

ECONOMIC GROWTH OF COMMUNIST CHINA

6 April 1960

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NOTICE

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COLONEL KLEIN: Gentlemen, in this current unit of study that we are engaged in at the moment, of course one of the most important areas that we want to focus our attention on is Communist China.

It's very difficult to get information on this country, particularly economic information. We are very fortunate, however, in having a very versatile troop in the other division, the Extension Division of the school, who comes from the Seminar Branch.

It's with a great deal of pleasure that I present to you again for his second appearance to this class Colonel Wilfred J. Smith, of the Seminar Branch, Extension Division.

COLONEL SMITH: Thank you, Colonel Klein.

General Mundy, Gentlemen, Fellow Students: An ancient Chinese philosopher once gave some words of wisdom, which I'd like to give you this morning in the original. He said: "Bu shang kao shan - bu kan ping ti." Literally translated, it means: "If you don't climb the mountain, you'll never see the plain."

Now, in order to have a full appreciation of the subject of this morning, I assure you that the 45 minutes which is my speaking time is totally inadequate to do justice to the problem in its entirety. I think that we will have to gain perspective and altitude--altitude probably much in excess of that of Mt. Everest--in order to see the salient points and note the features of China's economic development under the Communist regime.

Gentlemen, I am very privileged this morning and pleased that I may be your conductor on the first overseas field trip undertaken by the Industrial College. Through the courtesy of the Strategic Space Command, I have available this morning a vehicle which will include all of us, as we take a trip to Red China.

Now, I'd like to brief you for just a few minutes as our motors are warming up, on what we intend to do and how you will see the problem this morning.

Actually, on takeoff you'll feel no sensation. During the course of your trip I hope that you do not become nauseated. You may become slightly sleepy, which will be my fault. Demosthenes once said that there are three principal ingredients in a speech. The first one is action, the second one is action, and the third one is action. So this morning we'll be full of action and animation as we take this trip.

Now, we will travel at a speed just under infinity, at an altitude which will be high enough so that any MIG's 21 which the Red Chinese have will not be able to exceed their service ceiling and attack us.

Looking at Red China this morning, I'd like to indicate that we can't appreciate the present unless we have some understanding of the past. And the fact that Red China has developed any economic potential, that she has made the strides which she has made, is a phenomenon of history. Actually, just a few short years ago, within the lifetime of many of us living today, China was purely an agrarian country. While the rest of the world was undergoing the great industrial revolution, China slept; and while she slept, she kept within her territory in the subsoil of her country's rich reserves, which we'll talk about, of minerals and other materials which gave China an impetus and which are giving her an impetus today toward the path of rapid industrialization.

In 1875, China developed its first railroad, six miles long, from Shanghai to the nearby port of Woosung, on the ocean. Now, this railway ran a six-car train twice a day. However, it was not long in operation before the Chinese Government purchased the railroad equipment, tore it up from its roadbed, and shipped the locomotive and the cars and the rails to Formosa, where they were allowed to rust. The Chinese felt that the development of a railroad would be a violation of the religious beliefs of the people; and the superstition-ridden Chinese did not want to interfere with nature to develop mining enterprises or any other form of industry.

For example, you have all noticed the contours of mountains. According to the Chinese belief, dragons slept in those hills, and the serpentine folds of the mountains took on the form of the dragon nature sleeping there.

My father, as a young man in China, was called in by one of the most enlightened leaders of our province and consulted as to whether or not a tunnel could be built through a mountain because he was afraid of

the superstition and the fear and the hatred which would be generated among the populace. Actually the gentleman developed a carbuncle on his neck; and as long as that carbuncle was on that Chinese gentleman's neck--he was the provincial governor--all work ceased. My father was able to lance the carbuncle, and work continued.

When I was about 18 years of age, I had an experience which I still find amusing. We had been hunting ducks, and we pulled up our little motorboat alongside a river bank near Nanking. And while we were there, numerous Chinese from the village came down with the curiosity which is typical in Orientals and wanted to see this strange device--a boat which moved without oars and without sail.

In that group of villagers was a sophisticated young man. He had traveled 200 miles from his native village and at one time had been in Shanghai. So he was the scientific, research-and-development type for the village. And he explained in my presence, and to my amusement, how this machine operated. He pointed to the gas tank and he said: "Now, in that gas tank there is a little devil; and this devil operating in there works hard and is very strong if he gets wine to drink. And in that can over there you have a noxious-smelling substance which, if poured through that hole, is available to the devil, and he literally drinks it and goes 'chug, chug, chug.' Now," he said, "devils, like men, are temperamental, and sometimes the little devil quits. Then," he said, "you ought to hear the foreign devils. These foreign devils"--yang kwei-tsze--"they really talk to that devil. They say things very vehemently, and they twist his neck with a rope and say more things, and occasionally he starts and he starts going 'chug, chug, chug' again." Now, this was an explanation which I heard with my own ears of the workings of an internal combustion engine. This was China just a few short years ago, when I was a lad of 18.

