# TAKE THE ROAD OF THE SHANGHAI MACHINE TOOLS PLANT IN TRAINING TECHNICIANS FROM AMONG THE WORKERS

FOREIGN LANGUAGES PRESS
PEKING

# TAKE THE ROAD OF THE SHANGHAI MACHINE TOOLS PLANT IN TRAINING TECHNICIANS FROM AMONG THE WORKERS

— Two Investigation Reports on the Revolution in Education in Colleges of Science and Engineering

FOREIGN LANGUAGES PRESS
PEKING 1968

## *PUBLISHER'S NOTE*

As China's great proletarian cultural revolution is entering the stage of struggle-criticism-transformation on a nationwide scale, a completely new situation has arisen in the revolution in education. Many reports of investigations in that field which present material of great significance have made their appearance. The present pamphlet includes two such reports which, after examining the facts, point out the road for training engineering and technical personnel under the dictatorship of the proletariat and set forth the fundamental orientation for carrying out the proletarian revolution in education in the colleges of science and technology.

The editors of *Renmin Ribao* (*People's Daily*) and *Hongqi* (*Red Flag*) have respectively written extremely important notes on the two reports of investigations. These editor's notes transmit the great leader Chairman Mao's latest directives on the revolution in education and put forward the various proletarian policies towards intellectuals.

*Printed in the People's Republic of China*

## Quotation from Chairman Mao Tse-tung

**It is still necessary to have universities; here I refer mainly to colleges of science and engineering. However, it is essential to shorten the length of schooling, revolutionize education, put proletarian politics in command and take the road of the Shanghai Machine Tools Plant in training technicians from among the workers. Students should be selected from among workers and peasants with practical experience, and they should return to production after a few years' study.**

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# THE ROAD FOR TRAINING ENGINEERING AND TECHNICAL PERSONNEL INDICATED BY THE SHANGHAI MACHINE TOOLS PLANT

(Report of an Investigation)

*Renmin Ribao* **Editor's Note:** We recommend this investigation report to proletarian revolutionary comrades throughout the land, to the broad masses of workers, poor and lower-middle peasants, students, revolutionary intellectuals and revolutionary cadres. It vividly illustrates the tremendous changes of the great proletarian cultural revolution in a particular sphere, that is, in the ranks of engineering and technical per-

sonnel. It shows the robust vitality of new socialist things. The report is entitled "The Road for Training Engineering and Technical Personnel Indicated by the Shanghai Machine Tools Plant", but at the same time it has also set forth the orientation for the revolution in education in schools and colleges.

In these penetrating words Chairman Mao recently pointed out:

> **It is still necessary to have universities; here I refer mainly to colleges of science and engineering. However, it is essential to shorten the length of schooling, revolutionize education, put proletarian politics in command and take the road of the Shanghai Machine Tools Plant in training technicians from among the workers.**

**Students should be selected from among workers and peasants with practical experience, and they should return to production after a few years' study.**

This great call of Chairman Mao's is our militant programme for carrying the proletarian revolution in education through to the end. It is a task of fundamental importance for hundreds of years to oppose and prevent revisionism. Revolutionary committees at all levels throughout the country and all genuine proletarian revolutionary comrades in factories, schools and on other fronts must resolutely carry out Chairman Mao's proletarian educational line, repudiate the revisionist educational line, smash the old, bourgeois educational system, resolutely take the road in-

dicated by Chairman Mao — the road of integration with the workers, peasants and soldiers, and carry the revolution in education through to the end.

Scientific research institutions and leading organs should also study this report carefully. It is a sharp weapon for further repudiating the counter-revolutionary revisionist line in science and technology pursued by China's Khrushchov.

The immense historic significance of the great proletarian cultural revolution and the far-reaching effects of this revolution in various fields are just beginning to make themselves felt. The great proletarian cultural revolution is bound to create conditions for a new industrial revolution in our country. The great creative force of the masses of the

people will constantly perform miracles which are unimaginable to bourgeois philistines and Right conservatives. We would like to advise those who are short-sighted but who nevertheless are not die-hard capitalist roaders to look a bit further ahead, and to advise those college students who look down upon the workers and peasants and think themselves marvellous to throw off their affected airs so that they can quickly catch up with the hundreds of millions of revolutionary people who are advancing with mighty strides.

## PROFOUND CHANGES BROUGHT ABOUT BY THE GREAT PROLETARIAN CULTURAL REVOLUTION

The Shanghai Machine Tools Plant is a large factory famous for its production of

precision grinding machines. It has a technical force of more than 600 engineers and technicians which is made up of people from three sources: 45 per cent of them are from the ranks of the workers, 50 per cent are post-liberation college graduates and the remainder are old technicians trained before liberation. The tempest of the great proletarian cultural revolution has brought about a profound change in the ranks of the technicians of this plant.

