Vietnamese people. Vice-Premier Chen Yi made a trenchant speech and the Premier applauded vigorously. After the rally the Premier and Chen Yi left

the rostrum together, talking and laughing. No one knew then that the Premier was already suffering from serious heart trouble and carried nitroglycerin tablets with him wherever he went.

During the ten years of the cultural revolution that followed, Chang Chun-chiao, one of the "gang of four", as chairman of the Shanghai Municipal Revolutionary Committee, did everything in his power to prevent the Premier from intervening in what was happening in literature and arts circles in Shanghai, where I was living. Those of us who knew the Premier personally were prevented from seeing him. We were entirely in the hands of the "gang of four", who persecuted us mercilessly. Yet what happened to us as individuals was after all not so important. We were more concerned about the health of Chairman Mao and Premier Chou.

In the last ten years I had hoped daily to be able to see the Premier and hear him speak just once more. Photographs in the papers showed that he was steadily losing weight and seemed increasingly ill. I remember how worried we were when we saw the photograph of the Premier meeting Romanian guests in the hospital. Nobody dared to think he would leave us, yet everyone knew that day was moving closer and closer. How we all wished something could be done to let the Premier live longer and to ease his pain.

Of course the "gang of four" did just the opposite. They tried to frame him, persecuted him, interfered with his medical treatment.

Until the very last, the Premier had the country and the people in his mind. On January 1, 1976 when two of Chairman Mao's poems were published for the first time, he insisted on listening to them read over the radio. During his last days he sang the refrain of *The International*, "'Tis the final conflict, Let each stand in his place; The Internationale shall be the human race!"

Early on the morning of January 9 I turned on the radio and

was shocked to hear the strains of funeral music. "The Premier!" my son cried out, and fell silent. My son, born in the new China, loved the Premier as we older people did, for he knew that his own good life was inseparably bound up with the Premier's great love for the people.

And the people loved their Premier. On that bitterly cold day when the hearse carrying the Premier's body moved slowly down Peking's Changan Avenue toward the crematorium, people lined the avenue several deep and waited a long, long time for a last look and to call softly, "Farewell, dear Premier."

Yet because those were days when the "gang of four" still wielded power, public demonstration of grief over the Premier's death became a crime. No memorial articles or poems by the people were allowed to appear in newspapers and periodicals. When the people did turn out by the millions to pay tribute to his memory in their own way, the newspapers did not report a word about it. How the people hated the "gang of four"! Then Chu Teh, and then Chairman Mao, died. We felt a great weight pressing down on our hearts — What would happen next? What would happen to the country and the people?

The answer came soon. Hua Kuo-feng, who had Chairman Mao's approval as his successor, led the Party and the people in overthrowing the "gang of four" without firing a shot or shedding a drop of blood. The great weight was lifted from our hearts, we could now let our feelings flow. On the first anniversary of the Premier's death we had meetings recalling his splendid life. We sang songs and recited poems in tribute to his memory, to express our love for him. The singers' tears flowed as they sang, so did the listeners' flow as they listened. Even today our eyes fill with tears when we speak of the Premier. Endless tears from the depths of the hearts merge into a ribbon of water linking 800 million hearts. Chou En-lai, the people's premier, lives in the hearts of the Chinese people.

AN UP-AND- COMING OIL REFINERY

Staff Reporter

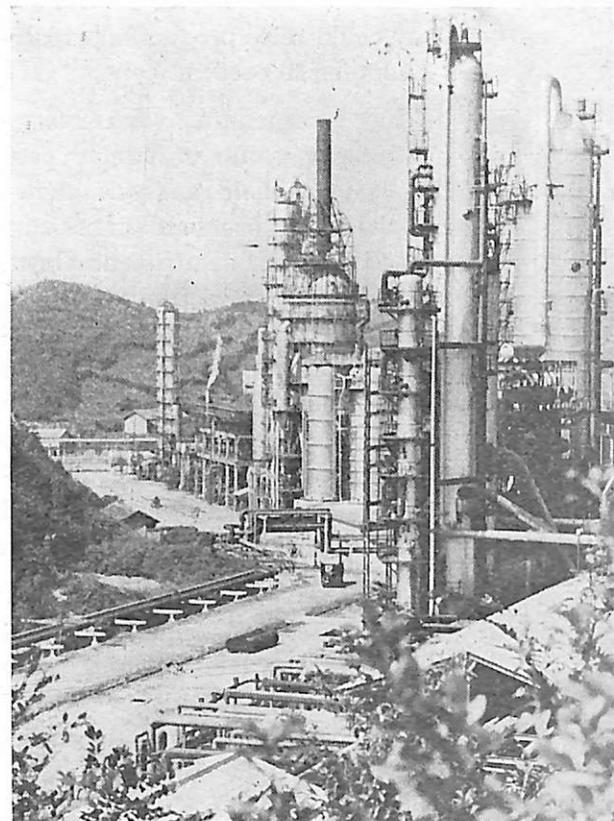
Part of the refinery.

THE Changling Oil Refinery was built in 1971. Located on the edge of Tungting Lake in Hunan province, it turns out fuel oil for the province. For the past seven years output, variety and quality of products have increased steadily. It has surpassed its state quotas every year and has made three times as much profit as the original investment.

There are a number of reasons for the new refinery's rapid progress. The most important is that the workers and staff have followed the Taching oil workers' example and gone about their work as masters of their own house.

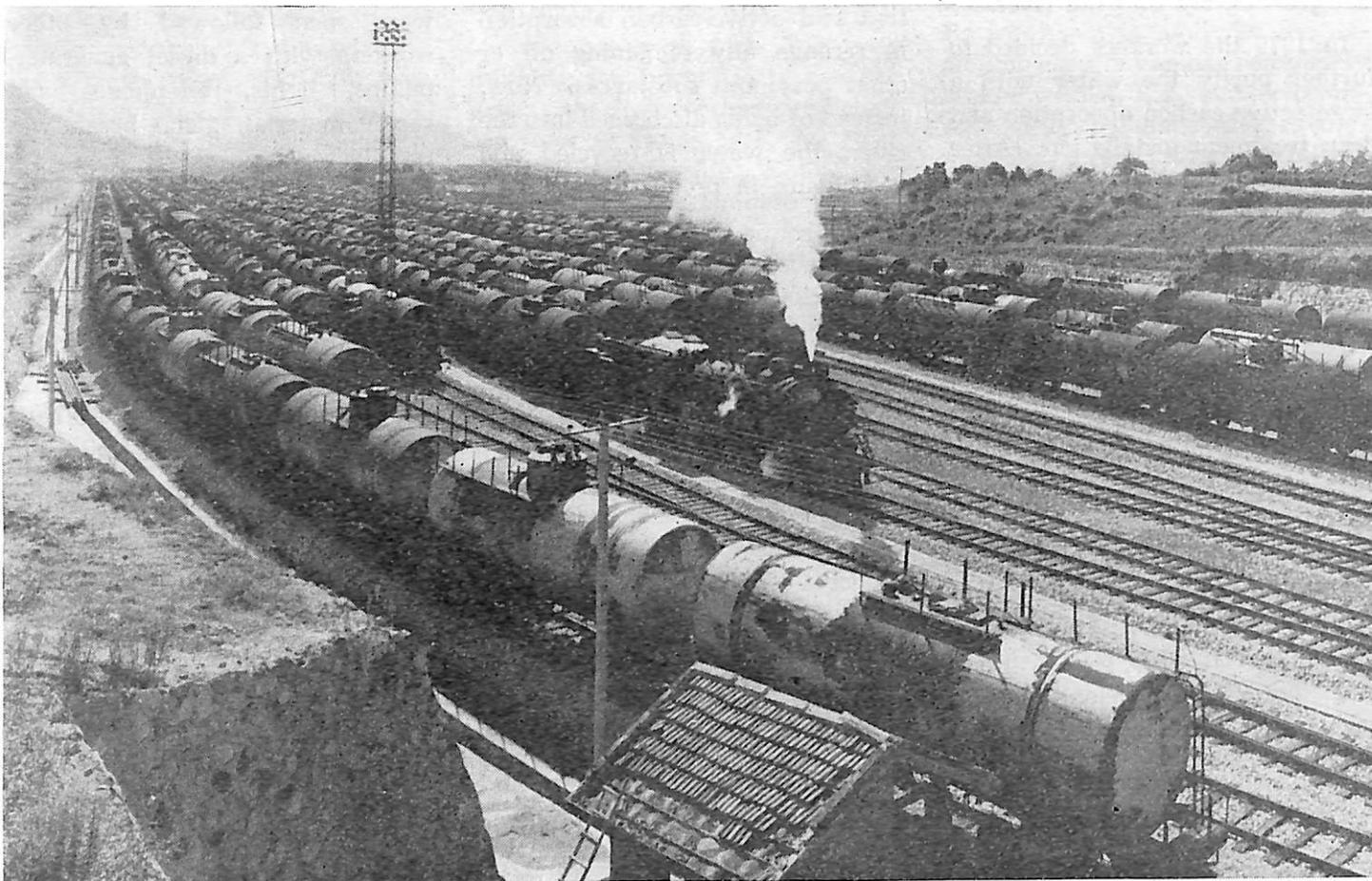
To Do More

Though production soon reached the plant's designed capacity,



nobody was satisfied. People in the atmospheric and vacuum distillation shop, for example, decided to improve the equipment so that

Oil products being shipped out.



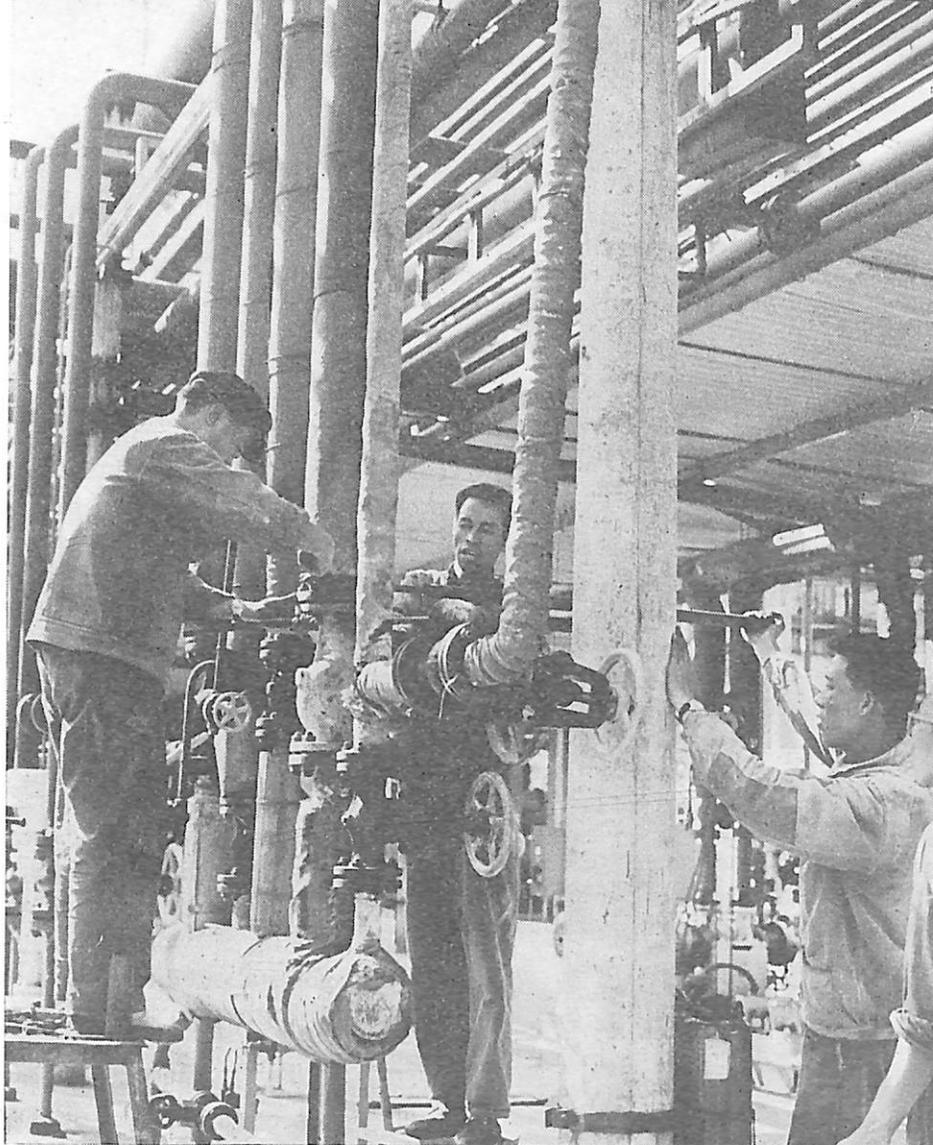
they could raise production capacity another 20 percent.