China has made remarkable progress, however, since that time. Let's look at China.

China is the third largest nation in territory in the world today, smaller only than the Soviet Union and Canada. China is territorially just a fraction smaller than Canada, with 3,757,000-odd square miles in its territory.

China has a frontier on the ocean of 3,300 miles. She has another frontier of approximately 6,000 miles, of which over 3,000 is right along the Soviet border, and over 2,000 along the border of the Mongolian People's Republic. China therefore is a large nation territorially.

China is a tremendous nation in terms of population potential. Today I talk of 650 million Chinese. Last week I heard an authoritative speaker use the figure 685 million Chinese. Regardless of which figure you wish to adopt, the Chinese population today is exploding at a terrific rate. An increase from 14 to 15 million Chinese per year adds to pressure upon the agricultural land and upon the resources of the country. This amounts to about 41,000 additional population per day in China.

Now, China's population is not only large--it is also comparatively young. China's population, which is more than three times the size of ours, has in the age groups from 20 to 24 years of age five times as many people as we have in that age bracket. So the Chinese population is a young population; and this population increase of 14 million a year may continue for many years, at least another decade, before it begins to level off to any appreciable degree.

Looking at China's population, we can estimate statistically that by the year 1980 she will have a population of over 1 billion people--which will be the first time in the history of the world that any single political unit contains such an enormous contingent of humans within its boundaries.

Looking next at China's resources, we find that for economic expansion it's necessary to have people; it's necessary to have raw materials; it's necessary to have the machinery, industrial plant, to process the raw materials; and it's necessary to have a qualitative growth in your population capable of bringing about scientific advances through education. First let's look for a minute at the raw materials.

As I said a few minutes ago, while the rest of the world was using up raw materials at a terrific rate during the great industrial revolution, China was husbanding hers. In fact, it wasn't until the 1870's that any comprehensive survey of China's resources was made. The great German Baron von Richtofen estimated that China had an industrial potential based on the diversity and the sufficiency of the raw materials which she had. Richtofen, in 1870, did not have the agreement of most of the geologists of his time, who felt that China was deficient in important mineral deposits which were to be discovered many years later.

Now, it is estimated that China has the fourth largest coal reserve of any country in the world. Chinese coal reserve figures vary considerably with estimates ranging from 285 billion metric tons to 445 billion tons. That's a lot of coal whether you accept the low or the high figure.

As far as iron ore is concerned, China is not so fortunate. Her iron ore reserves, proven to date, would probably not last more than a decade or two in terms of American utilization of iron ore for steel. However, Chinese Communist prospecting teams are almost daily uncovering various types of deposits of iron ore, of richness ranging from rather poor to rather rich ores.

China is the world's leading producer and has the largest reserves of both antimony and tungsten.

Take the rest of the nonferrous metals. China is relatively self-sufficient in all of the important industrial metals, with the single exception possibly of copper; and the copper reserves are rapidly building up, because last year China made a sizable export shipment of copper to the Soviet Union.

China is relatively fortunate in terms of the dispersal of her reserves. They are not all concentrated, as originally thought, in Manchuria. They are located all over the country, and the distribution pattern is relatively favorable for the development of modern large-scale industries.

Now, looking at the development of China's industry, let's look at the current picture in terms of what China had at the beginning of the Communist regime in October of 1949. At that time, China's industrial development was usually within 100 miles of tidewater. Most of the industry was concentrated along the coast in what were known formerly as the treaty ports.

China had its first industrial plant established as late as 1888, a new textile plant. And most of Chinese industry before World War II was light industry, with a tremendous percentage represented by textiles, and a large percentage concerned with the manufacture of cigarettes and other tobacco products. But the textile industry was by far and away the most important.

Actually at that time you would have been foolish if you had purchased an electric light bulb, because Chinese industry, in developing such simple things as electric light bulbs, was just not capable of producing anything of outstanding quality.

Now, in 1949, when the Communists took over, one of the first things which Mao Tse-tung and his entourage decided was that China

would take care of its agrarian problems, would redistribute the land; and from 1949 to 1952 the Chinese peasant had it very good indeed.

In 1953 the Communists felt that the land distribution program had gone too far; and the individual peasants were coerced or persuaded to give up their land for formation into collectives. And about 1954 there were 750,000 government collective farm units in Red China.

So much for the agrarian problem at this time.