This great revolutionary change manifests itself mainly in the following ways:

First, the proletarian revolutionaries have truly taken into their hands the leadership in the factory, including power over technical matters. The reactionary bourgeois technical "authorities" who formerly controlled the leadership in technical matters have been overthrown. Many technicians of worker origin, revolutionary young technicians and revolutionary cadres are now the masters in scientific research and technical designing. They are prole-

tarian revolutionary fighters with deep class feelings for Chairman Mao and the Communist Party. These revolutionary technicians, once ignored and held back, now continually display their creative power and technical ability. Boundlessly loyal to Chairman Mao's proletarian revolutionary line, they have scaled one technical height after another. In the first half of this year, they successfully trial-produced ten new types of precision grinders, four of which reached advanced international standards. This is without parallel in the history of the plant both in regard to speed and quality of production.

Second, the counter-revolutionary revisionist line pushed by China's Khrushchov in the technical sphere and the reactionary bourgeois world outlook have been sharply criticized. Politically, the reactionary bourgeois technical "authorities" have become infamous, and technically, their incompetence — the incompetence of paper

tigers — has been fully exposed. In the past, the capitalist roaders did their utmost to idolize the reactionary "authorities", urging the young technicians to learn from them, "measure up" to them and "work hard in order to become engineers". The mental outlook of many of the young technicians has now undergone a marked change. They understand that the desire for fame and gain is the root cause of revisionism and that one should not seek bourgeois laurels. Many research workers in the grinder research department used to note down technical information which they regarded as their own private "property". Now they have voluntarily handed this material over to the collective, and it has been put together in the form of reference books, available for use by everyone. All the technicians have volunteered to work in the shops alongside the workers. Together they study and improve designs. While working in the shops, the old technicians pay attention to casting off

their airs of superiority and learning modestly from the workers.

Third, relations between the workers and technicians have changed. The few capitalist roaders and reactionary "authorities" in the plant advocated a "one-to-one" combination, that is, one worker serving one technician. This so-called combination meant "the engineer gives the word and the worker does the job" or "the engineer has the idea and the worker carries it out". This was still the old nonsense of "those who do mental labour rule, while those who work with their hands are ruled". They also advanced the reactionary theory that "workers and technicians should act as a check on each other" and "form a pair of opposites". They put out a set of rules and regulations to control, check and suppress the workers. Every worker was expected to memorize and act on the more than 170 rules in the "Handbook for a Worker in Production". All this further widened the gap

between workers and technicians. During the great cultural revolution, a "three-in-one" combination of workers, revolutionary technicians and revolutionary cadres was introduced in the plant. The rank-and-file workers now take part in designing and the technicians go to operate machines in the first line of production, closely linking theory with practice. As a result, there is a big improvement in the relations between workers and technicians.

## ROAD FOR TRAINING ENGINEERING AND TECHNICAL PERSONNEL

The young technicians (including those around 35 years of age) at the plant come from two sources: college graduates (numbering some 350, of whom one-tenth are post-graduates or graduates of colleges abroad) and technical personnel promoted from among the workers (numbering around 250, a few of them with several

years at secondary technical schools). The facts show that the latter are better than the former. Generally speaking, the former have a great number of backward ideas and are less competent in practical work, while the latter are more advanced ideologically and are more competent in practical work. At present, the overwhelming majority of the technical personnel of worker origin have become the technological backbone of the plant and about one-tenth of them are capable of independently designing high-grade, precision and advanced new products. The chief designers of six of the ten new precision grinding machines successfully trial-produced in the first half of this year are technical personnel of worker origin.

Selecting technical personnel from among the workers is the road for training proletarian engineers and technicians.

Here is an example of a sharp contrast between two technicians of about the same age but with different experiences:

One is a Shanghai college student who, after graduation, spent one year studying a foreign language. Then he went abroad for further study, and four years later, was there granted the academic degree of *kandidat nauk* (Bachelor of Science). In 1962, he went to work as a technician in the laboratory of the grinder research department of the plant. Although he has studied for over 20 years in schools, for quite a long time he has not made any significant achievement in scientific research because his theoretical studies were divorced from practice and he failed to integrate himself well with the workers.

The other is a worker who began as an apprentice at the age of 14. At 18, he was sent to a technical school for machine building in Shanghai where he studied for four years. In 1957, he began to work as a technician in the same research department. In April of this year, with him as the chief designer, a huge surface grinding machine was successfully trial-produced.

The machine is up to advanced international standards and is urgently needed to advance China's industrial technology. It fills in a blank in the country's production of precision grinders.