They formed a worker-engineer-leader group of twelve people. Since their analysis showed that the problem in raising capacity was insufficient heat, someone suggested they build a pipestill heater. A worker, however, said, "We waste a lot of heat in our process. If we use it we can supply more heat without adding a new heater." His idea was supported by the other workers and approved by the plant leaders. In 20 days the shop improved its equipment and increased capacity.

In 1973 the late Premier Chou En-lai, keenly interested in environmental protection, sent someone to the new refinery for a special study. Hua Kuo-feng, then first secretary of the province Party committee, instructed the refinery to purify its waste water. In that year the refinery improved its waste water treatment system with oil separation, flotation and a biochemical process so that the water was pure enough to be discharged directly into the river.

In 1975 the workers decided to further purify the water with a large active carbon absorption and deep treatment installation. After a year of study and experimentation, they had worked out the blueprints. Then, following a method used at Taching, they launched a campaign to build the installation. All the plant's trucks were mobilized to transport equipment and material to the site. Two hundred workers, led by an assistant manager of the refinery, came from different departments. In two months they put up a building covering 1,440 square meters, laid 3,000 meters of pipes, erected four active carbon absorption towers and one 15-meter-long active carbon revitalizer installation, plus all other necessary equipment.

This was China's first such installation in the oil industry. It uses sand filtration, ozone separa-



A three-in-one group checking how regulations are being carried out.

tion and active-carbon absorption to remove any remaining oil or other poisonous substances. Now, instead of being discharged into the river, the water is recycled and used again in production.

Responsibility

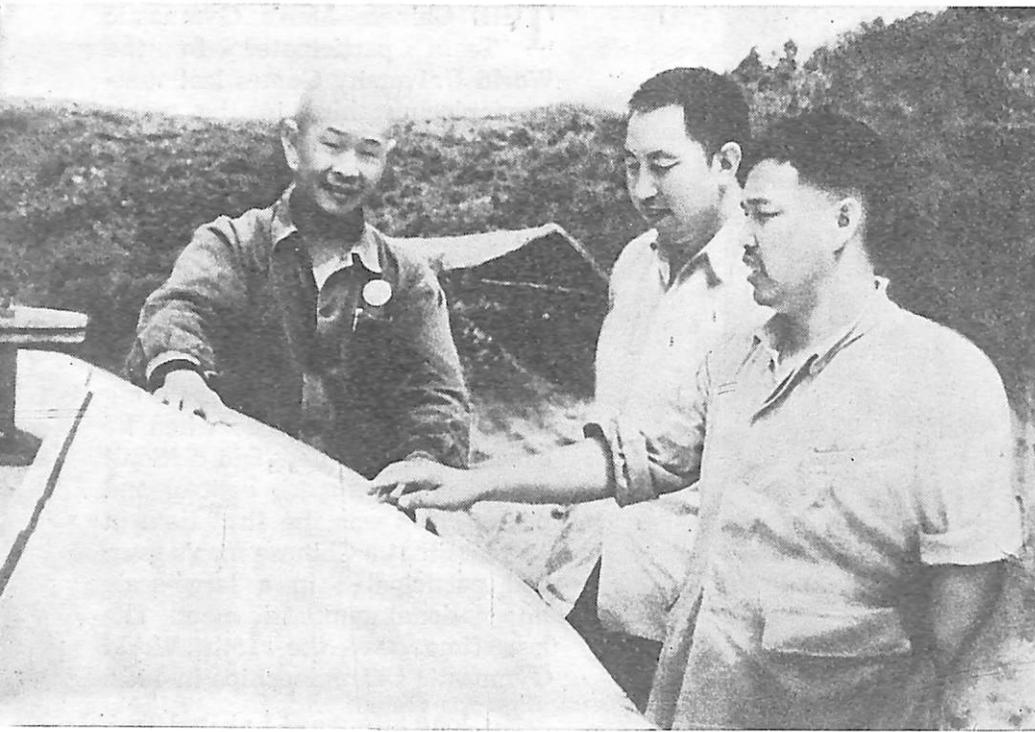
Conscious that they are the masters of the refinery, the workers have a high sense of responsibility, both inside the plant and out.

For example, in heavy rainstorms when lightning is a danger to the refinery, men — on or off shift — hurry to assigned posts to stand guard. Once a big water main supplying the plant and workers' homes broke at a point six kilometers away from the refinery. Ku Teh-chin, Party secretary and plant manager, and Chu Wan-hsiang, assistant manager, arrived at the spot with the first emergency workers. They

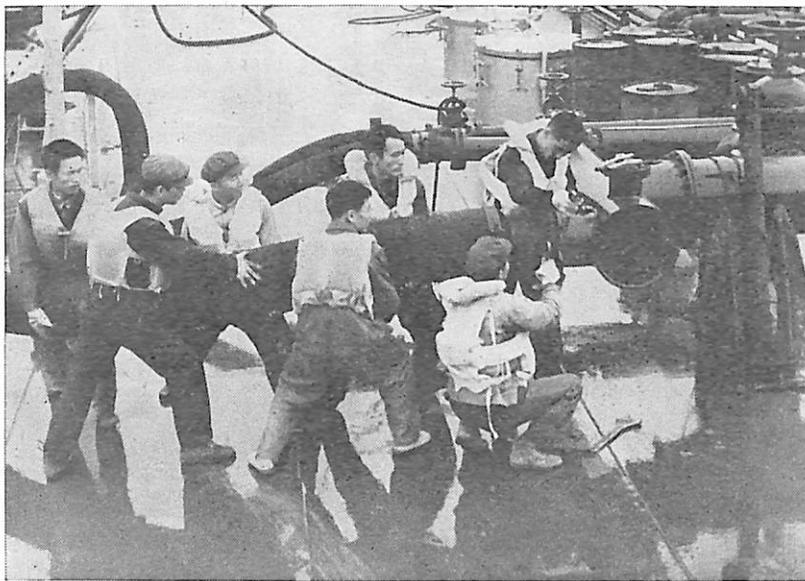
were soon followed by other workers with a diesel generator, pumps, lights, telephones and repair material. The break was rapidly repaired.

As in the Taching oil field, a good number of workers at the Changling refinery are now in leading positions. In the last two years, three outstanding workers have been elected to the plant's Party committee, and 166 have gone into various other leadership posts. Eighty percent of the leaders at the shop and work-group levels have come from the ranks of the workers.

There are 475 work teams in the plant. Each has special workers assigned to take charge of political work, production planning, safety, attendance records, equipment, quality inspection, accounting and workers' plant and home conditions. Altogether,



Hua Kuo-feng (center), then a leader in Hunan province, studies the blueprint for the refinery with plant leaders in 1969.



Getting the pipes ready for unloading crude oil.

2,400 workers are in management posts.

The workers have set up rules for personal responsibility and revised and perfected their regulations. The "gang of four", however, claimed that rules and regulations in a socialist enterprise were measures to bind and suppress the workers. This made the workers very angry. "Nonsense!" Ku Ying-sheng, an old worker, said. "We're the masters of our enterprise. We set up rules and

regulations according to the needs of socialist production and we follow them because we want to. Those who are against rules and regulations want us to break discipline and just loaf around. If we did that our installations would have exploded long ago! They're either idiots or they want to wreck production!"

The workers stuck to their regulations in spite of the "gang of four", working hard and keeping their equipment in good shape.

Every year the Party committee organizes several inspection groups with a hundred workers taking part. They check up on how the rules and regulations are being observed in the whole plant.

Recently they made their 23rd inspection since the refinery was built. In twos and threes the workers went around examining the condition of the machines and equipment, and checking for leakage in tight-sealed points. In the repair shop they learned that its No. 3 team had rebuilt a broken-down tower crane by themselves, saving 80,000 yuan. With the No. 5 team, however, they found that a 15-ton caterpillar crane had been operating with defects for a long time. The inspection group criticized the leaders of the shop for not introducing the good experience of one team to the others. The leaders promptly accepted the criticism and joined their workers in putting the crane in good condition.

Today 96 percent of the equipment and facilities in the refinery are in perfect order. Leakage has dropped below 0.1 percent. Eighty-eight percent of the shops and groups have cost accounting. The cost of production and the consumption of raw material, fuel and power have dropped steadily. Accumulation for the state, labor efficiency and the variety of products are rising.

CORRECTION

In the November 1977 issue of *China Reconstructs*, page 15, column 3, line 19, for Hupeh read Hunan. On page 38 in the caption for the top picture, for Kwangtung read Kwangsi.



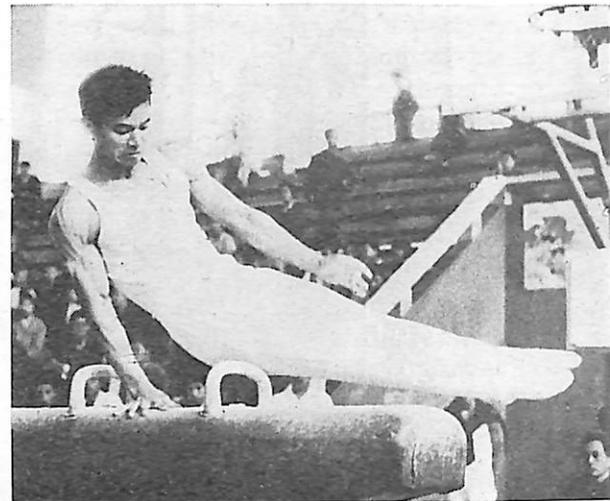
Tsai Huan-tsung swings into a half twist over the horizontal bar, at China's Third National Games, 1975.

THE Chinese Men's Gymnastic Team participated in the World University Games last summer, placing third in the men's group event in which 16 countries took part. In the men's individual all-round competition China's Tsai Huan-tsung took fourth place among the 36 contestants, and three other Chinese athletes placed among the first 15. Tsai performed his optional exercises with smooth rhythm and grace and drew a big hand from the audience when he executed several new and difficult routines with superb control and poise. This was the first time in 15 years that a Chinese men's team had participated in a large-scale international gymnastic meet. The last time was the 15th World Gymnastic Championships in 1962.

Not long afterward I visited Tsai. He is a research student at the Peking Academy of Physical Culture. He is not tall, but is well-

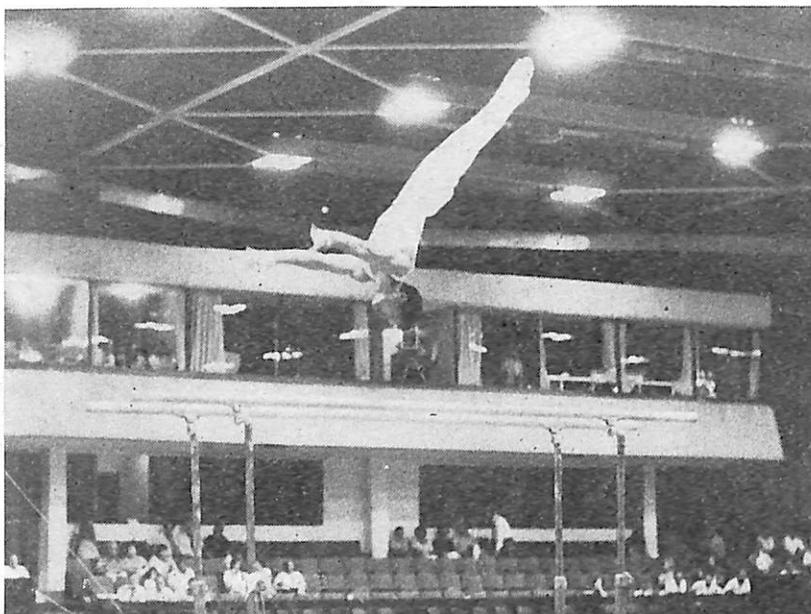
SPORTS

Tsai Huan-tsung, Outstanding Gymnast



A side swing forward on the pommel horse, at China's National Gymnastics and Acrobatics Competition, 1977.

A backward somersault over the parallel bars, at the World University Games, 1977.



proportioned, the ideal figure for a gymnast. Born in the city of Chuanchow in Fukien province, he has the typical high forehead and large, deep-set eyes of people from that area.

He'd always been interested in sports, he said, since he grew up in a family of sports enthusiasts. About the time he entered primary school he began practicing handstands, cartwheels and other exercises with his elder brother who was an amateur gymnast. When he was in third grade he was chosen to attend the gymnastics class at a junior spare-time sports

school in Chuanchow. With fellow-pupils Tsai performed the routines they learned in theaters and on the streets at holidays. He enjoyed these experiences hugely and always did his specialty, a somersault through a flaming hoop, with great relish.

After Tsai entered the academy's preparatory course at 15 he began to view gymnastics as something greater than just a lot of fun. He learned from his teacher, one of the country's earliest gymnasts, that China began training people in this sport only in 1953. "Work hard," the teacher often said to him. "Our hope of Chinese athletes entering world class in gymnastics rests in you young people." Tsai went about his training with more responsibility and intensity, often practicing a movement hundreds of times to get it as near perfect as possible. He spent many of his Sundays and holidays in the gym.