The next problem which Mao Tse-tung faced was the establishment of industry, because Mao Tse-tung and the Chinese Red leaders believed that international power is gained from the muzzle of a gun, and if you're going to develop guns and build national power, you must have industry. Consequently, in 1953 China embarked on her first 5-year planned program. While this program was started in 1953, the planning goals were not announced until 1955.

In the development of her first 5-year plan, about two-thirds of the national budget which was allocated to industrial growth was given to heavy industrial plant development. Light industry and agriculture were pretty much neglected in the first 5-year plan 1953-57. Heavy emphasis was placed on the development of steel. At that time the steel industry of China was producing only about 1.5 million tons. It was a minuscule, very unimportant industry.

Now, what assistance did Red China get in the development of her first 5-year plan from the Soviet Union? You may recall that on 15 February 1950, there was a treaty signed between China and the U. S. S. R., a treaty of friendship and mutual assistance, to last for a term of 30 years. Along with that treaty was a monetary grant amounting to \$300 million from the Soviet Union to get China started in the development of her 5-year plan. However, the monetary assistance which China has received in any of these plans from the Soviet Union should not be regarded as an important feature of Soviet aid.

The total Soviet aid program during the 5-year plan was an extensive one. They gave plant equipment for an estimated 100 factories, which would be developed with Soviet assistance. They sent technicians from the Soviet Union during the first 5-year plan in numbers estimated as high as 50,000 technicians of all types. However, I think the figure of 30,000 technicians would be more acceptable in terms of the technical aid personnel program which was given to Communist China during

the first 5-year plan. There was a tremendous amount of delivery of Russian plant blueprints, which assisted very much in the development of the first 5-year plan.

It must not be forgotten that, although the Soviet Union gave tremendously in this first 5-year plan in terms of technical assistance, the satellites also made a sizable contribution of their own. I have counted 31 plants built in Red China during the 5-year plan all of which came from one satellite nation or another--independent assistance provided by the satellites toward the economic development of Red China.

For example, two sugar plants from Czechoslovakia were placed in Canton, built with Czech engineering assistance. And once the plants have been installed, have been checked out, and are found to be operating smoothly, those plants are turned over to Chinese management.

Now, how did Chinese management get its know-how, its scientific, industrial know-how? Principally by a forced draft system. And the forced draft system in Red China today is a significant feature of every phase of industry.

I know that at one time some 10,000 plant foremen from the Manchurian complex were sent to the Soviet Union. Many of them were trained in the Lake Baikal region, working in plants in that area. Some went to Khabarovsk and others to Vladivostok to receive industrial training. They spent a minimum of six months in Russian industry learning how to become plant foremen, learning by on-the-job training, as we call it in the military. And then that group, which was only one of many, returned and took over minor executive jobs in industry.

During the first 5-year plan every new factory that was built and turned over to Chinese management had in the front office, or shall I say, across from the front office, a Soviet engineer. He was not the administrative head in any way of that plant. He was the technical adviser, to see that the plant was operated according to plan.

Now, this on-the-job training of Chinese industrial know-how has been carried on at a tremendous scale. Last year I came across the fact that in Anshan, which is in Manchuria, there were 100,000 technical trainees working in Manchuria's factories. These men came from all the provinces of Red China and were undergoing a practical course in the operation of machinery and in the management of plant personnel. This feature has been repeated time after time.

With the establishment of the 5-year plan, with the planning goals announced in 1955, it was quite easy to see that China would be able to accomplish those objectives by 1957. In 1957 all of these objectives for major industrial development, such as coal, steel, cement, and petroleum, were accomplished save one. The Chinese fell down in the development of the petroleum resources in terms of the tonnage which they had expected to develop during the first 5-year plan. And petroleum has been one of China's very, very critical shortages. And actually, petroleum being a shortage has caused a headache to Peking simply because China has been forced to import petroleum across the Trans-Siberian Railway at a rather excessive cost; and China would rather buy machinery than buy oil for even her limited number of vehicles.

However, last year China was roughly two-thirds self-sufficient in her own domestically produced petroleum. I estimate that China's requirements last year were about 3 million tons of petroleum, and that she was able to produce about two-thirds of her requirements.

To show how desperate Red China is for petroleum, the Iraq revolution was not more than a week old before Chinese agents were in Baghdad asking about the possibility of importing, by tanker, Iraqi oil for Red China. After all tanker haulage is considerably cheaper than bringing it across the Trans-Siberian Railway.

I might also state, in mentioning railways, that one of China's most critical industrial headaches lies in the shortage of her rail transportation system. After World War II most of China's 12,000 miles of track had been torn up or severely damaged. The rolling stock was in bad shape. The Communists built up, repaired, and extended their rail lines. So last year they had probably about 23,000 miles of railway trackage. But obviously that was insufficient to take care of the transportation demand which the first 5-year plan had imposed, and which the subsequent second 5-year plan, which we are in today, has only intensified. This transportation shortage of rail networks is a very, very serious one today.