Before the great cultural revolution, the handful of capitalist roaders in the Party and reactionary technical "authorities" rabidly barred the workers from undertaking designing. Around 1958, a number of workers were promoted to be technicians. But the reactionary "authorities" in the plant one after another removed quite a number of them from the designing department on all sorts of pretexts. Nevertheless, technical personnel of worker origin broke through one obstacle after another and demonstrated their rich resourcefulness and creative power. Of the new products designed and successfully trial-produced by the plant since 1958, those successfully trial-produced by technical personnel of worker origin and by young technicians in co-operation with the workers accounted

for about 60 per cent in 1958, about 70 per cent in 1959, and about 80 per cent in 1960. In the years following 1960, especially since the start of the great proletarian cultural revolution, nearly all the new products were designed and successfully trial-produced by them. Quite a number of these new products are up to advanced international standards. For instance, the universal cylindrical grinding machine for mirror surface grinding, the high-centre cylindrical grinding machine and other major products were all designed and successfully trial-produced by technical personnel of worker origin.

Some young technicians who are college graduates, gradually freeing themselves of the influence of the revisionist educational line, have thrown off their affected airs and are integrating themselves with the workers. After some time of practice, they have also made fairly noteworthy contributions in designing and trial-producing new products. Take a certain 1964 college

graduate for example. When he came to the plant, he pored all day long over a foreign book on the thread grinding machine. (We do not mean to say that it is unnecessary to read foreign books.) Proceeding from theory to theory, he did not create anything in his work for several years. During the great cultural revolution, his class consciousness and his understanding of the struggle between the proletarian revolutionary line and the bourgeois reactionary line have been raised. He firmly resolved to take the road of integrating himself with the workers. Early this year, together with two workers-turned-technicians and a veteran worker, he succeeded in trial-producing an important electrical device needed for grinders.

Why do technicians of worker origin develop more quickly and make greater contributions?

The most important reason is that they have profound proletarian feelings for Chairman Mao and the Party and, in their

advance along the road of science and technology, they seek neither fame nor gain, and defy all danger and difficulty to reach their objective. They always bear in mind the teachings of Chairman Mao and strive to overtake the imperialists, revisionists and reactionaries in speed of advance and quality. They always look for ways to economize for the state and arrange things to suit the convenience of the workers. However, some young intellectuals who had been poisoned by the revisionist educational line were for a long time divorced from the shops and the workers, chased bourgeois fame and gain and as a result achieved nothing. In his desire to win fame and become an expert overnight and surprise people, one technician did work on more than 60 subjects during the past decade and more, hopping from one new project to another, but he did not carry a single one to success and wasted much state money into the bargain. In the hope of winning fame, a 1956 college

graduate experimented with grinding heads all by himself and ruined more than 30. Later, he learnt from veteran workers and with their help succeeded. With deep understanding he said: "I suffered from making the grinding head behind closed doors and I succeeded in making it by integrating with the workers. After all, I must 'grind' my own head before I can make a good grinding head."

The contrast between technicians of worker origin and the old bourgeois intellectuals who are eaten up with the desire for personal fame and gain is even more striking. One bourgeois "expert" spent eight years trying to design a grinder and wasted a large amount of state funds, without success; but he accumulated considerable "data" as capital for his own reputation and gain. The workers say: How can we expect persons like him to have the slightest feeling for our new society?

Chairman Mao says: **"The fighters with the most practical experience are the wisest and the most capable."** In their long period of work in the shops, the technicians of worker origin accumulate rich practical experience. Having studied for a few years in spare-time general or technical schools, they closely link the theory they have learnt with their practical experience, thus a leap is achieved in their knowledge and soon they are able to do scientific research work and independent designing. This is a very important reason for their rapid maturing. When they study, they have specific problems in mind, therefore, they can learn and understand quickly and apply what they learn. One technician of worker origin drew on his rich practical experience and solved complicated technological problems in making a certain product. As he did the experiments, he studied the principles of metal cutting. He was soon able to raise his practical experience to the level of theory and advanced

some original views on the technology of metal cutting.

Before they integrate themselves with the workers, college-trained technicians are lacking in practical experience. Their book knowledge is divorced from practice. Therefore they are scarcely able to achieve anything. Once a few college-trained technicians deficient in practical experience designed an internal thread grinding machine. The workers followed their blueprints in making the parts, but they could not be assembled. Later, some workers with rich practical experience had to reprocess some of the parts before it was possible to assemble the machine.

The combination of the revolutionary spirit of daring to think, to act and to make a break-through with a strict scientific attitude is an essential prerequisite for engineering and technical personnel in scaling the heights of science and technology. Whether or not they are able to achieve this combination is, in its turn,

closely connected with their world outlook as well as their practical experience. Many technicians of worker origin, free from the spiritual fetters of working for personal fame or gain and rich in practical experience, dare to do away with fetishes and superstitions and break through all unnecessary restrictions and are the least conservative in their thinking. Take, for instance, the recently successfully trial-produced precision grinder which has reached advanced international standards. Because the technicians of worker origin courageously broke through long-standing restrictions, they cut the time needed to make the prototype from the usual 18 months to six. The surface finish was advanced four grades, and the number of parts and the total weight were both reduced by one-third. It cost only 15.5 per cent of the price of an imported precision grinder of the same type. Some technicians trained in schools do not pay attention to their own ideological remoulding.