I noticed a violin beside his bed and a jar full of brushes on the table.

"Your hobbies?" I asked.

"Yes," he said with a shy smile. "I like music, and I'm learning to paint in oils and to do Chinese calligraphy. I feel that gymnastics is an art and artistic training helps make one a better gymnast."

"I'm also learning some English," he added, pointing to a gymnastic terminology chart in Chinese and English posted on the wall. "Premier Chou En-lai once said that all athletes should learn some foreign languages to facilitate our learning from the best of foreign experience."

In international competitions Tsai Huan-tsung has won the men's individual all-round title nine times and scores of times has placed among the first three in individual events. He has been China's national men's individual all-round champion five times running.

"I've found that I learn more from setbacks than from victories," he said and went on to give an example.

In meets with Romania and later with Yugoslavia in 1972 in those countries, he took first place in the

men's individual all-round competition both times. The honors went to his head, he said, and he didn't think he would have any trouble winning the same title at a Chinese national gymnastic meet. But there he made some serious mistakes in his specialty the pommel horse. He got tense and fell below his own high standard on the rings, parallel bars and horizontal bar. Though a defending champion, he dropped to 7th place. He felt wretched for days.

Then with help from his teachers and fellow students, he saw that his cockiness was the source of his poor performance. He also decided that he lacked the ability to keep his composure and take a defeat with true sportsmanship. Other factors were uneven performance and lack of competitive experience. From then on he took every training session as a competition and practiced until he had each movement perfect. He was determined never to let that bad experience happen again.

Tsai recalled his happiness when he learned that he would go to the World University Games. "At 28 I'm nearing the time to retire from competitions," he said. "You can see how I valued this chance at a major meet."

When making up his training plan he had a mental struggle: Should he concentrate on perfecting the routines he had already mastered and be a sure success with them, or should he create some more difficult routines and make a contribution to the sport? There was, for instance, his age and the fact that he had only two months in which to perfect any new routines. He decided he was not going to let his age stop him. He worked out five new routines, including a hand-spring followed by a front somersault with a half twist on the vault, and a dismount from the horizontal bar with a straight backward somersault with a full twist followed by a tucked backflip.

It is usually harder for a gymnast to correct a wrong movement than to learn a new one. In 1973 Tsai Huan-tsung had evolved a routine on the parallel bars calling for a backward swing under bars



Tsai Huan-tsung (right) helps train young gymnasts (left to right) Peng Ya-ping, Li Yueh-chiu and Hsiung Sung-liang.

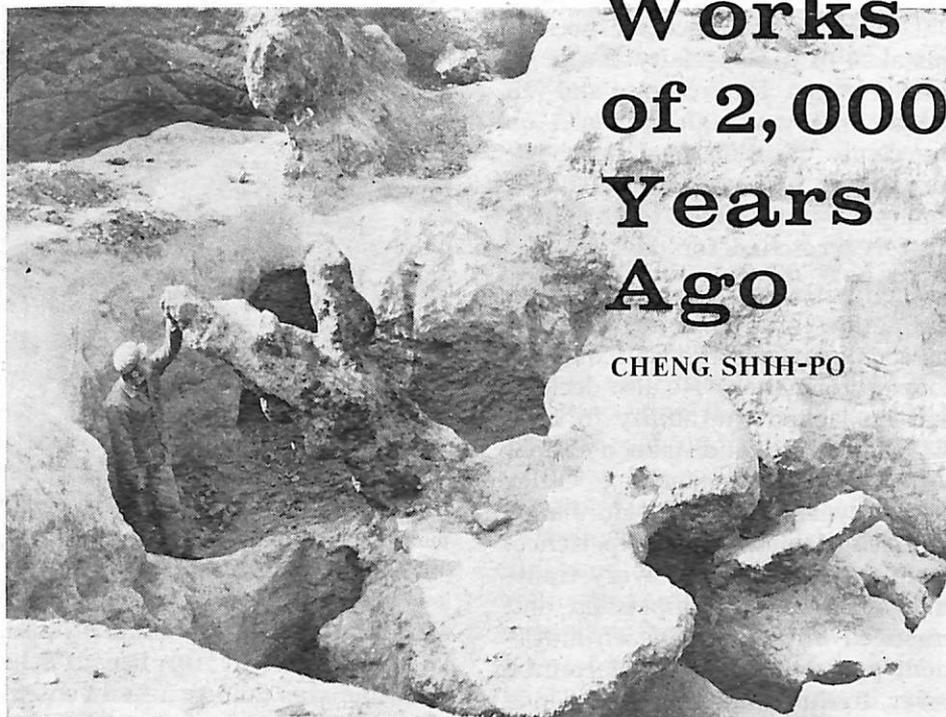
with a half twist to shoulder stand. Then he gave it up because he found he was doing one movement wrong. This time he resolved to learn to do it correctly. He gathered together the stills from films of himself at practice and studied them. Then he sketched out the correct positions on a paper and posted it up near his bed. He went over the routine again and again in his mind and put in a lot of time on the movements. At the World University Games his final score placed him fourth in the men's individual all-round contest. He averaged above 9.5 for the vault, rings, pommel horse, parallel bars, horizontal bar and floor exercises, a near-flawless performance and his best to date.

When I asked him about his future plans, Tsai said, "I will compete for two more years and then I'll do research and coaching in gymnastics. We have a whole new up-and-coming group of young gymnasts. There's Li Yueh-chiu, who's 19, and placed second in the men's floor exercise and third in the vault at the World University Games. There's Hsiung Sung-liang, who placed eighth in the men's individual all-round contest, and Peng Ya-ping who's just turned 18. I'll do my best to help put Chinese gymnastics on a world level."

Hsiao Tan

An Iron and Steel Works of 2,000 Years Ago

CHENG SHIH-PO



The salamander removed from the blast furnace.

EARLY in the spring of 1976 archeologists of the City Museum of Chengchow in Honan province discovered an ancient ironworks with the remains of two blast furnaces at the town of Kuhsing on the northwestern outskirts of the city while they were helping commune members improve their farmland. The year before some 400 iron adzes and shovels had been unearthed not far away. The ironware, pottery and bronze coins unearthed date this site to the latter part of the Western Han (206 B.C.-A.D. 24) and the Eastern Han (A.D. 25-220) periods. The characters for "Honan No. 1" on the castings and molds indicate this was the Honan prefecture's Iron and Steel Works No. 1.

The works lay west of the city wall of the ancient site of Hsingyang, an important city in those times. Nearby was a renowned granary of the Chin dynasty (221-207 B.C.). Also in the vicinity is Redstone Mound. It gets its color from the crushed iron ore it contains, but according to legend, it is red from the blood shed by Chi Hsin, a general under Liu Pang,

founder of the Han dynasty, and about this there is quite a story.

Hsingyang was the scene of an important battle in Han dynasty history. After Liu Pang (256-195 B.C.) overthrew the Chin dynasty, he fought Hsiang Yu (232-202 B.C.), king of the vassal state of Chu for supremacy over a unified China. In 204 B.C. when Liu Pang was besieged by Hsiang Yu's troops at Hsingyang, General Chi Hsin, pretending to be Liu Pang himself, went through the motions of a surrender east of the city, while Liu Pang himself escaped through the west gate in the darkness of the night. Chi Hsin was, of course, killed, but Liu Pang went on to reassemble his troops, defeat Hsiang Yu's armies and become emperor of all China. General Chi Hsin's tomb and a temple to him still stand today near the remains of the ironworks.

So far 1.7 hectares of the site's total area of 12 hectares have been excavated. One of the blast furnaces still has the remains of its oval hearth bottom, which is 4 meters long and 2.7 meters wide, with an area of 8.5 square meters.



Site of the ironworks excavation at Kuhsing.

The 0.4-meter-thick bottom is made of rammed refractory clay, turned dark grey through use. The furnace wall is about one meter thick and it is surrounded by a supporting layer of earth measuring 6 meters at its thickest point. The furnace rests on a 3-meter-thick foundation of refractory clay and of ordinary clay mixed with 1-3 cm. pebbles.

Several large pieces of iron were found buried in front of the furnace. One of these is 3.2 meters long, 2.4 meters wide and with a thickness varying from 0.4 to 1 meter and another a bit longer. In shape and size they correspond to the bottom of the furnace and both have refractory materials stuck to their undersides. From their carbon, silicon, manganese, phosphorus and sulphur content, they can be judged high-quality iron even by today's standards.

Both pieces were the iron salamander accumulated and left in the furnace hearth as the bottom wore away, a thing which can still happen in a modern blast furnace, if the molten salamander is not drained after blowing out the furnace. In ancient times, when an old blast furnace was torn down for reconstruction, the heavy chunks of solid iron dragged out might weigh over 20 tons. As there was no way to break it up or carry it away, it was simply buried



in front of the rebuilt furnace. Preserved for 2,000 years, these pieces bear witness to the skill of the working people of that time.

Beside the pit where the iron pieces were buried a lump of furnace charge was found in which we can see the iron ore, slag and charcoal. This shows that iron was still smelted using charcoal. From the size of the furnace bottom and heavy foundation, and the two pieces of iron salamander, we can estimate that the furnace was about 6 meters high with oblique walls slanting outward. It had a furnace volume of about 50 cubic meters.

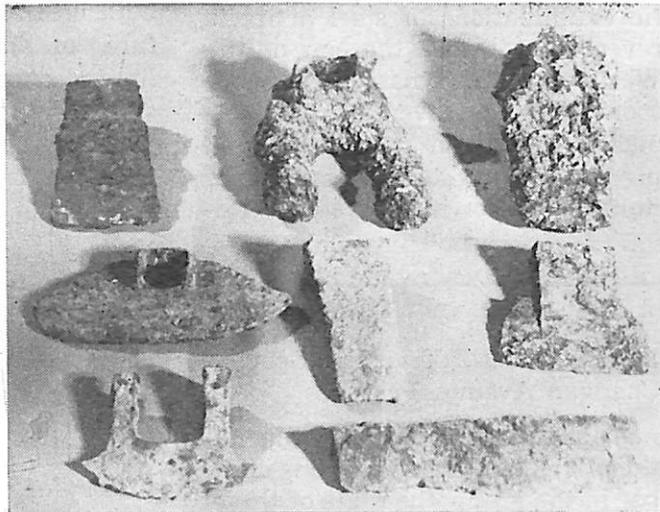
The *Book of Han*, a dynasty history written by Pan Ku (A.D. 32-92), which contains the only de-

scription from that time of Han dynasty blast furnaces, records that there were two explosions in 91 and 27 B.C. Thirteen people working in front of the furnace narrowly escaped one explosion. When they came back they found "the earth had sunk several feet and the furnace split into ten parts".

North of the two furnaces is a 300-ton heap of iron ore, broken up and sifted to a grain of 2-5 cm. size, and there is crushed iron ore in another place. Thus we can see that simple methods of ore preparation were already in use. A large amount of slag nearby contains 26 percent lime. The balance of the lime content of furnace charge and slag shows that limestone had been used in the furnace and fluxing was already being practiced in ironmaking.

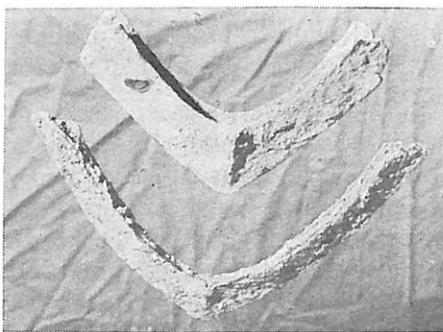
Within the excavated area were also found firebricks for a cupola with an inside diameter of 1.6 meters, and clay molds for making permanent cast-iron molds. Two-thirds of the 318 cast-iron objects unearthed are farm implements. The rest are tools, gears and cart bearings.

Iron plates weighing several dozen kilograms were also unearthed. They were found to be of low-carbon steel made by direct decarburization (removing carbon by oxidation) of cast iron in solid state. From other Han dynasty archeological finds unearthed in recent years, we know that Chinese workers were able to make steel by this method as early as the first century B.C. Sometimes objects of cast iron were made first and then decarburized into steel. One of the examples is a pair of Eastern Han scissors unearthed in Chengchow, originally cast in iron and subsequently decarburized into high-carbon steel with beautifully spheroidized cementite particles. At other times the cast iron was first decarburized and then forged into products. A knife so made was unearthed in Peking from a tomb believed to be that of Liu Tan, Prince of Yen, who died in 80 B.C. The decarburized plates found in Hsingyang may have been intended for use in making objects of the latter type.



Iron plowshare edges.

Unearthed ironware.



A plowshare mold.

"Honan No. 1" inscription on a plowshare mold.