I was very interested to note that last year the Communists developed a new type of rail, which is a cast-iron rail. They built, according to their claim, 1,500 miles of cast-iron trackage. These are mainly spur lines running from 3 miles to 15 miles in length, usually from a warehouse to a factory, from a port to a main line, a rail line, and so on.

Now, actually, I think that they utilized cast iron for one interesting reason; namely, they had so much spoiled iron around, which was produced in those little back yard furnaces, which couldn't be utilized very economically except for farm tools for the peasants, for which much of it was used. But there was still some left over, and they utilized this because it was available. However, there has been a crying need for more transportation; and therefore these little domestic spur lines have proved quite useful.

In my own province of Anhwei, where I was born, we have a rather large shipping port, where last year the requirement was four days to unload a ship using simple coolie power and then carrying the stuff from the docks to the nearest railhead. In the last year, in fact the last few months, according to reports, a spur line has been built; and the unloading requirement, primarily portering the stuff to the rail line, has been cut down from four days to eight hours. So these spur lines do have practical benefit.

Observers recently in the Shanghai area estimate that there are 43 spur lines running out from the city of Shanghai to warehouses and to various small plants, which have mushroomed all over the Shanghai area. However, the development of rail transportation will be predictably one of the top priority goals next year and certainly in the 5-year plan which we have coming up.

Now, looking at Red China's industry during this period, we notice that she developed some truck-production capability in north-central China, with a factory at Chengchow, which during the first year of operation, 1957, turned out 4,000 trucks, of the Russian model. However, the assembly lines in this factory by 1959 were geared and planned to produce as many as 30,000 trucks. I do not know yet whether this plant is fully operational; but here in the city of Loyang, right south of Chengchow, you have today a tractor factory, with an announced quota of 15,000 farm tractors to be turned out each year.

In the very important center of Hankow, which is 637 miles up the Yangtze River, and which, by the way, is served by ocean shipping because the river is navigable that far, you have an industrial complex sometimes called the Wuhan area. Here you have three cities. You have Hankow, you have Wuchang, and you have Hanyang.

Now, this area, sometimes referred to as the Chicago of China, is a bustling industrial complex. You have heavy industry and light

industry concentrated here. You have a prewar steel plant in Hanyang, which has expanded about five times in capacity during recent years.

The Chinese have built a bridge across the Han River, which is a very small river. They have also, with Russian assistance, bridged the Yangtze River, which at this point is almost two miles in width. This bridge, which the Chinese built across the river, was constructed with their own engineering talent assisted substantially by Russian advice. From any point of view, the Yangtze bridge represents an engineering feat which was spectacular and industrially important.

I'd like to mention for you a very important overall planning concept which the top level hierarchy of the Chinese Communist Party have developed. It is a development which I think we ought to watch with a great deal of interest.

In prewar days, 85 or 90 percent of Chinese industry was along the coast. About five years ago the Chinese Communists announced a re-orientation and relocation of the future industrial development of China, to allow 35 percent to be along the coast and to put 65 percent of it back into the northwest, into the hinterland. This concept is one of the most ambitious ones which has ever been devised in terms of modern industrial planning. But there are signs today that this relocation of industry is definitely intended and is developing.

I'd like to use Lanchow as a case in point. In 1946 there were 100,000 people in that rather sleepy western town. Today there are over 880,000 people--an increase of over eight times in the population of Lanchow. The whole province of Kansu, of which Lanchow is the capital, had in 1946 only 10 million people. Today it has a population of 30 million people.

Lanchow is a fast growing industrial center. Lanchow is also a scientific center, with new schools and colleges expanding enrollment and facilities at a rapid rate.

In addition, Lanchow provides an important railway link with the Soviet Union. A railway now extends over 800 miles from Lanchow into the northwest, and will be linked up with the Trans-Siberian Railroad probably sometime this year. The Chinese are building their portion of the line westward. The Russians have agreed to join the Chinese railroad by a spur line at the Chinese-Soviet border.

Now, this is going to be an important railroad route, because it will materially shorten the distance in miles between Moscow and Shanghai. This will be a much shorter route than the old Trans-Siberian Railroad. So this important rail line ties the western development of China to the Soviet Union.

About here you have another rail line going straight north into the Soviet Union from the city of Paotow, which gives the Chinese today two mainline connections with the Trans-Siberian Railroad. One is the old connection in Manchuria, the recent connection north of Paotow; and then within a matter of months China will be tied to Moscow by a through railroad line from Moscow to Shanghai. The whole orientation, therefore, is pointed toward development of the western hinterland.