They are prone to be concerned with personal gains and losses, and fear to lose face and "prestige". Besides, because they have accommodated themselves to many regulations and restrictions, it is not easy for them to do away with fetishes and superstitions and evolve new technologies. Some of them say: "The more books one reads, the heavier the yoke becomes. And, as a result, one scarcely has any go left in him."

If faced with a choice between graduates from colleges and graduates from secondary technical schools, the workers in the Shanghai Machine Tools Plant prefer the latter because they, though with less book knowledge, are less conceited, have more practical experience and are less bound by foreign conventions. Quite a number of students in this category have made much more rapid progress than students from colleges. For example, the current designing of two highly efficient automatic production lines is led by a couple of 1956

graduates from secondary technical schools.

## THE ORIENTATION FOR EDUCATIONAL REVOLUTION INDICATED BY THE PLANT

An analysis of the different types of engineering and technical personnel at the Shanghai Machine Tools Plant and the roads they have travelled shows us the orientation for the revolution in education.

From practical experience, the veteran workers and many of the young technical personnel of the plant have come to realize more deeply the unparalleled wisdom and correctness of Chairman Mao's teaching: **"The domination of our schools by bourgeois intellectuals should by no means be allowed to continue."** They find that the carrying out of the proletarian revolution in education in accordance with Chairman Mao's thinking on education is a matter of great importance which brooks no delay.

Chairman Mao's series of instructions on the revolution in education have shown us the way forward. The question now is to act unswervingly and faithfully in line with Chairman Mao's teachings.

In accordance with Chairman Mao's thinking on education and in view of the actual conditions in the plant, the workers and technical personnel put forward the following opinions and ideas in respect to the revolution in education:

First, schools must train up **"workers with both socialist consciousness and culture"** as pointed out by Chairman Mao and not "intellectual aristocrats" who are divorced from proletarian politics, from the worker and peasant masses and from production, as the revisionist educational line produced. This is a cardinal question which concerns whether or not revisionism will emerge. Comrades at the Shanghai Machine Tools Plant are of the opinion that the past practice of college graduates working as cadres in factories or in the

countryside right after their graduation was irrational. Integrating themselves with the workers and peasants and participating in productive labour is the essential way for young students to remould their world outlook and gain practical technical knowledge. Therefore, the comrades propose that college graduates should first take part in manual labour in factories or in the countryside and work as ordinary labourers. They should get "qualification certificates" from the workers and peasants, and then, according to the needs of the practical struggle, some may take up technical work while participating in labour for a certain amount of time. The others will remain workers or peasants.

Second, school education must be combined with productive labour. Chairman Mao teaches: **"Our chief method is to learn warfare through warfare."** As was seen from the case of some technical personnel at the Shanghai Machine Tools Plant, one serious drawback of the old educational

system was that theory was divorced from practice and unnecessary complexity was the rule so that the students became bookworms and the more they read the more foolish they became. Only by going to practice, can one grasp theory quickly, understand it profoundly and apply it creatively. Workers and technical personnel at this plant suggest that schools should have experienced workers as teachers and let workers appear on the classroom platform. Some courses can be given by workers in the workshops. There was a young technician who worked in a research institute right after he had graduated from college. All day long he immersed himself in books, digging deep into theory and learning foreign languages. Since he was divorced from practice he felt more and more frustrated. In the initial stage of the great cultural revolution, he went to learn from some veteran workers with rich experience in the machine tools plant where he did practical

work. As a result, things became quite different. Recently he and some workers made a significant creation in the field of mirror surface grinding. His understanding is particularly deep of the fact that he must have the workers as his teachers.

Third, as to the source of engineering and technical personnel, they maintain that, apart from continuing to promote technical personnel from among the workers, junior and senior middle school graduates who are good politically and ideologically and have two to three or four to five years of practical experience in production should be picked from grass-roots units and sent to colleges to study. All conditions now exist for this to be done. Take the Shanghai Machine Tools Plant for example. Most of its workers have acquired an educational level equivalent to or above junior middle school education. The advantages in selecting such young people to go to college are as follows: first, they have a fairly solid political

and ideological foundation; second, they have a certain competence in practical work and are experienced in productive labour; and third, junior and senior middle school graduates, averaging about 20 years of age after taking part in labour for a few years, would be able to work independently at the age of 23 to 24 after finishing another few years of higher education. But as it is now, after being assigned to their work posts, college graduates generally have to undertake two to three years of practical work before they are gradually able to work independently. Therefore, the selection of young intellectuals with practical experience for college training is in conformity with the principle of achieving greater, faster, better and more economical results.