SCIENTIFIC examination of archeological finds since liberation shows that cast iron was first invented in China no later than the latter part of the 6th century B.C. Among the few pieces of ironware unearthed from the late Spring and Autumn period (770-476 B.C.) some were forged from sponge iron made by direct reduction of iron ore, and others were of cast iron. In the early Warring States period (475-221 B.C.), the working people discovered how to convert the brittle white cast iron into malleable iron, so that cast iron could be used to make farm implements, tools and weapons. This increased the output, lowered the cost, greatly increased the use of iron and facilitated the development of agriculture and water conservation. Five hundred years later, by the middle of the Western Han period, ironmaking skill and output had reached a level capable of meeting the needs of an agricultural country with a population of 60,000,000.

In 111 B.C., for financial and military reasons, the Western Han

emperor further strengthened the central power and nationalized iron and steel making. Forty-nine iron offices for administering manufacture of iron products were established in the major producing areas. "Honan No. 1" was located in Hsingyang under the Loyang office, while "Honan No. 3" was in Kunghsien county between Chengchow and Loyang. Iron objects bearing the inscription "Honan No. 2" have been unearthed, but the location of the works has yet to be found.

The state monopoly of ironmaking facilitated technical development. One of the major inventions was making wrought iron and steel from molten pig iron by an indirect process. Archeological finds over the past decade and recent scientific examinations of steel artifacts reveal that before the end of the Western Han dynasty, probably soon after the invention of steelmaking by direct decarburization, pig iron began to be used in its liquid state for making steel. Be-

fore then in China, as in Europe before the 14th-16th centuries, steel had been made by carburizing sponge iron or directly decarburizing cast iron.

A furnace for steelmaking from molten pig iron was unearthed at the site of "Honan No. 3" in Kunghsien county. Discovery of this method was a milestone in mankind's use of iron. In the French edition of his *Capital* in 1872 Karl Marx expressed high regard for Cort's method of making wrought iron from pig iron by puddling in 1784. In ancient China, however, this important discovery did not lead to large-scale development and mechanization as it did in Europe 18 centuries later. The main reason lies in the fact that the Han dynasty was built on the self-sufficient agriculture of a feudal society. The limited need for iron did not stimulate mechanized production. Thus this great discovery was buried or handed down only among the people and remained undeveloped.

DO YOU KNOW?

How Can One Visit China?

MORE people are visiting China today than ever before. Whether the visitors are members of delegations, study groups, friendship tours or ordinary tourists, the Chinese people welcome them in the name of mutual understanding and friendship. Most of them are helped by the China International Travel Service.

Anyone who wants to visit China can apply to the China International Travel Service. This can be done through the nearest Chinese embassy or consulate. (China has diplomatic relations with 114 countries and trade and cultural exchange with many others.) People will also find the China friendship association in their country very helpful. Most of them organize group trips to China. Travel agencies having relations with China International Travel Service can also process applications. And one can apply directly to China

International Travel Service, Changan Avenue, Peking.

Applications should include nationality, sex, age, vocation, number in the group, the route of travel to China, the point of entry, cities one wants to visit, the length of stay, the means of travel (plane, train) and the language one speaks. This information helps China International Travel Service make proper arrangements.

After receiving an affirmative notification from the China International Travel Service, one applies for a visa from a Chinese embassy, consulate or liaison office.

China International Travel Service can make arrangements for visits to many cities and areas. Suggested places to go might include Peking, Shanghai (the largest city), Yen-an (capital of the Chinese revolution, 1935-1948), Linhsien county (the 1,500-kilometer Red Flag Canal encircling the mountainsides), Shengyang (leading industrial city in the northeast), Soochow and Hang-

chow (scenic cities in the lower Yangtze valley), Kweilin (famous for its spectacular karst formations) and Sian (ancient capital with a history of more than 3,000 years). Tourists have the opportunity to visit factories, communes, schools, hospitals, and to talk with ordinary workers, peasants and neighborhood committees.

At present, China International Travel Service feels that it can welcome more visitors and give better service if they come in groups. This is also less expensive for the tourists. Tourists on world cruise ships, and plane and train passengers in transit will find China International Travel Service helpful in making stopover arrangements.

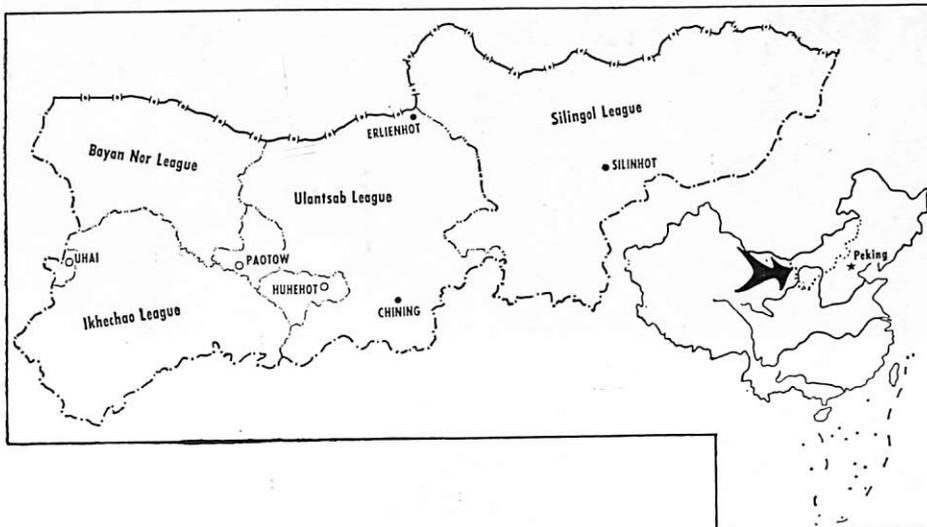
Though the number of tourists taken care of by China International Travel Service has increased tenfold in the last decade, thousands of applicants have been disappointed. China regrets this but is expanding services and facilities as rapidly as possible to meet the demand.

Equality and Autonomy for National Minorities



Chungshan Road — the main street in Huhehot, capital of Inner Mongolia.

THE INNER MONGOLIA AUTONOMOUS REGION



China Reconstructs readers often ask about China's national minorities. Using Inner Mongolia, the first area to acquire national regional autonomy in China, as an example, we give below answers to their most frequently asked questions.

• What are China's policies on national minorities?

In a nutshell, they are contained in a statement made in 1947 by

Chairman Mao: "Recognize the right to equality and autonomy of the minority nationalities within the borders of China." In other words, all minority nationalities have political equality with the Hans, the majority nationality in China, and have the right to exercise regional autonomy in administering internal affairs.

China is a multi-national country. The policy that all nationalities

in the country should be equal was first put forward at the Chinese Communist Party's Second National Congress in 1922. In the long course of revolution that followed, the Party gradually evolved a comprehensive policy and has carried it out in practice. The People's Republic of China's first Constitution states that all citizens of China, irrespective of their nationality or race, have equal rights. It prohibits discriminatory and oppressive acts against any nationality and acts that undermine the unity of the nationalities.

The specific policies can be summed up in four categories.

First, equality for all nationalities, unity among the nationalities, and prohibition of national discrimination, national oppression and class oppression.

Second, where minority peoples live in compact communities they have the right to national regional autonomy.

Stores send goods to grazing grounds to serve the herdsmen.

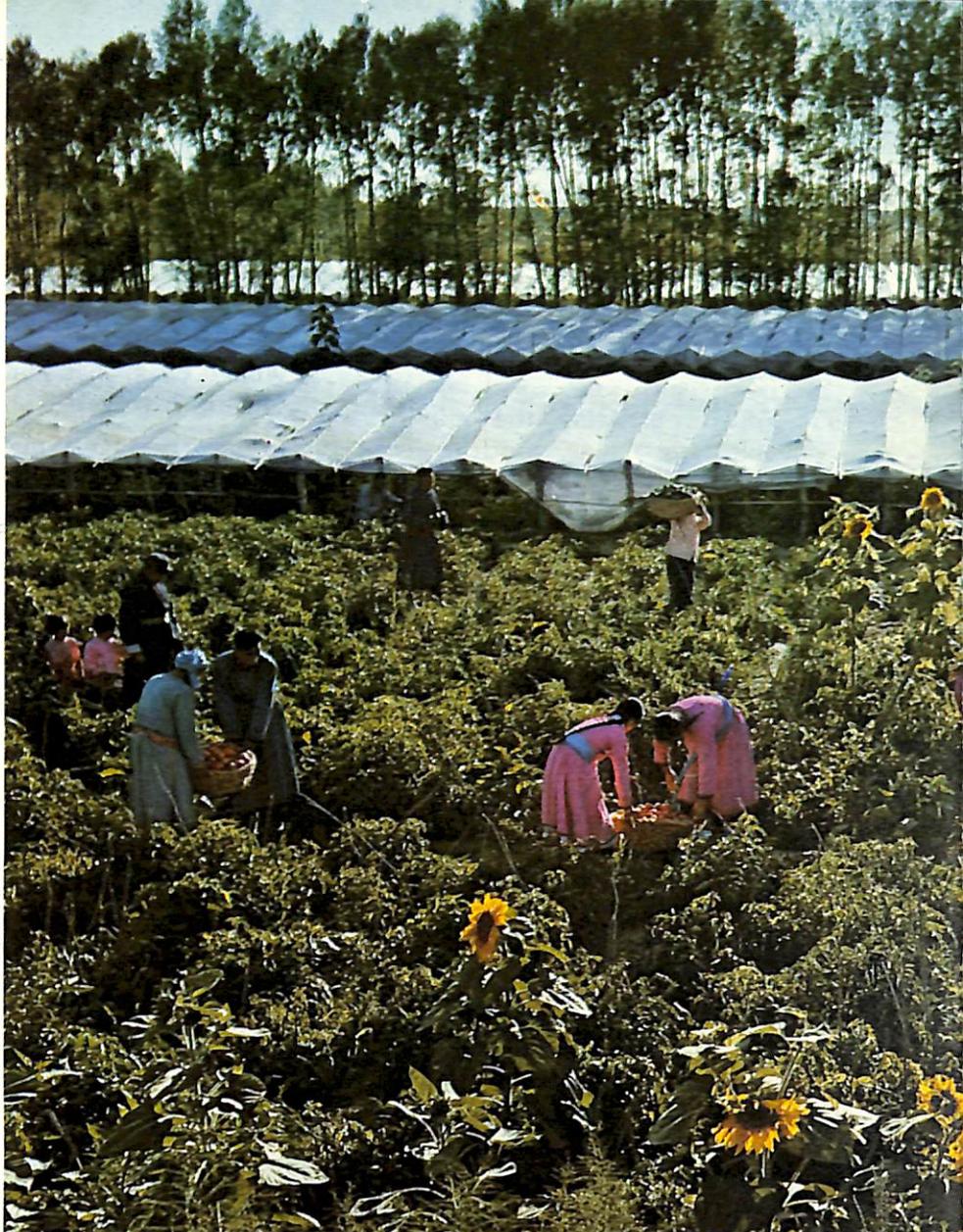
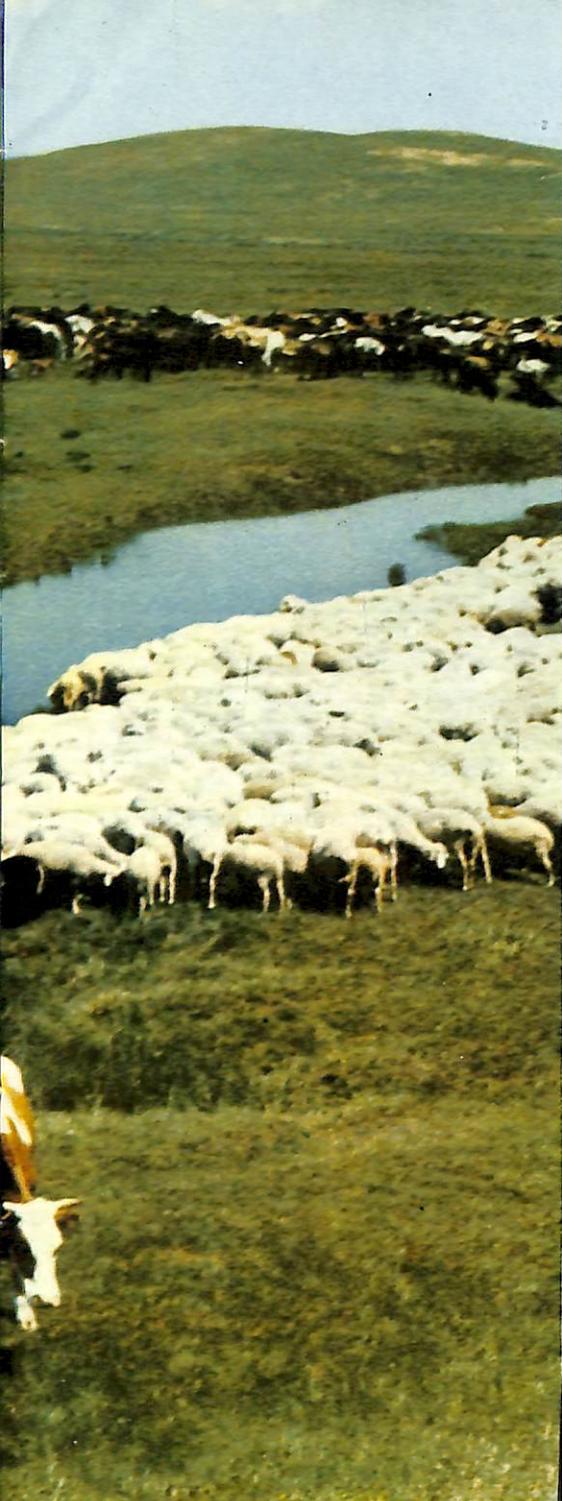




A Silingol pasture.