The Chinese Communists have planned this type of dispersion for two primary reasons. One is an economic reason. They would like to have their factories developed in the hinterland to reduce the burden on transportation, to forego the necessity of carrying raw materials on long hauls and then have the distribution problem of manufactured goods going back the other way. Therefore the pattern today is a decentralization of industry, with the establishment of numerous industrial points in the hinterland.

Secondly, this dispersion tends to reduce the vulnerability of China's industry against military attack. There will be a great many more industrial centers than existed in the past. These centers will lie rather deep in China. So a deep penetration of China would be necessary, and the targets would be multiple in number.

That, however, brings me to a third point which is important in Red China's industrial growth, which is that Red China is trying to develop autarchy or self-sufficiency in her industrial development.

Now, autarchy of self-sufficiency would also be valuable because it would cut down upon the burden on transportation which China is so deficient in today. It would also tend to make the problem of political control easier if each region could be made as self-sufficient as possible, and if each commune lived on its own.

That brings me right into the picture of China's communes. These 750,000 collective farms have been further reduced in number to 26,000 communes today. Red Chinese communes house about 500 million of China's peasants. Incidentally, it took Stalin seven years, seven bloody

years, to collectivize the stubborn Russian kulaks. It took Mao Tse-tung two years and about two months to get 90 odd percent of his peasants into communes.

Now, a commune is really a very interesting organization, and maybe you wonder what it has to do with industry. So let me point out the philosophy behind the commune.

First, it gives easy military control of the people living there.

Secondly, it is designed to utilize the agricultural advantages of the land to better advantage than the previous system. Let me give you an example. When you build a commune, which is roughly the size of a township, you reorient your roads, you forget about private boundary lines, and you build your engineering development as commonsense will dictate, because you don't have to worry about private ownership boundary lines.

Thirdly, most of China's agricultural soil was well utilized, but prior to communism there was about 5 percent in grave mounds. The Chinese worshipped his ancestors and had these graves of his family in his fields, and he politely plowed around the grave mounds. Perhaps after generations he might plow them under, but by then he had new ancestral graves, and he would plow around them. But in old China it was traditionally true that roughly 5 percent of the good earth was in grave mounds and out of production.

Now, the Chinese Communists had no respect for such things as ancestor worship. In fact, one of their first objectives was to break the Confucian system, and they have done a reasonably good job at it. And, consequently, ancestral graves were eliminated; the bones were used for fertilizer, or were thrown out, and your commune today is geared to utilize every available inch of soil.

It is, secondly, an industrial unit. A member of a commune is first of all a farmer and is in addition, an industrial laborer. Every commune has one or more small-scale factories within the commune. These may be paper mills, textile mills, cement factories, or what have you.

The design is that a farmer will get no leisure time living in a commune because between croppings the farmer, in non-Communist countries enjoy some leisure time, but such a luxury is unheard of in Red China. When the farm work is slack the labor force in the little plants is augmented. When farmers become busy, the labor force flows back into the fields.

The commune system is also a military one, because every commune has its militia group--men and women--and this militia group is the home guard and the future reservoir from which the Chinese Red Army will draw its future recruits whenever it needs them. Incidentally, it is estimated that over 80 million persons are in the age group of eligibility for military service.

Now, this commune system has not broken down. What actually happened was that initially the Communists moved too rapidly, tearing down the villages, building the barracks for men and women and so on; and there was grumbling and resistance. As a result of the social pressures which the Communists sensed in these communes, they soon realized that they had been overly hasty in the steps they had taken. In the light of this, they took one step backward. And last year, only about six months ago, the regulations in the Chinese communes were liberalized. Eighteen-hour work days were prohibited. Commune members work 12 hours a day, unless they "volunteer" for additional duty.

Today, eight hours of sleep are guaranteed to the commune members. And those commune members who feel that they would rather forego their mess ticket, their free lunch, and would like to do some cooking at home, are entitled to do so. However, it is obvious that the "reforms" have only tempered not eradicated the harshness of Red controls.

But what is the work schedule in the communes today? Well, it's 28 days a month for an able-bodied man. Women are theoretically equal, but they work 25 days a month. But please don't think that this is followed very religiously, because every commune is in trouble trying to exceed its quota, and the directors will frequently call for volunteers. And those who don't volunteer wish they had, simply because if you stayed in your bunk for two days, and your fellow commune members went out and worked and they came back, they would take so much of your time in thought rectification in asking you if you weren't embarrassed because you were antisocial that it would have been easier in the first place to work in the field.

