China's Science and Technology Grow Apace

SPURRED on by the Great Proletarian Cultural Revolution, science and technology have made rapid progress in China. Following the orientation pointed out by Chairman Mao, the worker-peasant-soldier masses and scientific and technical personnel have achieved one new success after another thanks to persistent efforts to make scientific research serve proletarian politics and the workers, peasants and soldiers, combine it with productive labour and carry out scientific research activities in an open-door way.

For a time prior to the start of the Great Cultural Revolution, scientific research personnel in the blasting group of the Institute of Mechanics of the Chinese Academy of Sciences devoted themselves to "raising standards" behind closed doors. This could not solve any practical problems. Since criticizing the revisionist line during the Great Cultural Revolution, they have taken an active part in designing and surveying blasting projects for industry, communications, building construction and national defence and in field observations, thus greatly advancing the study of blasting mechanics. They have made new advances in their study over the last few years by using blasting techniques to transform mountains, harness rivers and remove hills to build farmland.

A member of the Shanghai Research Institute of Metallurgy of the Chinese Academy of Sciences, Chen Nien-yi studied the theory of chemical bond for many years before the Cultural Revolution, but nothing came of it because theory was divorced from practice. When the Cultural Revolution got under way, he went to the Shanghai Metallurgical Plant and worked with cadres and workers there in applying the chemical bond theory to separate nickel and chromium by the extraction method, a production process calling for urgent solution at the time. Later, they worked out a new technological process which successfully solved the problem of multiple utilization of large quantities of slag from lead smelting.

With scientists and technicians going to factories and villages and taking part in production, scientific research has been geared to meet the needs of the socialist economic base. The successful development of new rice and wheat varieties by the haploid breeding method is a case in point. It is precisely because this research topic comes from production, scientific research is combined with production, professionals' work is integrated with mass scientific experiments and the superiority of the socialist system in China is brought into full play that this new technique in the world was rapidly brought to success in experiments and first applied to production in China.

Research units under the Chinese Academy of Sciences in recent years have completed more than 1,000 fairly important items of scientific research, quite a number of which fill the gaps in China's science and technology or are up to advanced world levels. The great majority were successfully undertaken jointly by scientific and technical personnel, the masses of workers, peasants and soldiers and cadres in "three-in-one" combinations.

Deep-going criticism of the reactionary idealist conception of history that "the highest are the wise and the lowest are the stupid" propagated by Liu Shao-chi, Lin Piao and their followers has enabled the worker-peasant-soldier masses to break down blind faith, emancipate their minds and boldly plunge into the mass movement of scientific experimentation.

Workers in the Taching Oilfield have joined efforts with scientific research personnel to complete several hundred scientific research items and introduce a whole series of new technological processes and techniques in oil extraction which bear China's own characteristics.

Scientific researchers and workers in Shanghai have successfully produced a ceramic material now widely used in industry and national defence construction.

All this constitutes a tremendous contribution to maintaining long-term stable and high output in the oilfield.

Peasants in the Tachai Brigade, the national pace-setter on the agricultural front, have made new achievements in scientific farming every year. This has made for successive years of rich harvests on poor soil.

In the south, Huajung County in Hunan Province has set up an agricultural scientific research network with an institute at the county level, a station in every commune, a team in every production brigade and a group in every production team. These are manned by local cadres, commune members, educated youth and scientific and technical personnel who, working in unity, form a mighty contingent of agricultural scientific workers. Yin Ching-chih is a tireless and assiduous reader of science books with only a few years of primary school education behind him. In the last few years the agricultural scientific research team led by him has introduced over 100 rice varieties and used them as parent plants for hybridization to select and breed five new promising varieties.

Yin Ching-chih *(left)* **doing research work in the paddyfield.**

Veteran peasant Li Chen-sheng of Korean nationality in Hailung County in northeast China's Kirin Province has experimented boldly on hybridizing maize and rice and succeeded in breeding a high-yielding "maize-rice" with big ears and grains. This poses fresh problems in the study of genetics and throws new light on it, and thus promotes theoretical study in this field.

Hundreds of thousands of people have set up more than 5,000 earthquake detecting and forecasting stations and over 45,000 observation posts throughout the country. Together with professionals they keep close watch over the movement of the earth's crust day and night and study the laws governing earthquakes. In this way, they have blazed a trail peculiar to China in studying seismological science and technique.

At present, the technical innovation and scientific experiment mass movements in China are developing on an unprecedentedly large scale. Activities to exchange scientific and technical information and experience on the industrial front have become widespread in Shanghai, Harbin, Peking, Tientsin and 100 other cities. With the setting up of scientific and technical experience exchange centres according to trades, workers pool their ideas on tackling difficult problems and making innovations, exchange experience and popularize new techniques. Their activities have effectively boosted production.

In the countryside, networks for agricultural scientific experiments have been set up on an extensive scale. Improved varieties are now used on all farmland sown to such principal crops as rice, wheat, maize and cotton and they have been constantly renewed. As a result of the popularization in different places of the biological method of using microorganisms and insects to fight insect pests, many plant diseases and pests are now under effective control. Important changes have been made in the cropping system and cultivation techniques. The introduction of a triple-crop system in the south has enabled many communes and brigades to get yields of 15,000 kilogrammes per hectare, while in the north many communes and brigades now bring in two or three harvests a year through intercropping, with a stable per-hectare yield of 7,500 kilogrammes. The Chinghai-Tibet Plateau has had high winter and spring wheat yields over large areas.

Electronics, semi-conductors, fluidic control, silicon control rectifiers, lasers, infrared rays, isotopes, rare earths and other new techniques and materials are being used on an increasingly wide scale in industry and agriculture.

From March to May last year, scientific workers who climbed the Qomolangma Feng together with mountaineers got up to as high as 6,000 to 7,000 metres above sea level after overcoming difficulties and hardships. For the first time in the world, they obtained firsthand information on many disciplines including survey-cartography, geology, altitude physiology and atmospheric physics from their surveys in the Qomolangma Feng area at such altitudes.

China has recovered a man-made earth satellite according to plan. It has made a total synthesis of crystalline bovine insulin and succeeded in determining pig insulin crystal structure. It also has successfully produced synthetic rubber. New advances have been reported in the study of such basic branches of the sciences as geomechanics, molecular biology and theoretical mathematics. All this marks the continuous heading for new levels by China's science and technology.