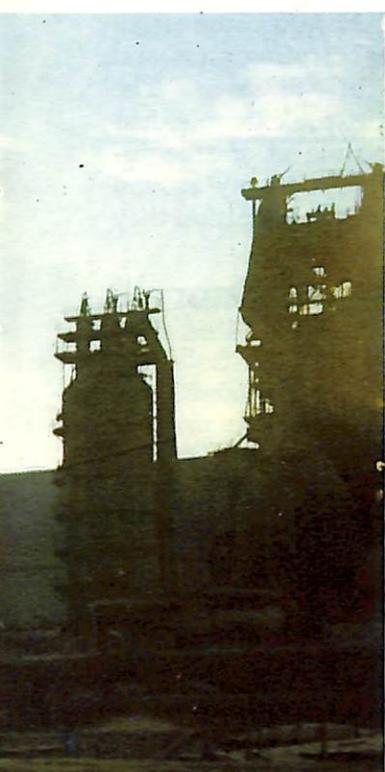


The Paotow Iron
and Steel Company.



Vegetables now grown on the grasslands.

The Huhehot Woolen Mill. Inner Mongolia produces wool. But before liberation all woolen textiles came from other parts of China.



Third, respect for the minority peoples' spoken and written languages, customs and habits. Freedom to believe in any religion, also freedom not to believe and freedom to carry on propaganda for atheism.

Fourth, assisting the minority peoples to make political, economic, cultural and educational progress.

The 30-year experience of the Inner Mongolia Autonomous Region shows that national regional autonomy is a basic way of solving the nationalities question within the country.

• **What does national regional autonomy involve?**

In practice, national regional autonomy means that any nationality, as long as it has a compact

community large enough to form an administrative unit, can establish an autonomous area with its own organs of self-government.

Those areas which exercise national regional autonomy are, like the provinces, prefectures and counties, inseparable parts of the People's Republic of China. They are local governments under the leadership of the Central People's

Facts About Inner Mongolia

• Inner Mongolia became China's first minority nationality autonomous region on May 1, 1947, two years before the rest of the country was liberated. It occupies 400,000 square kilometers on the country's northern border and its capital is Huhehot. The region has a status equivalent to a province. There are four leagues (larger administrative districts equivalent to prefectures in other provinces). These are divided into 43 counties—27 of which are inhabited mainly by Mongolians and are called banners.

The region has a population of 8,000,000, of whom more than 400,000 are Mongolian. The rest are Han, Hui, Manchu and other nationalities. More Mongolians live outside of the autonomous region than in it—altogether over a million in provinces and other autonomous regions. Though Mongolians make up only six percent of the Inner Mongolia Autonomous Region, they hold over 20 percent of the region's leadership posts.

• Inner Mongolia is an important livestock area. Grasslands cover more than half the region, supporting sheep, goats, cattle, horses and camels. Animals have made a fourfold increase since liberation.

• The region is now also an important grain area. It raises 2.6 times more than at liberation, making it self-sufficient with a surplus. The main staple crops are

wheat, oats, millet and potatoes. Sugar beets, introduced after liberation, now make Inner Mongolia one of China's main sugar producers.

• There was practically no modern industry in Inner Mongolia before the new China was established. Today industry accounts for 64 percent of the region's total value of production, a more than hundredfold increase. Factories and mines have been opened on an average of one every three days over the last 30 years. The number of industrial workers has grown to 450,000. The production of electricity is an example of this growth—more power is generated in one day now than in a whole year before liberation.

• The region has great reserves of coal, iron, salt and other minerals. Inner Mongolia has become an important iron, steel and coal base. The Bayan Obo Iron Mine, for example, is one of the country's largest and best. Salt obtained from the many ponds and lakes is abundant, most of it over 96 percent pure.

• Communications have grown with industry. Rail mileage is up 4.8 times, passenger traffic 21 times, freight 44 times. Highway mileage is up 11 times, passenger traffic on highways has gone up 142 times and freight haulage over 100 times. Air traffic, non-existent before, is now an important factor in the region's transport. There is

also river transport. Several hundred thousand camels are used over desert routes.

• The living standard, especially that of the Mongolian herdsmen, has improved rapidly. People are buying five times more consumer goods per capita than at liberation. In fact, herdsmen have a higher income than those in cities and on farms. This reflects Inner Mongolia's growth of production and the rising income that has resulted from the continuous readjustment between high prices for the purchase of agricultural and animal products and low prices placed on industrial products. In terms of the most sought after commodities by the herdsmen, such as brick tea, the value of a sheep, their main product, has gone up 400 percent since liberation.

• Before liberation the population of the Inner Mongolian herdsmen was falling drastically as a result of the ruthless oppression of the reactionary ruling class and the ravages of disease. The Ikhechao League, for example, had over 400,000 people at the beginning of the Ching dynasty around 1650. By the time of liberation they were less than 80,000.

Greatly improved medical and health work after liberation resulted in a steady increase in the Mongolian population. Hans in the region are encouraged to practice birth control, Mongolians are not. The Mongolian birthrate, therefore, is higher and their population has increased 2.3 times.



The Huhhot People's Hospital, built after liberation.



Paojihletai (left) and other young Mongolian cadres.

Members of a Ulan Muchir Troupe performing in a herdsman's yurt.



A new generation of herdsmen.



The *hubaz*, an ancient Mongolian plucked string instrument, deeply loved by herdsmen.



A Mongolian language class at Inner Mongolia University.

Government. On the other hand, in addition to exercising the usual powers and functions of local government, they have the right to administer local finances within the limits prescribed by the Constitution and law. They may, in accordance with the special characteristics and needs of the nationalities in their locality, make plans and regulations on the exercise of autonomy, the development of the economy and the promotion of local culture.

There are three levels of regional autonomous areas, their sizes decided according to the sizes of their minority populations. The autonomous region is the equivalent of the province, then there are autonomous prefectures at the prefecture level, and the autonomous banner (or county) on the county level. At present there are five autonomous regions, 29 autonomous prefectures and 69 autonomous counties in China.

• **Why was national regional autonomy and not some other form of government chosen for the minorities?**

First, because it guarantees the minority peoples full rights as masters of their own house. In Chinese history, the Han rulers had ruled over other nationalities for long periods. Other nationalities had also ruled over the Hans. For example, the Mongolian rulers of the Yuan dynasty (1271-1368) and the Manchu rulers of the Ching dynasty (1644-1911). The result was that the different nationalities have come to live in mixed communities. Very rarely is there a community where there is only

one nationality. The policy therefore is to establish national regional autonomous governments in whatever place minority peoples live in compact groups. Mongolians, for instance, live not only in Inner Mongolia but also in the Sinkiang Uighur Autonomous Region and Kansu, Chinghai, Liaoning, Kirin and Heilungkiang provinces. Those living in Kansu and Chinghai provinces have autonomous Mongolian counties.

Second, national regional autonomy promotes unity, mutual help and fraternal cooperation among the different nationalities.

China had been a semi-feudal, semi-colonial country. The people of all its nationalities suffered under the rule of imperialism, feudalism and bureaucrat capitalism. The people of all nationalities fought hard to overthrow this rule. After the Chinese Communist Party was founded in 1921, the Mongolians, Hans and people of other nationalities in Inner Mongolia began to fight the class enemies under the leadership of the Party. The Mongolian Cavalry played a prominent part in the struggle against imperialism and feudalism during the anti-Japanese and liberation wars. Together the people fought against the northern warlords, the Japanese invaders and the Kuomintang reactionaries, together they greeted the birth of the new China.

Through this experience the people of the different nationalities realized that only through united struggle could they defeat their enemies at home and abroad and win national independence and

liberation. National regional autonomy is a measure for promoting this unity. Thus China is a unified country, yet minority nationalities have autonomy within the big family of Chinese nationalities, all led by the Central People's Government. In other words, autonomy safeguards the unity of the country, the solidarity of the people of different nationalities, and prevents acts of national splittism.

Third, national regional autonomy helps accelerate the economic and cultural growth of the different nationalities so that the whole country develops evenly toward common prosperity. The national minorities inhabit vast territories with rich resources, but for historical reasons these areas were economically backward, weak in industry and lacking in manpower, funds and technical strength. Special government assistance in all these aspects facilitates development.

• **How has this assistance been carried out in the case of Inner Mongolia?**

The central government has given unstinting assistance all through the 30 years of the autonomous region. Take finances. The government has always given the autonomous region two percent more in financial reserve funds than to the provinces and municipalities. It also allocates substantial additional financial assistance to the region each year. Government investments in capital construction and loans for developing agriculture, stockraising, industry and commerce came to huge sums.

Mongolian militia on patrol.

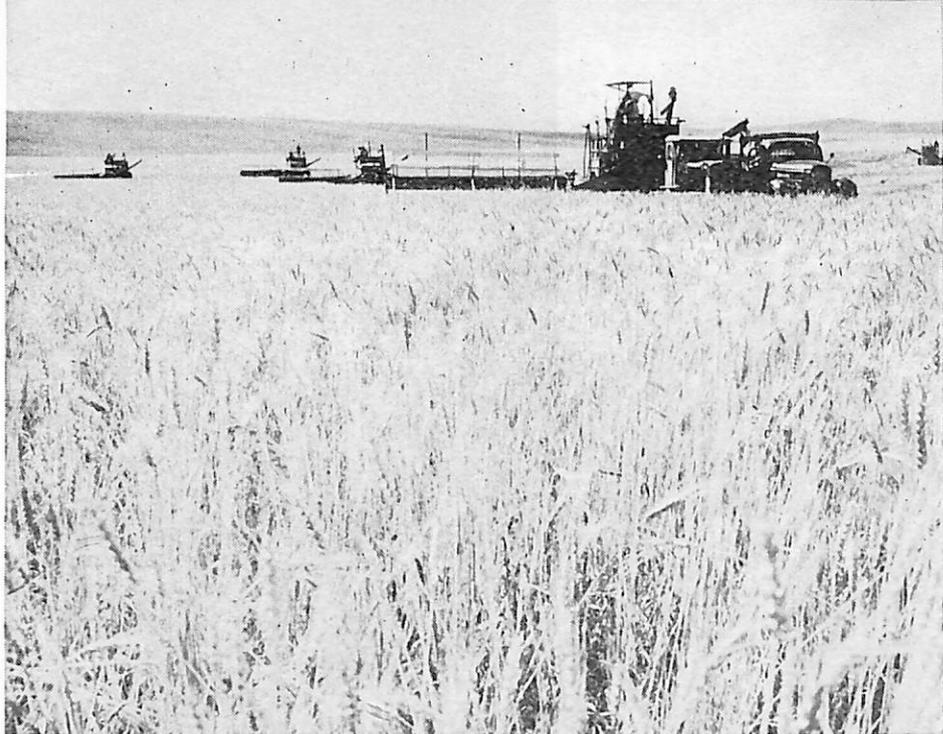


Nadam fair — the traditional Mongolian grassland fair.





The newly-built Ula Chemical Fertilizer Plant.



The grain output of Inner Mongolia is 2.6 times more than at liberation.

In taxation, the central government, giving full consideration to the autonomous region's economic characteristics, collects a light tax on stockraising. The average annual tax rate has consistently stayed around one percent of a herding unit's total number of animals (in terms of sheep). With commodity prices, the government has constantly adjusted the price structure — raising its purchasing prices for local and special products and lowering its sales prices of industrial goods — and it subsidizes the price of certain commodities. For example, brick tea is a daily necessity for the Mongolian herding people, but it is produced in south China and has to be brought into Inner Mongolia. In the past two decades the purchase price for brick tea in south China has more than doubled, but the sales price to the herding people in Inner Mongolia has remained the same. The commercial subsidy making up the difference amounts to 3,800,000 yuan a year.

The government also sends in great numbers of engineers, technicians and cadres to help build up the region.

Government support and technological assistance from China's other nationalities, mainly the Hans, has enabled Inner Mongolia to develop more rapidly. Before liberation the region depended on

other places for even the most ordinary consumer goods. Now it has practically all the necessary branches of industry, light and heavy, with some 3,600 factories and mines. The total value of its industrial output has increased a hundredfold over pre-liberation days.