Fourth, on the question of reforming the present technical force in factories and raising its level, they point out that large numbers of school-trained technical personnel have for a long time been poisoned

by the revisionist educational line and the revisionist line in running enterprises. There is also a group of technical personnel trained before liberation. Though some of them are patriotic and hard-working, do not oppose the Party and socialism and maintain no illicit relations with any foreign country, they have many problems in their world outlook and style of work. Factories should hold aloft the great revolutionary banner of criticism in line with Mao Tse-tung's thought and organize them to participate actively in revolutionary mass criticism and repudiation in accordance with the policies laid down in the Decision of the Central Committee of the Chinese Communist Party Concerning the Great Proletarian Cultural Revolution. This will enable them to repudiate thoroughly the fallacies that "experts should run the factories" and "technique comes first" as well as the philosophies of "going-slow" and of "servility to things foreign" which China's

Khrushchov trumpeted. It will also enable them thoroughly to repudiate bourgeois ideas of chasing after fame and fortune. Factories should, at the same time, help them take the road of integrating themselves with the workers and linking theory with practice by organizing now one group of them, now another, to work as rank-and-file workers, or by arranging more time for them to work in the workshops.

(Written by *Wenhui Bao* and Hsinhua correspondents and originally published in *Renmin Ribao* on July 22, 1968)

# THE REVOLUTION IN EDUCATION IN COLLEGES OF SCIENCE AND ENGINEERING AS REFLECTED IN THE STRUGGLE BETWEEN THE TWO LINES AT THE SHANGHAI INSTITUTE OF MECHANICAL ENGINEERING

(Report of an Investigation)

*Hongqi* **Editor's Note:** This is another investigation report from Shanghai, now published for reference. What is the situation as regards the engineering and technical personnel in factories in our big, medium-sized and small industrial cities throughout the country? How

is the revolution in education going in the colleges and secondary schools of science and engineering? We hope that the revolutionary committees in all parts of the country will send out people to take some typical cases for investigation and report the results to the Party Central Committee. This journal will select significant reports for publication. Here we wish to raise the question of giving attention to re-educating the large numbers of college and secondary school graduates who started work quite some time ago as well as those who have just begun to work, so that they will integrate themselves with the workers and peasants. There must be some who have done well in integrating themselves and have made inventions or innovations. These people should

be publicized in order to encourage them and others. Those who are really impossible, that is, the die-hard capitalist roaders and bourgeois technical authorities who have incurred the extreme wrath of the masses and therefore must be overthrown, are very few in number. Even they should be given a way out. It is not the policy of the proletariat to deny people a way out. The above-mentioned policies should be applied to both new and old intellectuals, whether working in the arts or sciences.

## IT IS GOOD TO SELECT STUDENTS FROM AMONG WORKERS AND PEASANTS WITH PRACTICAL EXPERIENCE

In the investigation report, "The Road for Training Engineering and Technical

Personnel Indicated by the Shanghai Machine Tools Plant", mention is made of the Shanghai Technical School for Machine-Building, predecessor of the present Shanghai Institute of Mechanical Engineering. The school was founded in 1952 directly under the First Ministry of Machine-Building of the Central People's Government. Later in making it part of the "regular school system" it was transformed into an institute of mechanical engineering. The changes in this school provide much food for thought.

When the school was founded it admitted 2,181 entrants who were all workers, peasants or cadres in rural grass-roots units to be trained as technicians from among the working people to meet the needs of the nation's large-scale economic construction. These worker and peasant students had been steeled in the class struggle during the *san fan* and *wu fan*

campaigns[1] and the land reform and had some practical experience in production. Selected from among workers and peasants with practical experience, these students showed the following merits:

First, the worker and peasant students studied for a definite purpose. They said: "The bourgeois intellectuals yell at us: 'The workers and peasants don't know very much. They haven't learnt their ABC, so how can they learn designing?' We must follow Chairman Mao's teachings. The working people must be the masters of science and culture." After they came

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[1] These were mass struggles launched in 1952 under the leadership of the Chinese Communist Party. The *san fan* was against corruption, waste and bureaucracy among government workers. The *wu fan* was launched among capitalist industrialists and merchants against bribery of government workers, tax evasion, theft of state property, cheating on government contracts and stealing economic information from government sources.

to the school, these worker and peasant students put forward fighting slogans, "Be a credit to Chairman Mao" and "Do not let a single class brother drop out." On their own initiative, they organized mutual-help teams and instituted a system of student-teachers. Each team consisted of three students. The one who knew most would teach the other two, and they all helped and learnt from one another. For instance, many students found it difficult to memorize the symbols for the elements in the chemistry course so they composed songs about the chemical elements which made memorizing easy.

Second, the worker and peasant students have a high class consciousness and dare to look down on bourgeois intellectuals and bourgeois academic "authorities". There was a teacher in the school who had returned from Germany with a "doctorate" in electricity. The teachers who blindly worshipped things foreign set him up as an idol. When this "doctor" came to lec-

ture on electricity, bringing a pile of thick volumes with him, he merely echoed what the books said. The worker and peasant students did not want to listen to things far removed from actual production. They asked him two questions about motors, practical questions which had arisen in production, and he was stumped. To save face, he beat about the bush and tried to sidetrack the students with a rigmarole of "theory" which no one could follow. But the students would not let go. They pressed for answers. The "doctor" mumbled in reply: "I really haven't read any technical journals for more than ten years!" Later, the worker and peasant students chased this "big noise" off the lecture platform.