Professor Linebarger talked to you the other day about the disadvantages of the old Chinese family system. I know Paul very well and I respect his thoughts very highly. But I am wondering whether or not communism in the communes is not today an extension of the family system. In the old days you had your mother-in-law, who was very prone to pick on you and to correct you when you were wrong and advise

you even when you knew you were right. But today in the commune you've got 5,000 families looking down your throat at any action which they choose to label as antisocial.

The Chinese compulsion system today is largely the product of group coercion, where people talk to you about "Do you want to be anti-social? Do you want to be a square? Why not be a round peg in a round hole for a change?" And so it is that group compulsion is one of the keys of Red China's industrial drive today. Emulation programs are announced where a group has just produced 10 tons of steel and another one has done 12. Intragroup competition is fostered in practically every field of activity all geared to the objective. I am inclined to think that the Communist system of getting more and more from every worker in the system today is really enormous concentration of the coercive forces which used to be so pronounced in the traditional Chinese family.

I would like to mention now, speaking of the family, the subject of education. China is one of the most active countries, believe it or not, in the field of education today. Someone from this platform, I believe, told this class that there were 193 million Chinese in schools. I think that figure might be a little high. I would say that there are certainly 100 million Chinese going to school today.

The Communists have used education and the dedication of young men and women to help accelerate this industrial drive and give it a greater reservoir of scientific facts upon which they may develop an enhanced industrial capacity.

Actually, in 1949, when Mao Tse-tung came to power, there were something more than 100,000 Chinese in schools of higher learning. At the present time, there are about 660,000 Chinese in colleges and in universities. Of the 660,000 that are in colleges and universities, 117,000 are studying engineering.

Women used to be rather conspicuous by their absence in Chinese colleges and universities. Today there are over 100,000 Chinese women in colleges and universities. Forty percent of these young women are studying science--either medicine, engineering, physics, or some other brand of science.

China today, is experiencing a phenomenally fast growth in the development of professional societies; and these professional societies are found all through the intellectual life of China. The Academia Sinica has

4,000 highly talented professors--some in the social sciences, but mainly in the physical sciences.

China has today the largest atomic reactor in Asia; and for the last two or three years intensive experimental work at the University of Peking has been done in atomic energy.

China has among her ranks of famous scientists a gentleman who was trained in MIT, received his graduate degree there, was later a professor at Cal Tech and directed their jet propulsion laboratory research. This gentleman, whose name I have, is a distinguished scientist, and is now trying to develop a jet plane industry in China.

Also another professor, this one from Stanford, went back to Red China about two years ago. He was a well-recognized authority in the field of physics in this country. He has also assisted notably in the development of atomic research in China.

Dr. Wilson, who is the president of the International Union of Geodesy and Geophysics, toured China's scientific institutions last year. He indicates that their scientific libraries today are on a par with those which we have in this country, and are only exceeded in quality by just a handful of famous schools in this country. One institution, which he visited, had 400 scientific journals in its stacks, remarkably complete.

The Institute of Science in China is making translations and has a lookout agency to pick up scientific documents all over the world and to bring that material into Red China for study.

Now, gentlemen, I've taken you from 1875. Colonel John Henry Smith asked me to make this lecture current; not to dwell on the past which a historian loves to do--the years before he was born. Therefore I have obliged Colonel Smith by making this material, for the next five minutes at least, as current as last Thursday.

Last Thursday the Red Chinese announced officially--in the words of the chief of the Chinese state planning agency, Mr. Li Fu-chun who is well known by many experts in this country--what had been accomplished as of 1959. In this report, which runs over 20,000 words, he spells out in detail what China has been accomplishing in the last year. He announced to China and the world that in 1959 China had already achieved her 1962 goals in 15 industrial categories, and was still deficient in 9. In other words, in 1959 she had reached, according to this "authority" 15 of her target objectives for 1962.

I was interested in the following figures, which I culled from this report: The gross value of industry and agriculture last year in China was \$102 billion American. If that figure is true, that is twice the GNP of 1956. That is three times the GNP of 1952.

Now, this \$102 billion output claimed for last year breaks down with industry having \$69 billion worth in output value last year, with agriculture having \$33 billion worth for last year.

I am very interested in this report because he also gives us the 1960 completion goals, which will exceed these enormous, and, I think, fantastic, figures, by indicating that China will in 1960 develop 22,000 tractors for her agriculture, 2,000 harvester combines. And China will manufacture in 1960, if she can, 2.8 million tons of chemical fertilizer. Transportation, by rail, is a bottleneck, and the sufficiency of fertilizer for Chinese agriculture is another very important problem. And China will turn out in 1960, 10 million rubber-tired hand carts, so a coolie can push instead of lift, which I think is interesting.