• **How does Inner Mongolia exercise its autonomy?**

According to the State Council decision on financial administration, the scope of revenue and expenditure for the autonomous region is bigger than for the provinces and municipalities. This gives more flexibility. Tax administration too is more flexible. As mentioned before, the region can make regulations on autonomy, and political, economic and cultural development. Since the establishment of the Inner Mongolia Autonomous Region, it has made dozens of such regulations — concerning elections, the organization of the autonomous government, taxation, administration of grasslands, and prohibition of reclamation to protect pastures. These regulations have all been submitted to the Standing Committee of the National People's Congress (the highest organ of state power) and approved.

• **What has the Inner Mongolia Autonomous Region done in training minority nationality cadres?**

Great attention has always been paid to training Mongolian cadres and promoting those outstanding for politics and work ability to leading positions at all levels. Experience shows that this has been essential to enabling the minority people to exercise their rights as masters of their own house administering their own internal affairs. Born and bred in their native places they are the ones who best understand the history and present conditions of their home areas, who have close ties with their people and can explain the Party's policies and principles to them in their own languages and make sure they are carried out in practice.

Training includes trusting them and giving them a free hand in work so they can develop through experience. In addition, working cadres have a chance to attend further training courses, study classes or Party schools to raise their political level. Every year groups of Mongolian young people are sent to the nationalities schools in the autonomous region, the Central Institute for Nationalities in Peking, or other higher institutes.

Mongolian cadres hold leading positions not only in the Party committee and revolutionary committee of the autonomous region but also in the Party Central Committee and the highest state organs

of China. Ulanfu, a Mongolian and a veteran cadre, is a member of the Political Bureau of the Party Central Committee and a Vice-Chairman of the Standing Committee of the National People's Congress. Paojihletai, daughter of a herdsman, was reelected a member of the Party Central Committee at the 11th Party Congress. Among leaders at the league (prefecture) and banner (county) levels, over 30 percent of the members are Mongolians. The Silingol league, for example, contains nine banners. In seven of them the top leaders are Mongolians. In the communes of the region's 18 herding banners, practically all the top leaders are Mongolians.

• **How are the minority languages protected and developed in Inner Mongolia?**

The Constitution of 1954 states that "all nationalities have the freedom to use and develop their own spoken and written languages" and that "in performing their functions, organs of self-government of autonomous regions, autonomous prefectures and autonomous counties employ the spoken and written language or languages commonly used by the nationality or nationalities in the locality". In Inner Mongolia, since the overwhelming majority of people are either Mongolians or Hans, the Mongolian and Han languages are used simultaneously for meetings, documents, newspapers and other publications, broadcasting and television. All signboards, bus stops and road signs are in both languages.

Much has been done to preserve and develop the Mongolian language. There are courses training cadres specializing in the language in Inner Mongolia University and Inner Mongolia Teachers' College. There are secondary schools for the same purpose. There is a Mongolian language research institute and a translation organization. Han cadres are encouraged to learn Mongolian. The wide use of Mongolian has facilitated the interflow between the two nationalities and promoted the development of the Mongolian language.

IN OUR SOCIETY

Train Passengers Help in Flood

LAST June 15 a storm of violence such as is rarely seen struck the Loushankuan Pass area of the southern province of Kweichow. At 3:20 a.m. passenger train No. 204 on the Kweichow-Chengtzu line was pounding toward this mountain area. The driver suddenly saw a red signal ahead. As he brought the train to an abrupt stop a maintenance worker brought an order from the dispatcher—the roadbed had been washed out in two places by mountain torrents and the train was to return to the Tungtzu county station and wait for further orders.

The downpour continued. With the train safely on a sidetrack at the Tungtzu station, Lo Hsing-lung, vice-leader of the train crew, Pao Ming-chien, cook and vice-secretary of the train Party branch, the responsible persons since the two heads were absent, and Yang San-yang, the train guard, met to decide how to take care of the food and safety of the 700 passengers. Suddenly someone from the county department store rushed up. The warehouse, which stands on low ground 800 meters from the station, was surrounded by the rising water and state property was threatened. Transport and telephone lines were cut, and they couldn't get in touch with the county Party committee for more help, so they were asking the train crew to aid them. The train Party branch sent everybody out on the salvage operation except the two cooks, who were to stay behind to prepare food for the passengers.

Within five minutes the rescue team was on the scene. Bolts of cloth piled in the warehouse were getting soaked, and the team members threw themselves into the task of carrying them out. Slightly-built Lo Hsing-lung toted bolts too as he directed the operation. Though he was still suffering from the aftereffects of a strained back, Yang San-yang carried with the rest, as did the women in the train crew.

The water was now waist-high. Through the train boomed the voice of Lo Hsing-lung over the train's broadcasting system. "Comrade passengers, the Tungtzu county department store warehouse is being flooded. I call on all Party and Youth League members, People's Liberation Army men, and cadres to mobilize to save state property." One hundred and sixteen passengers volunteered and rushed to the scene. They formed chains to pass the goods to higher ground. A PLA man who had just recovered from a serious illness plowed through the water with difficulty. Several times he was asked to go to a higher spot, but he refused. Two hours later all the goods, valued at 300,000 yuan, had been moved to safety.

After the rescue crew returned to the train, Lo Hsing-lung and the conductors served hot ginger soup to the passengers as a cold-preventive, dressed their injuries and collected the wet clothes and took them to dry in the dining car. Then the dining-car attendants brought in hot food.

The weather cleared and repairs were made on the track. Before the train started out, a message of thanks from a leader of the county Party committee was broadcast. On behalf of the 470,000 people of the county, he asked all those who had taken part in the rescue work to leave their names and addresses in order to commend them at their places of work. But all refused, saying, "It was only what we ought to do."

Lo (second from right) and Pao (third right) with other members of the crew that came to the rescue.



From Desert to Pasture



WE DROVE westward in the hot summer sun from Silinhot, a new city on the Silingol Grassland. Ahead of us the green seemed like an ocean, the road a silver thread. Flourishing grass dotted with wild flowers and in the distance white yurts, cattle, sheep. Now and then we saw Mongolians on horseback carrying the long

pole with a loop on the end which they use to capture horses.

A six-hour drive brought us to the Ulijitu production brigade in the Abaga Banner. In Inner Mongolia it is famous for its network of wells. Kuambu, the Party secretary of the brigade, was waiting for us, a powerfully-built man, 40 years old, dressed in a black Mon-

golian robe with a yellow silk sash. He had had much to do with the herdsmen's fight to build water projects to change the dry grassland to green pastures.

The brigade has an area of 305 sq. km. with only 227 people. There is little rain. There used to be drought nine years out of ten, often making even drinking water

Staff Reporter



Harvesting grass for fodder on the Silingol grassland.



Planting trees to control sand.

little water there was with a towel, then squeeze it into a bucket to be hauled up and ladled out to the old people and children. In the past, Kuambu said, herdsmen would seat their guests and then say, "Drink from this cup, please. It is sweet dew squeezed from the cracks of stones."

When liberation came the herdsmen became the masters of the grassland and began to work collectively. Mutual-aid teams of several families replaced the weaker single family. Collectives



Fodder crop in an enclosed pasture at Usantsao.

scarce. Animals died and people suffered.

In the old days rich herdowners controlled most of the ponds and wells. When their ponds were dry, the herdsmen had to drive their animals hundreds of kilometers searching for water. At home, someone had to be lowered to the bottom of a well to soak up what

with several dozen families were stronger. But even these were not big enough to sink a lot of wells, especially deep ones. During droughts the people still had to move their cattle and look for better pastures.

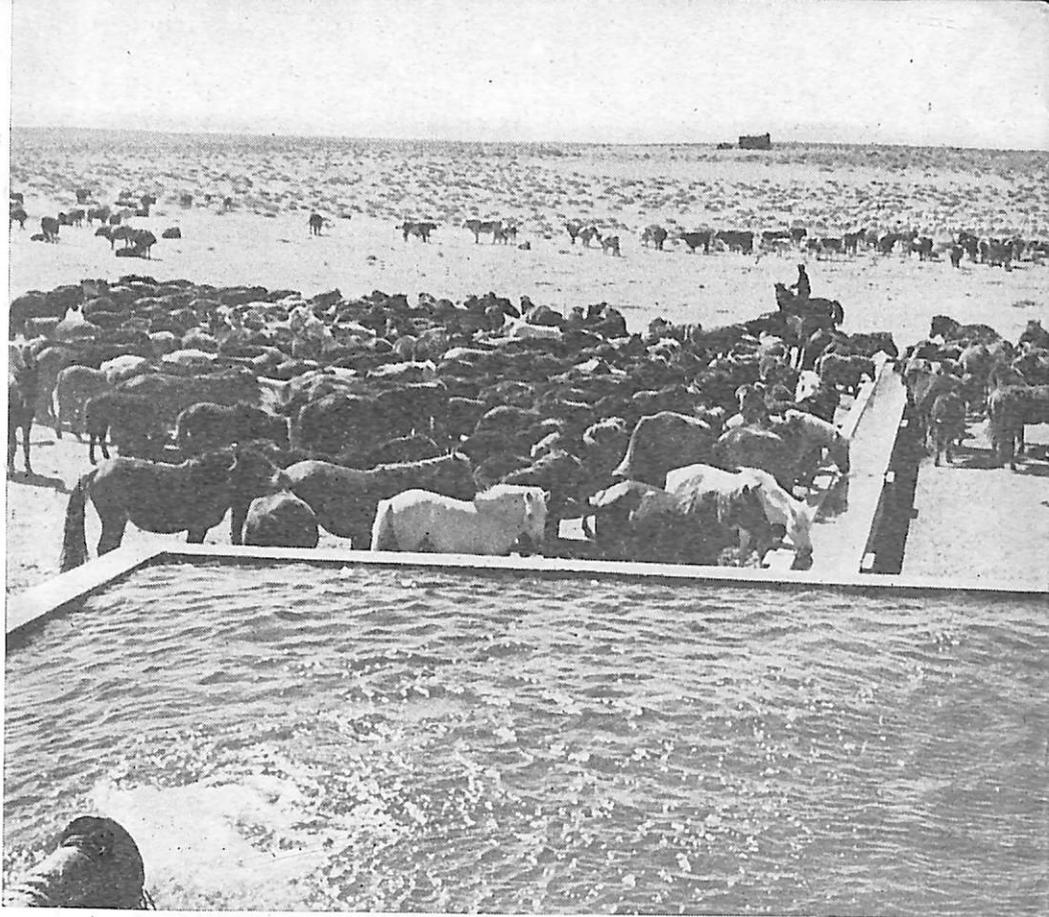
After the communes were formed in 1958 the people had more money and manpower. They could now sink deep wells with their own labor and local materials. These varied in depth from a dozen to scores of meters. The herdsmen lined the walls of some with stone. Sometimes they linked the wells at the bottom along underground waterflows. Today the brigade has 67 ordinary wells, most of which were sunk after the communes were formed.

To help the herdsmen get water for increasing their livestock, the people's government sent hydrologists and drilling teams to the grassland in 1958 to prospect for underground water sources. The brigade's four deep wells with pumps were all drilled with government help. Now grazing grounds appeared on formerly dry grassland.

"This is 350 meters deep," Kuambu told us as we visited one of the wells. "It was drilled by a professional drilling team in 1962. We bought the diesel engine and pump ourselves. It supports 5,000 cattle and sheep and irrigates seedling nurseries and fodder bases. Now, rain or no rain, we don't worry about water."

Today the brigade's four deep wells and six shallow wells with pumps and 67 ordinary wells are distributed evenly across the grassland on an average of one to every four sq. km. When the people's commune was formed, the brigade only had 4,000 animals. The few wells they had were not enough. By 1977 there were 22,000 animals in the brigade, with enough water the year round.

There are 38,000,000 hectares of grassland in Inner Mongolia. Formerly, a large part of it was dry like Ulijitu used to be. The pastures needed basic transformation. Since the area was liberated 30 years ago, the people them-



Water being pumped from a new well.

selves have made 50,000 wells and equipped 6,930 of them with pumps. Other water conservation projects such as reservoirs, dams, blocking underground water in dry riverbeds, and pumping stations have created a regional water supply network. This changed 3,700,000 hectares of dry grassland to new pastures. An area of 16,000,000 hectares of pastures was improved. Irrigated fodder bases and enclosed pastures total 260,000 hectares.

Oasis on the Desert

Usantsao People's Commune, situated in the northern part of the Maowusu desert, now called the Tachai* of the herding areas, has done a great deal to build up the grassland. The commune members are Mongolians.

The road leading to the commune is lined with elms and poplars. For a residence center in the desert, Usantsao is astonishingly like the verdant scene in south China. Its homes, hospital,

*The Tachai farm brigade in Shansi province is a national model agricultural unit. By studying and applying Mao Tsetung Thought and bringing the spirit of self-reliance into full play, Tachai has made tremendous achievements in the struggle to transform nature.

schools and stores are surrounded by trees and bushes.