Third, they attacked the old educational system, the content of the lectures and teaching methods. These remained as they had been. In the main, power was in the hands of the bourgeois intellectuals. However, as the workers and peasants

made up more than 90 per cent of the student body, teaching staff and workers at the school, this numerical superiority overwhelmed the bourgeois intellectuals and the old educational system was kept under constant fire. To keep the worker and peasant students in check, the school authorities then introduced a system of establishing a teacher in charge of each class. The worker and peasant students resisted and the system existed in name only. On the other hand, the students' Party and Youth League branches and the student council enjoyed supreme authority. For one mid-term examination in mathematics, the bourgeois intellectuals gave difficult, catch questions so that nearly half of the more than 2,000 students in the school failed to get the passing mark. The worker and peasant students were furious. Each class sent representatives to argue the matter out at the dean's office and the school authorities were compelled to declare the examination null and void.

Fourth, the object of the worker and peasant students was to apply in production what they learnt. When they went from the school to do practical work in a factory in Wusih, Kiangsu Province, they immediately put on greasy overalls and worked alongside the workers, discussing with them technical problems in production. The students quickly applied to production the theoretical knowledge they had acquired and made over 120 proposals for technical innovations in the factory. Over 30 of these were immediately adopted by the factory. In contrast, a group of students from a certain college in Shanghai, who were also doing practical work in the factory at the time, spent all day jotting down technical processes and regulations in their notebooks wherever they went and did nothing original. The factory workers said: "The worker students pull their weight and make good use of what they have learnt." After these students graduated and went to production

units, they were credited with many inventions and innovations. Comrade Wang Teh-fa of the Shanghai Machine Tools Plant, who was in charge of the designing of a huge surface grinding machine, which is up to advanced international standards, is a graduate of the institute. The worker technician who had made the fourth important technical innovation on the liquid-pressure gear box for the precision grinding machine at the Shanghai Machine Tools Plant is also a graduate of the institute. The person responsible for trial-producing China's first electron microscope with a magnification of 200,000 times is also a graduate of the institute's worker-peasant class.

## A SHARP STRUGGLE BETWEEN THE TWO LINES

Choosing students from among workers and peasants with practical experience and training working-class intellectuals hit at

the heart of the revisionist educational line of China's Khrushchov. For the last ten years or so, a life-and-death struggle on the question of how to treat the worker and peasant students has been going on on the educational front, between the two classes, the two roads and the two lines.

When the first group of worker and peasant students entered the school in 1952, the working class of Shanghai was highly pleased. They said: "We workers should not only become the masters in political life but also in science and technology. We want intellectuals of the working class to be trained." At that time, the factories gave farewell parties for workers going to the school. They beat drums and gongs and pinned big red flowers on them with the same pride they show when they send youths off to join the army.

However, the handful of capitalist roaders and bourgeois intellectuals in the school cried: "This is terrible." "It is in-

conceivable for things to be done this way." They outrageously said: "The worker and peasant students are stupid. They are hard to teach because of their different levels." "The worker and peasant students are always critical and don't respect their teachers." "It isn't worthwhile training worker and peasant students," and so on. Taking advantage of their control over education, they flagrantly pushed the revisionist educational line of China's Khrushchov and exercised the dictatorship of the bourgeoisie over the worker and peasant students.

These capitalist roaders tried in every way to oppose and restrict the admission of workers and peasants. The institute took in students from among the workers and peasants, including the 2,181 enrolled in 1952, on only three occasions. The handful of capitalist roaders and bourgeois intellectuals regarded them as a "burden". In a report summing up the work, written in March 1955, they attacked and slandered

the worker and peasant students in a hundred and one ways. A policy of a "drastic reduction" was adopted, and only 173 worker and peasant students were accepted that year. Under the pretext "equal opportunity to everyone according to results in the entrance examination", the institute in 1960 practically shut its doors to the sons of workers and peasants and opened its doors wide to sons of the bourgeoisie. As a result, only 17 worker and peasant students were admitted. From then on, it became as difficult for workers and peasants with practical experience to enter the institute as it is to climb to the stars.