Also, looking at this report for 1960, Mr. Li points out that China is now today embarking upon a new agricultural program, by phases. It's a 10-year program. In other words, Chinese agriculture in the next four years will proceed rather slowly. Small-scale mechanization is what Mr. Li is talking about. By 1966 there will have been a medium employment of mechanized equipment, which will be provided to the Chinese farmer; and by 1969 or 1970 the Chinese agriculture economy will be supported by a comparatively large farm mechanization program. This will certainly be very interesting to watch.

Another philosophy, which the Chinese are stressing in their literature from Red China every day, is what they call "walking on two legs." In other words, the Chinese planning leaders believe that no bets should be missed. Heavy industry will be stressed and light industry will be stressed. There will be a utilization of every possible resource, be it human, be it mechanical, or be it scientific. China is trying to develop a great industrial economy today and yet utilize her manpower, of which she has such an excess.

One German historian, writing last year at Bonn, said that China today, modern China, is the only nation in Asia which has utilized and found ways to capitalize on its stagnant pool of manpower and to make people work. The rate of increase of China's product in terms, for example, of coal production has far exceeded that in India and in other

parts of southeast Asia. China has been able to harness this pool of stagnant manpower, which in many countries has become a liability. Peking has been able to develop work programs for her teeming millions in terms of carrying burdens or pushing trucks or what have you.

The Chinese have gone a long way toward harnessing of their military manpower with the industrial yoke. And to me this is interesting. Last year, for example, the infantry troops of the railway corps worked on the construction of 20 railway spur lines. The Chinese believe that when a soldier isn't drilling, he'd better be working. The Chinese Red air force last year rehabilitated 68,000 wornout lathes for production; and then trained technicians for the Red air force during that program.

You find that your common soldier in China in many, many units is self-supporting, because he raises his own food crops, at least the vegetables, which go into the mess hall.

Another interesting feature, which I don't think you and I would enjoy too much, is this: The high-ranking officers take a tour of duty every summer. Major generals, lieutenant generals--an impressive list--divest themselves of rank insignia and for 30 days are buck privates, in order to work and understand better the men of China's Red army and military forces. They say this is going along beautifully, but I rather doubt it. So those of you who don't get your leave this summer because of other duties, don't worry. The Chinese Communist military brass don't get their leave either except as they spend it with troops on maneuver.

I'd like to conclude by pointing out that China today is going forward with tremendous leaps and bounds. Red China in her 1960 goals hopes to develop 18 million tons of usable steel for 1960, to mine 425 million tons of coal, and to produce 16 million tons of cement.

I would state that Red China today is running a neck-and-neck race with Japan in the production of steel. Red China, with 18 million tons, (if she produces it), will be close to Japan, with 20 million tons which Japan expects to produce in 1962.

As far as heavy industry is concerned, it is obvious to me that Red China will surpass Japan in steel production in the next few years. She aims to catch up with Britain in the next 10 years.

I would foresee by 1980 China being the third-largest industrial power in the world; and I would see by 1980 a steel production in China in the neighborhood of 55 or possibly 60 million tons of steel.

The slogan in China today through her entire production is "Bigger, better, faster, more economically." There is a dynamism there which is driving the Chinese, who are tired today and are probably unhappy because of the monotony of life. But the driving force is being applied through psychological and other means by the government on the communes and on all social groups.

And, gentlemen, there can be little doubt that China is making enormous strides industrially--unbelievable strides.

Perhaps Napoleon Bonaparte was right. Many years ago he wrote: "Let China sleep. When she awakens, the world may be sorry."

QUESTION: I've heard some rumors that the Chinese may be thinking about changing I guess it's their alphabet, to try to put it on a sound basis instead of characters. Isn't it pretty difficult for them to translate all these scientific articles into their language based on so many characters?

COLONEL SMITH: That's a good question. One of the interesting reforms, and about the only one I agree with, in Communist China is what they've done to their language. You remember, years ago their spoken language was many dialects. In recent years the old Mandarin dialect, which was spoken in north China, now called the national language, has been adopted. And in the first grade this year the national language dialect is being used. Therefore in a generation the dialects will largely have disappeared, and the spoken language will be uniform.

In regard to the written language, they are also--and I heartily agree with this--doing away with these spider-like characters and are using phonetics, with 31 phonetic symbols--our alphabet plus a few others--to spell the sounds out. Today in Chinese newspapers you will find the old characters used as a masthead, and then you will find the phoneticized spelling of the Chinese words used too.

Now, the first grade schools in Shantung Province last year, and maybe others, adopted this new phonetic spelling. So the children will learn the phonetics and be able to write their language, and illiteracy will be eliminated largely through this device.

It's also a unifying device. Educationally it's good, and politically it's very helpful because it makes the nation more compact.