Usantsao is famous not only for its success in building up the grassland, but for its extreme poverty in the past. There were many shifting sand dunes and ridges. When strong winds shrouded earth and sky in dust and sand, it became so dark during the day that people had to light lamps. Whirling sand was so terrible that dunes suddenly vanished from one place and appeared in another. Often it whipped around a house and swallowed it up. Invaded over the years by shifting sand, the grassland became cut up into many pieces, and only a third of the total area could be used as pastures. Production was "left to Heaven" generation after generation.

Chulka, a member of the commune Party committee, described the battle against the sand and the construction of new pastures. When the commune first decided to plant trees to break the wind, a few skeptics said, "Trees can't live in this sandy place. We'll just waste the saplings." But 700 strong men and women marched out into the desert that year and brought back sagebrush and sand willows



the desert "front" and settled down. Some of them came by camel and horse from many kilometers away. After ten years a great many shifting sand dunes have become stabilized under a mixed growth of trees, brush and fodder grass. A 150-km. long and one-km. wide shelter belt of poplars and elms protects the communes against wind and sand on its northwest.

Enclosed Pastures

The people of Usantsao have covered 16,700 hectares of desert with greenery. Some 6,700 of these are rich pastures. They have planted 1,700 hectares of trees and built 5,400 hectares of enclosed, irrigated pastures called *kulun*. The changes in Usantsao became an example for the development of the grassland of all Inner Mongolia.

To speed up this development, the government set up three sand control research institutes, 31 sand control stations and forest farms in the four main desert areas of Inner Mongolia. Three hundred scientists and technicians are involved. Investigation, study and scientific experiments have constantly led to new ways for the masses to use in checking shifting sand. They also analyze and study successful methods used in different places on the grassland and publicize them.

which resisted drought and grew easily. These they planted on the dunes and ridges. But a fierce windstorm swept them all up. Only three survived. The commune leader said, "Even three survivors is a victory. They proved that it is possible to grow plants in the desert. If three plants can survive, why not three thousand?"

Practice brought more knowledge. They found ways to control the wind and sand by planting sagebrush on the northern slope of a dune to blunt the wind, planting sand willows on the southern slope to block the sand, and planting from the bottom of the dune upward. Year by year, green crept up the dunes and ridges until the shifting sand began to quiet down.

Getting water where you want it in the desert is equally difficult. A canal dug in the dry sand is quickly buried unless the sand is controlled. They finally devised a method that worked. They let water into the canal as they dug and planted saplings at the same time. Soon the sand banks were covered with tall poplars, elms, willows and locusts.

Each spring and autumn the commune mobilized many people to plant trees. Carrying cooking utensils and tents, people went to

A new enclosed pasture (*kulun*) lies two km. from Usantsao. Surrounded by a willow fence, it is divided into many blocks by ditches. A pump irrigates them. Within one block are fine fodder grasses such as alfalfa and clover. In another are elm and poplar saplings. Still another section contains fodder crops such as barley, oats, buckwheat and peas.

The *kulun* is a new way of developing the grassland. It enables livestock to increase constantly and helps protect natural pastures from overgrazing. It checks degeneration of pastures, supplies fodder, and serves as winter pasture. With manuring, irrigation and resowing in spaces left empty by withered shoots, the yield per unit area of grass in the *kulun* is three to five times higher than in natural pastures.

Today there are several thousand *kuluns* in the Inner Mongolian grassland, totaling 760,000 hectares. People are aiming to make each hectare support seven animals.

The autonomous region's animal husbandry bureau reports that this goal will soon be reached. When this happens, weather and natural factors will not be so much of a hazard and Inner Mongolia's livestock will increase more rapidly.

Herdsmen build an enclosed pasture in Abaga Banner.



Film
Mirrors
Inner
Mongolia
Liberation
Struggle



THE FEATURE color film "Oh, My Motherland!" by the Shanghai Studio was released last May to mark the 30th anniversary of the founding of the Inner Mongolia Autonomous Region. It shows the role of the Mongolian people of Inner Mongolia in the liberation of all China and their struggle against the intrigues of some members of the Mongolian ruling class to use national feeling for their own reactionary ends. Malchinhu, writer of the film's scenario, once a cowherd on the grasslands, has drawn on his own experience in the liberation struggle.

It is 1945. The war against Japan has ended in victory, but China now faces another crisis—backed by U.S. imperialism the Kuomintang is preparing for civil war. In vast areas of Inner Mongolia which were liberated by the Communist Party, the Kuomintang is trying to recapture its rule and the former Mongolian ruling class also wants to assert its old domination. The Central Committee of the Chinese Communist Party sends a group of Han and Mongo-

lian cadres to strengthen its leadership there.

Batur, a Mongolian, returns to his old home, the Bayin-Gol Grassland, from Yen-an with Chao Chih-min, a Han. Working with the Kuomintang, the reactionary Prince Samten, claiming to be protecting the interests of the Mongolian people, is promoting an Inner Mongolian independence movement. His aim is to sabotage the liberation and the unity of the nationalities.

Batur and Chao Chih-min work and live among the herdsmen. They organize a herdsmen's association and a militia detachment. But old Hoshig, who is held in high esteem among the masses, does not trust them—he has suffered too much from the Han chauvinism of the Kuomintang toward the minority peoples. His older son has been killed by the Kuomintang army. Prejudiced against Chao Chih-min because he is a Han, he also avoids Batur, with whom he had once worked for a long time.

Batur visits the old man several times in the hope that he can make

him understand. With herdsmen's language, he talks with Hoshig, reminding him of old events. Wasn't it Pai Ping, the Han Kuomintang garrison commander, who murdered his son? Wasn't it Samten, the Mongolian prince, who had a Han child tied to a horse and dragged to death? "You and Samten are both Mongolians," he says. "So can we say it's you who murdered the Han child?"

Hoshig begins to see that every nationality has its oppressor and oppressed classes and that the question of nationalities is a question of class. The Kuomintang reactionaries and Mongolian overlords who torture people therefore are enemies, while those they exploit and trample underfoot—Mongolian or Han—are of one family. Finally the old man lets his younger son join the militia and he himself goes to work with Batur and Chao Chih-min.

The struggle becomes sharper and more complicated when Pai Ping, the former Kuomintang local garrison commander and now commissioner, from the Kuomintang

Batur urges Hongol to join her insurrection force with the herdsmen's militia to form a cavalry regiment.

central committee, sneaks back to the grassland. With his backing, Samten again tries sabotage. He summons other overlords to a meeting in his palace. As he is about to read a "declaration of Mongolian independence", Batur suddenly walks in. Standing before the surprised lords, he talks about the situation in China, the Party's policy of equality and unity, and its plan for regional autonomy for the minority nationalities. He hopes the lords will stand on the side of the people.

The tricky Samten tries to stop Batur by force. But his palace has been surrounded by the militia led

rillas, having followed the Party's decision to take cover behind a hill, are persuaded by Ligueden (who was bribed by Samten) to come out and attack the cavalry. They are trapped between the Kuomintang cavalry and the prince's men.

Batur arrives to help beat back the enemy, covering Hongol and others' retreat. Then, together with a regular Eighth Route Army unit, they wipe the enemy out.

One of the most sympathetic and clearly defined characters in the film, Hongol is a poor and deeply wronged herdsman whose husband, a Communist, was murdered by the Kuomintang in the prince's palace several years before. Straightforward and capable, she

A cavalry regiment of the herdsmen is organized. But Samten and Pai Ping refuse to admit their defeat. They work out a plan to establish a "Mongolian Keep-Out-of-the-Civil-War Committee". Samten proclaims that the Mongolians should not have anything to do either with the Communist Party or the Kuomintang. This is a move to deceive the herdsmen and a trick to quiet things down until they can counterattack.

Batur and Chao Chih-min lead the cavalry regiment to the front palace gate where Samten is holding a "keep-out-of-the-civil-war" meeting. Batur steps up on the platform, exposes the "Mongolian Keep-Out-of-the-Civil-War Committee" as an attempt to slander the



Batur (left) and Chao Chih-min enter the Bayin-Gol Grassland from Yanan.



Batur organizing a herdsmen's association.



Batur exposes Prince Samten in his palace.

by Chao and guerrillas led by Hongol, a local herdsman. Batur wages a sharp verbal battle with Samten. His arguments win over the majority of the local rulers who don't want to split the nation. Samten's conspiracy fails.

Samten and Pai Ping try another trick. They send for two companies of Kuomintang cavalry. In the uniforms of the Communist Party's Eighth Route Army, they loot and burn villages and yurts in the Bayin-Gol Grassland to make the herdsmen believe that it is the Communists doing the killing. Meanwhile, Hongol and her guer-

leads a guerrilla force of rebellious herdsmen which has made their stronghold in a forest. They often attack Samten's palace. Though often joining the militia in fighting, it is a painful course for Hongol to grow from a vengeful, spontaneous rebel to a conscious, disciplined proletarian fighter.

Hongol still trusts Ligueden. He exposes himself, however, as a palace informer and flees. Even then Hongol wants to call him back. She pursues him but he opens fire and wounds her. The shot finally awakens her to the real nature of the enemies of the Inner Mongolian people.

Communist Party's policy toward minority nationalities, keep the Inner Mongolian people away from the Party and link them tighter to the Kuomintang. Meanwhile Chao Chih-min has entered the palace. Suddenly he brings out the hated Kuomintang Pai Ping from his hiding place. A man in the crowd aims his pistol at Batur. Hongol recognizes him as Ligueden and shoots him.

The film ends with the herdsmen's cavalry regiment marching through the mountains under the Great Wall to the fronts of China's liberation war, singing, "China, the dear mother of all nationalities."



Chou En-lai

The April 1977 issue of *China Reconstructs*, 60 pages containing many articles in memory of Premier Chou En-lai, was good. He was a hero of China whom we too loved and admired.

S.P.S.W. Dharmapala
Thorayana, Sri Lanka

Suggestions for Improvement

You need to have a column called "Readers' Mailbag". In this column readers should be asked to criticize your magazine and make suggestions for improving it. They should also be invited to ask any question they have in their mind about your country, and it will be your ethical obligation to answer it in the column. This way you will receive regular opinions from your readers. I hope you will decide to begin a readers' column in the near future.

Mohammad Ajmal Beg Naz
Lahore, Pakistan

Thank you for your suggestion. We are beginning an "Our Postbag" column in this issue. — Editor

On the whole, I am interested in the material in this journal. I prefer to read about concrete results, projects and events rather than abstract analyses of matters.

Duncan Stevenson
Lismore, Australia

I hope that the articles in *China Reconstructs* will become shorter so that they will be more attractive and easier to read.

Tulio Prada Garcia
Santander, Colombia

About the 'Gang of Four'

Here are some articles (in the June and July issues) which were particularly well

received: The specific articles about the evil activities of the "gang of four"—particularly the one on Tachai by Kuo Feng-lien, the one on the big-character poster of Li Chun-kuang, and especially the one on the Hangchow Silk Printing and Dyeing Factory. These are valuable resources for us in understanding China's great victory over the "gang of four". In addition, the August article on the Nanchang Uprising was very good because of its frank evaluation of the history of your Party, which the "gang of four" had suppressed.

David A. Ross
Houston, U.S.A.

We have noticed the change in your magazine since the fall of the "gang of four", whom we all condemn. We would also like to pay tribute to all those who resisted the gang in the face of stiff opposition.

It is a pity that your magazine does not cover Chinese sports. We do not know a single name of any of your football players or the national team.

Mahamat Aboubakar
Guider, Cameroon

Maps Needed

In the April 1977 issue the article "The Salt Lakes of Chinghai Province" is a credit to your compiling staff. The map you provided with "Along the Kansu Corridor" made it a much more authentic article. China is a big country, and areas under discussion are hard to place. Could we have more similar maps?

Tom Palframan
Scarborough, Australia

Production and Science

I understand your magazine is read by a good number of people in the world, who differ greatly in their occupations. Some are students, others are technicians like me, others are scientists, engineers and doctors. Your magazine would be much

better if it contained some interesting news concerning these topics. People in the world are eager to know what China's industries produce, what her scientists are doing. Your magazine should show the world what the Chinese are doing.

John Namutwe
Jinja, Uganda

Worthwhile for Africa

China Reconstructs is a mirror reflecting the heroic collective efforts of the Chinese people in their effort to build a new socialist republic out of the ruins the colonial and imperial oppressors left. The articles are usually broad and of high credit, covering agricultural, industrial and commercial development, as well as high points of communist theory. For this reason the magazine is worthwhile reading for the newly independent African states.

Victor Murinde
Kabale, Uganda

More on People's Communes

The "Memoir from the Long March—Crossing the Chinsha River" (June 1977 issue) is excellent. I hope that these memoirs will continue.

What I would like to see in the future is a complete article on the structure and operation of a commune—its purpose, what it produces, how it is run, who chooses the revolutionary committees. What is the purpose of the brigades and production teams, how do they choose their leaders?

T. R. Johnson
Edinburgh, Scotland

Travel to China

I would like to know through what channel one can travel in China.