In the course of teaching, the capitalist roaders and bourgeois intellectuals tripped up, attacked and persecuted the worker and peasant students. For example, technical drawing is easy for engineering workers. But the bourgeois lords insisted that worker and peasant students learn projective geometry first and tried to trip

them up by such terms as "intersecting bodies" and "the curve of intersection". In this way, more than 40 of the 170-odd worker and peasant students failed in an examination in 1957 and remained in the same grade. The bourgeois lords racked their brains to mark down the work done by a student who was a grade five (middle grade) engineering worker and labour hero from Hunan Province. He was given 59, one point below the passing mark, and they insisted that he stay back in the same grade another year. The worker and peasant students said: "The marking system is a handicap to workers and peasants and helps restore capitalism." Suffering under the bourgeois examination system, 14 of the 17 worker and peasant students accepted in 1960 were forced to leave. They left with intense hatred for the revisionist educational system. A fine worker from the Shanghai No. 3 Printing House who studied in the institute only a year and a half was forced to remain in the same

grade because he failed in examinations in physical culture, foreign language and physics. Later he had to leave. He went to the institute leadership to criticize the system of promoting or holding back students. The capitalist roaders viciously replied: "Under this system, everyone is equal and no exceptions can be made for worker and peasant students." But they used many tricks to promote a young student of bourgeois origin to a higher grade, although he had failed to pass five subjects.

Guided by the brilliant light of Chairman Mao's thinking on revolutionizing education, the revolutionary teachers and students of the institute in 1958 launched a fierce attack on the revisionist line in education. Many new revolutionary things emerged in the institute, such as workers giving lectures, teaching on the basis of a three-in-one combination of workers, teachers and students, and the school running a factory. Comrade Kang Sheng

made an inspection of the institute on November 12 of that year. He stressed that workers should take the lecture platform. They were the forces that could really be relied on in the schools; it was they who had the true ability. Some of the college graduates could talk very well but could do nothing. Comrade Ko Ching-shih also gave important instructions that year on training technicians from among the workers. He gave the instruction that workers be selected to do advanced scientific research. These instructions greatly raised the morale of the worker and peasant students. However, in the upsurge of the vigorous educational revolution, Chen Pi-hsien, an agent of China's Khrushchov in Shanghai, went to the institute and gave all kinds of poisonous orders, backing up the capitalist roaders and bourgeois intellectuals of the institute and encouraging them to reject the important instructions from the proletarian headquarters headed by Chairman Mao. They forbade

workers to take the lecture platform, but permitted the bourgeois intellectuals to go on exercising dictatorship over worker and peasant students. They blatantly countered Comrade Ko Ching-shih's instruction on selecting students from among workers and peasants who were good both politically and vocationally to take part in scientific research and arbitrarily withdrew 10 of 30 such students chosen. Among the 21 worker students who were either Party or Youth League members and who stayed on at the institute after graduation in 1959, only one became a teacher; the great majority of them were sent to the factory attached to the institute to become workers. Li Fu-hsing, a Party member, was a grade five worker before going to the institute. But after four years of study, he was assigned to work as a helper in the technological laboratory. It was said that he was not qualified to be a lab assistant, to say nothing of taking the lecture platform.

At the same time, cadres of worker and peasant origin were squeezed out. There were 44 worker and peasant graduates of 1956 working in the institute and most of them were Communist Party members; 29 were later thrown out of the institute. The capitalist roaders said to cadres of worker and peasant origin who worked in the institute as political instructors after graduation: "You graduates of secondary vocational schools are useless; only university graduates are capable of working as instructors to university students."

They also mechanically copied the Soviet revisionist educational system in an attempt to push the worker and peasant students into the quagmire of revisionism. In order to borrow the stock of wares of Soviet revisionism in its entirety, they began inviting a number of foreign experts to the institute in 1954. In accordance with the sinister instruction of China's Khrushchov, "don't consider the results before you've copied the whole lot", they

copied the whole Soviet revisionist system, from special course arrangements, training goals, teaching plans, syllabuses, text books, teaching methods and teaching organization to rules and regulations, including what was called "six links", "seven kinds of plans", "twenty-four kinds of graphs", "the system of promoting or holding back students", etc. A glaring example is the physical training course. In imitation of the Soviet Union, they made ball-room dancing a vogue in a stubborn effort to drive the worker and peasant students on to the road to revisionism.

Meanwhile, closely following the orders of their evil master Lu Ting-yi, they raised the slogan, "learn from Chiaotung University and overtake the Harbin Engineering Institute", borrowed from the capitalist and revisionist "tradition of running schools", and put stress on the "high-grade, high-precision and advanced" and the "big, foreign and all-inclusive", aiming to train the students to become bourgeois

engineers and designers divorced from proletarian politics, from the worker-peasant masses and from production. In the name of seeking "to do everything on a big scale and to be all-inclusive and up to date", these elements set up massive, overlapping and bureaucratic organizations and systems. The number of students remained something over two thousand, but the apparatus grew from only two departments and two offices in 1952 to seven departments, two offices and 22 teaching research groups in 1960; the number of teachers, staff and workers rose sharply from something over 300 to more than 800; the total amount spent on teaching equipment shot up from one million yuan to more than eight million yuan. During the revolution in education in 1958, the factory attached to the institute served teaching and industrial and agricultural production; but afterwards, it was put under capitalist management and profits were put in command, so that it became

a source of income for the capitalist roaders' extravagance to waste.