Miriam Luz Zuleta
Bogota, Colombia

Please see the "Do You Know?" column in this issue. — Editor

(Continued from p. 13)

with the salamander (amphibian) and the goldfish—each of a different class. They isolated deoxyribonucleic acid from the cell of visceral organs of the salamander and injected it into the fertilized eggs of the goldfish. This resulted in a bar-shaped balancer situated posterior to the corner of the mouth, as in the larval salamander, in about one percent of the larval fish. Histological examination shows the internal structure of the balancer of the larval goldfish the same as that of the larval salamander.

The development of vertebrates from lower to higher classes went through the evolutionary processes of fish, amphibians, reptiles, birds and mammals. The two groups' experiments caused the characteristics of the salamander, of the higher amphibian class, to appear in goldfish, of the lower class. This proves that nucleic acid also plays an induction role in the development and heredity of distantly related animals of different classes.

This discovery is likely to be of great significance in breeding new strains of animals. Under general conditions, artificial crossbreeding is used in producing new strains

of animals. But the descendants of distantly related animals bred by this method often have abnormally developed reproductive cells which cannot be used for mating and whose hybrid characteristics cannot be maintained in their offspring. If the method of using nucleic acid for induction is adopted in breeding new strains of animals, this limitation may disappear.

These research results of the Chinese and American scientists are new contributions to the study of cytogenetics and are probably of guiding significance to agricultural science and medicine.

Lesson 11

In a Tailor Shop

- A:** 您来了, 做衣服吗?
Nín lái le, zuò yifu ma?
You've come, (you) make garments?
- B:** 我要做一件衬衣, 一条裤子和一件棉袄。
Wǒ yào zuò yí jiàn chèn yī, yí tiáo kù zǐ hé yí jiàn mián'ǎo.
I want make a shirt, a pair (of) trousers and a cotton-padded jacket.
- A:** 请给我看看料子。
Qǐng gěi wǒ kànkan liàozi.
Please let me see (the) materials.
- B:** 衬衣和裤子是布的, 棉袄的面子是绸子的。
Chèn yī hé kù zǐ shì bù de, mián'ǎo de miànzi shì chóuzi de.
Shirt and trousers are cloth, cotton-padded jacket's outside is silk.
- A:** 衬衣做长袖的吧?
Chèn yī zuò chángxiù de ba?
Shirt make long sleeved?
- B:** 对了。
Duì le.
Right.
- A:** 棉袄您想做什么样子的?
Mián'ǎo nín xiǎng zuò shénme yàngzi de?
Cotton padded jacket, you want to make what style?
- B:** 做中式的。这里还有一块里子和一包棉花。
Zuò Zhōngshì de. Zhèlǐ hái yǒu yí kuài lǐ zǐ hé yí bāo mián huā.
Make Chinese style. Here also has a piece (of) lining and a package (of) cotton.
- A:** 量量尺寸吧!
Liángliang chǐcùn ba!
(Let's) measure dimensions.
- B:** 衬衣的大小、肥瘦都要和我穿的这件一样, 裤子可以稍肥一点。
Chèn yī de dàxiǎo, féishòu dōu yào hé wǒ chuān de zhè jiàn yí yàng, kù zǐ kě yǐ shāo féi yí diǎn.
Shirt's length (and) width all want with I wearing this piece the same, trousers may slightly loose a little.
- A:** 好。再量量棉袄, 身长七十公分可以吗?
Hǎo. Zài liángliang mián'ǎo, shēncháng qīshí gōngfēn kě yǐ ma?
Fine. Again measure (for the) cotton-padded jacket, body length 70 centimeters may (it)?
- B:** 太短吗?
Tài duǎn ma?
Too short?
- A:** 不短, 太长了不好看。
Bù duǎn, tài cháng le bù hǎo kàn.
Not short, too long (is) not good-looking.
- B:** 千万别太瘦。
Qiānwàn bié tài shòu.
Whatever don't too tight.
- A:** 您放心。这是尺寸单, 取衣服的时候请带来。
Nín fàngxīn. Zhè shì chǐcùndān, qǔ yīfu de shíhòu qǐng dàilái.
You rest assured. This is dimension slip, get garment when, please bring it.
- B:** 好吧!
Hǎo ba!
Fine.
- A:** Hello, do you want some clothes made?
- B:** I want a shirt, a pair of trousers and a cotton-padded jacket made.
- A:** Please let me take a look at the materials.
- B:** The shirt and trousers are to be of cotton cloth and the outside of the cotton-padded jacket of silk.
- A:** Do you want a long-sleeve shirt?
- B:** Right.
- A:** What style do you want for your cotton-padded jacket?
- B:** Chinese style. Here is also a piece of material for the lining and a bundle of cotton.
- A:** Let me take your measurements.
- B:** The measurements of the shirt should be the same as the one I am wearing. The trousers may be a bit looser.
- A:** Fine. Then let me take the measurements for your jacket. Is 70 centimeters all right?
- B:** Isn't that too short?
- A:** No. It doesn't look good if it is too long.
- B:** Whatever you do, don't make it too tight.
- A:** Don't worry. Here is the specification slip (voucher). Please bring it with you when you come to get the clothes.
- B:** Fine.

Notes

1. *Some terms.* Nín 您 is a polite form for "you". Nín 您 (ni 你) lái le is a common greeting to someone entering or arriving.

Aǒ 袄 means a lined jacket (most often in Chinese style). Examples: jiá'ǎo 夹袄 (lined jacket), mián'ǎo 棉袄 (cotton-padded jacket), pí'ǎo 皮袄 (fur-lined jacket).

2. *Duplication of a verb.* This shows that the action lasts only a short time. For example, Wǒ kànkan liàozi 我看看料子 (Let me take a look at the materials). Xiànzài liángliang chǐcùn ba 现在量量尺寸吧 (Now let me take the measurements).

3. *Choosing the right word.* This is important, as the Chinese language has a rich vocabulary. Sometimes different words are used to express the same meaning under different circumstances. For example, **fēi** 肥 (fat) refers to animals only: **Zhū hěn féi** 猪很肥 (The pig is very fat). When we refer to a person, we must use **pàng** 胖 instead. The word **shòu** 瘦 (thin), however, is used for both people and animals.

Fēi 肥 and **shòu** 瘦 can also refer to clothes or shoes. For example, **Zhè tiáo kùzi hěn féi** 这条裤子很肥 (This pair of trousers is very loose). **Tā de xié tài shòu** 他的鞋太瘦 (His shoes are too narrow).

4. *Nouns formed with adjectives:* Adjectives of opposite meaning can be combined to form a noun. For example, **féishòu** 肥瘦 means the width of clothes or shoes. **Zhè jiàn shàngyī féishòu zěnmeyàng?** 这件上衣肥瘦怎么样? (How is this jacket for width?) Likewise, **chángduǎn** 长短 (long-short: length), **dàxiǎo** 大小 (big-small: size), **hòubáo** 厚薄 (thick-thin: thickness), **shēnqiǎn** 深浅 (deep-shallow: depth). When referring to persons, we use **gāo'ǎi** 高矮 (tall-short; height) and **pàngshòu** 胖瘦 (fat-thin: physical proportions).

Shēnqiǎn 深浅 (depth) can also refer to color or the difficulty of the content of a book or article.

Chǐ 尺 (foot), **cùn** 寸 (inch) when combined into **chǐcùn** 尺寸 (dimension), means length, width or height of a thing.

5. **Búyào** 不要 and **bié** 别 both mean "don't", but the latter is more colloquial.

For Advanced Students:

朱德的扁担 biāndan (shoulder pole)

毛主席和朱德 **Zhū Dé** (Chu Teh) 同志率领 **shuàilǐng** (lead) 的中国工农红军第四军在井冈山 **Jǐnggāngshān** (Chingkang Mountains) 坚持 **jiānchí** (persist) 斗争的时候, 由于国民党的封锁 **fēngsuǒ** (blockade), 红军吃粮 **liáng** (grain) 特别困难。有一天红军在山下夺 **duó** (seize) 下了敌人的一个大粮仓 **liángcāng** (grain storehouse), 第四军军长 **jūnzǎng** (army commander) 朱德同志马上 **mǎshàng** (literally: on horse back, colloq. for quickly) 动员 **dòngyuán** (mobilize) 军民运粮上山。

从山下到山上有四十里路, 要上两千九百个石阶 **shíjiē** (stone step), 挑 **tiāo** (carry on shoulder pole) 着粮食, 很不容易走。中午, 太阳象火 **huǒ** (fire)。朱军长穿着草鞋 **cǎoxié** (straw sandals), 挑着两大箩筐 **luókuāng** (basket) 谷子 **gǔzi** (unhusked rice), 走在运粮队的前面。

走到半山腰 **shānyāo** (slope), 朱军长忽然 **hūrán** (suddenly) 看见一个老头儿挑着满 **mǎn** (full) 满的一担 **dàn** (load) 谷子, 每上一级石阶, 身子就要摇晃 **yáohuàng** (stagger) 一下。朱军长急忙 **jímáng** (hurriedly) 赶上去, 笑着说: “大伯 **dàbó** (elder uncle), 天太热, 放下休息休息吧。”接着和老头儿一起坐在石头上。“您挑得太多, 压 **yā** (press) 伤 **shāng** (injure) 了腰 **yāo** (back), 我们心里也不安 **bù'ān** (uneasy) 啊! 给我一些

挑吧!”老头忙摆手 **bǎishǒu** (wave away) 说: “不行, 你的担子 **dànzi** (load) 也不轻啊!”朱军长解释 **jiěshì** (explain) 说: “您放心 **fàngxīn** (be at ease), 我是挑过担子的。”说着朱军长从老头儿的箩筐里倒出一些谷子, 放在自己的箩筐里, 和老头儿说了声“再见”, 挑起来就走。

这时, 老头儿忽然发现这位红军的扁担上写着“朱德记 **jì** (mark)”三个字。他急忙问后边的一个战士: “他就是朱军长?”战士笑着说: “是呀! 他就是我们的朱军长。他经常和战士一起爬山挑粮。我们怕累坏他, 就把他的扁担藏 **cáng** (hide) 起来了, 后来朱军长自己又做了这根扁担, 还写上几个字, 这样谁也‘偷 **tōu** (steal)’不走了……”老头儿听了着急地 **zháojide** (anxiously) 一边追 **zhuī** (chase) 一边喊 **hǎn** (shout), “朱军长, 等一等。”朱军长还是往上走。老头儿又故意 **gùyì** (purposely) 喊: “朱军长, 你掉 **diào** (drop) 了东西。”朱军长早就听出是老头儿的声音, 也明白 **míngbai** (understand) 他的意思, 边走边回答说: “大伯, 不要紧, 你慢慢 **màn** (slow) 走吧!”不久朱军长就到了山顶 **shāndǐng** (mountain top)。

Chu Teh's Shoulder Pole

When the Chinese Workers' and Peasants' Red Army led by Chairman Mao and Comrade Chu Teh were carrying on the struggle in the Chingkang Mountains, they had a very hard time getting food grain because of the Kuomintang's blockade. One day the Red Army seized a big enemy grain storehouse at the foot of a mountain. Comrade Chu Teh, Commander of the Fourth Army, at once mobilized the army and the people to transport the grain up to their camp at the top of the mountain.

It was 40 li from the foot to the top of the mountain and one had to climb 2,900 stone steps, so it was not easy to walk carrying a grain basket at either end of a shoulder pole. At noon the sun was like fire. Commander Chu, wearing straw sandals and carrying two big baskets of unhusked rice, walked at the head of the grain transport team.

When they were halfway up the mountainside, Commander Chu suddenly saw an old man carrying a full load of rice. On every step he staggered a bit. Commander Chu rushed to him and said with a smile, "Elder Uncle, it's very hot. Put down (your load) and rest." Then he sat down on a stone with the old man.

"You're carrying too much. Give me some to carry. If you injure your back our hearts will be uneasy."

The old man quickly waved him away and said, "No, your load is not light either."

"Don't worry," Commander Chu explained. "I'm used to carrying things." So saying he poured some rice from the old man's basket into his own, said "Goodbye" to the old man, picked up (the load) and left.

Just then the old man suddenly saw three characters "Chu Teh's Mark" written on this Red Army man's shoulder pole. Hurriedly he asked the soldier behind him, "Is he Commander Chu?"

"Yes, he is our Commander Chu," the soldier answered. "He often climbs mountains and carries grain together with the soldiers. We were afraid he might get too tired and injure (his health), so we hid his shoulder pole. Then he made this one himself and wrote the three words on it so nobody could take it away."

Hearing this, the old man ran after him anxiously shouting, "Commander Chu, wait a minute." Commander Chu continued on up. The old man purposely shouted, "Commander Chu, you dropped something."

Commander Chu recognized the old man's voice and knew his intention. "Elder Uncle, it doesn't matter. Please take it easy." Soon Commander Chu reached the top of the mountain.