## HOW TO TAKE THE ROAD SHOWN BY THE SHANGHAI MACHINE TOOLS PLANT

The sharp struggle between the two classes, the two roads and the two lines which was waged in the Shanghai Institute of Mechanical Engineering since its inception, was a struggle in which the bourgeoisie tried to stage a come-back and the proletariat opposed this. The central question in the struggle was one of political power.

Recently, after summing up the positive and negative experiences since the establishment of the institute, some engineering and technical personnel of the Shanghai Machine Tools Plant who graduated from the institute, workers in the factory attached to it and revolutionary teachers and students gave the following views and

concepts concerning the revolution in education in colleges of science and engineering:

(1) Chairman Mao recently pointed out:

> **It is still necessary to have universities; here I refer mainly to colleges of science and engineering. However, it is essential to shorten the length of schooling, revolutionize education, put proletarian politics in command and take the road of the Shanghai Machine Tools Plant in training technicians from among the workers. Students should be selected from among workers and peasants with practical experience, and they should return to production after a few years' study.**

This latest instruction of Chairman Mao's sets forth the basic orientation for colleges of science and engineering in carrying out the proletarian revolution in education. These colleges must solve the problem of which class will exercise leadership, before

they can take the road of the Shanghai Machine Tools Plant. This refers, first of all, to power in the political and organizational fields. Chairman Mao's sending of members of the working class to the colleges and universities to occupy the education front is the crucial guarantee that the working class will always retain in its hands the leadership of the colleges and universities whose doors will always remain open to workers and peasants with practical experience. Why did the Shanghai Institute of Mechanical Engineering, which at first took in students from among workers and peasants with practical experience, close its doors to them later on? The reason is that the problem of "power" had not been solved. We must draw a lesson from this. Secondly, there is the question of "power" in the ideological field. If the education front is not occupied by Mao Tse-tung's thought, it is bound to be submerged by bourgeois ideology. The lesson to be drawn from the fact that the

handful of capitalist roaders in the Party organization of the Shanghai Institute of Mechanical Engineering for a long time exercised the dictatorship of the bourgeoisie over the worker and peasant students shows that the mass revolutionary criticism and repudiation of the revisionist educational line must be deepened and the crimes committed by the bourgeois intellectuals in ruling the schools must be criticized, as must the anti-proletarian idea of looking down on the workers and peasants and belittling practice, and the bourgeois notions of seeking personal fame and gains. Mao Tse-tung's thought must be established in the dominant position in the schools, or the educational position will be lost again.

(2) The length of schooling in colleges of science and engineering should preferably be two to three years. In the arrangement of courses, their former division into foundation subjects and basic technical and specialized courses must be

done away with. These three can be integrated into an organic whole through the study of a typical machine and typical parts in the actual production process. Empty theorizing divorced from production and unnecessary complexity must be thoroughly eliminated. As far as the content of teaching is concerned the principle that the courses should be fewer and better must be followed, so that the essence can be grasped and content fully mastered. On-the-spot teaching should be developed extensively for education to be combined with productive labour. After being transformed the colleges of science and engineering will be not only schools but also factories and scientific research units. Students should have in mind the diverse and difficult problems they have encountered in the course of production. Production departments and scientific research units should propose topics to the colleges from an educational point of view and in a planned and purposeful way, so as to

help the students concentrate on improving their analytical powers and ability in solving problems in the course of production, study and research, thus making education serve productive labour.

(3) Colleges of science and engineering should also undertake the task of successfully giving spare-time technical education. The principle should be co-operation between factories and colleges — courses should be run by factories with the aid of the colleges. This is yet another important road for persisting in the mass line to train large numbers of engineering and technical personnel of the working class. In line with the needs of the proletarian industrial revolution and proceeding from the reality of production, the teaching principle of "running whatever schools are needed, learning whatever actual work calls for and providing whatever is wanting" should be adopted in running well a large number of spare-time technical

schools and short-term training classes of all types.

(4) A contingent of proletarian teachers must be formed. The present ranks of teachers are unable to educate worker and peasant students with practical experience and, therefore, must be rectified, transformed and reconstituted. In the future, the ranks of teachers should be a "three-in-one" combination, comprising workers with a high proletarian political consciousness and practical experience, worker and peasant students with practical experience and revolutionary intellectuals. The vast numbers of workers and technicians who have made inventions or innovations should go to the colleges, periodically and in a planned way, to give lectures. The workers who undertake the work of teaching may either be full-time or part-time teachers, but the great majority should be part-time. The main role of the full-time teachers should be to arrange an organic link among the colleges, factories and

scientific research units, and to help the students raise their practical knowledge to theory and then apply it in practice. The students may go to the lecture platform to exchange the practical experience they have. The present teachers should go among the workers and peasants in groups one after another and take the road of integrating themselves with the workers and peasants.

(Originally published in *Hongqi*, No. 3, 1968)

# 走上海机床厂从工人中培养技术人员的道路

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外文出版社出版（北京）
1968年袖珍本第一版
编号：（英）3050—1830
00015
3—E—877Pc