As far as the use of scientific terms, the Chinese are very prolific. They will frequently use French scientific terms. You will see a Chinese book with either French or German words just spelled right out where it comes to a technical term. I've been told that they are using the Russian terms today to describe certain technical parts in industry in their literature. I'm not sure of that, but it seems reasonable to believe at least. They have adopted the scientific vocabularies of other countries and use them as they see fit.

QUESTION: If I got my numbers right, you said, speaking of education, that they were turning out 100,000 people in schools for the Communists. Is that right?

COLONEL SMITH: In colleges and universities.

QUESTION: The figure now is 100 million?

COLONEL SMITH: No. I would say that in colleges and universities it is 660,000.

QUESTION: What was your 100 million?

COLONEL SMITH: I would say that there are 100 million in schools, because a person who works all day is encouraged--again in quotes--to go to night school, to learn how to run a lathe or to work on his crops and so on. And then you have a lot of these short-term schools, which train people in agriculture and so on, which we would call trade schools. So there's a mass education movement; and I would say 100 million people today in full or part-time education in China would be a low figure.

The Communists believe that if you have a million teachers, a million teach and a million learn--on a one-to-one basis if necessary. And these programs are really booming in China. In terms of education of all types 100 million. There are 660,000 university students. They claim 3 million engineers in their population today. I think that figure is high.

QUESTION: Do you have any idea how much the Chinese are spending for defense?

COLONEL SMITH: No. Those figures are very, very difficult to find. I wouldn't even hazard a guess on that. I'm sorry. They obscure those figures in their budget so well that it's very difficult to check.

QUESTION: I can't let you get away without commenting on this: A couple of years ago, or maybe last year, there was some comment that these communes were separating husband and wife so that they had only a very small time in which to see each other. In view of this, how about this 18 million new births every year? Are they still carrying out their program, or have they relented on that?

COLONEL SMITH: The question was very well phrased. I was talking to a P.T.A. group in Springfield, Missouri, last year; and two or three ladies who were very timid came up to me afterward and asked me that question, but they didn't phrase it as well as you did.

This system which the Communists developed in regard to the barracks being his and hers really wasn't popular. Husbands were able to see their wives alone once a week. This wasn't popular either with the men, or with the women. Consequently, the system of segregation lasted about six months. Now the communes have row apartments-- they're building some large apartments and some small apartments-- and the families are living together rather than living in barracks. This was one of the retreats.

This population figure certainly may taper off. That's anybody's guess.

One facet of the composition of the labor force intrigues me--and may I point out that China increased its labor force by 50 million women in 1958. You see, women were taken from the homes and were placed in industry. It was an augmentation of the labor force of 50 million women. I have a feeling that this tremendous drive to get production out of these 500 million peasants is geared scientifically in terms of food calories so that the people have enough energy to work, but not enough energy to be rebellious and to revolt, because they are dog tired at the end of the day.

Commune members are probably in a state of amnesia almost or hypnosis, because when they get back to their barracks, they have at least an hour of typical propaganda by the loud speakers; and it's centrally controlled and you can't turn it off. So it's drumming into your ears.

I think, however, that because of the youthfulness of the Chinese population between the ages of 20 and 24, this high rate of population increase will continue for at least another 5 or 10 years. Then it may taper off.

QUESTION: Russia is doing a great deal about the development of their hydroelectric power and irrigation. Can you tell us a little bit about what goes on in China in respect to that?

COLONEL SMITH: Thank you very much. You couldn't have phrased a better question.

Actually, 59 percent of Chinese farms are now irrigated. The Communists had a major project for water conservancy. Last year, about 12 percent of their budget was tied to water conservancy and the building of dams.

Now, these dams do several things. They check floods. They store water for irrigation purposes. And they also generate electricity.

Now, these conservation projects have been pretty extensive. There are 11 huge hydroelectric dams now being built. I'd like to mention just one.

In northern Honan you have the Sanmen Gorge. That gorge is about three-quarters of a mile wide, and the dam will rise to about 400 feet. So it's an enormous dam--certainly comparable in the size to the Hoover Dam. This dam will hold over 84 billion cubic yards of water for irrigation, for electrical purposes, and so on. This is 1 of 11 major projects.

The electricity from this single dam will bring in an estimated 1 million kilowatt hours of electrical production.

Now, another thing which the irrigation program has developed is literally hundreds of thousands of canals. These communes have no worries about boundaries any more. They build their canals, and they are rather interesting, because they go for miles and miles and miles to do two things: They help to bring about this figure in irrigation of 59 percent of the fields. Secondly, these canals are a supplementary transportation system.

I've been noticing a network of canals developing up in north China which are wide enough--100 meters wide in many instances--so that

shallow-draft Chinese junks and sampans carry goods down the canals. The canals also bring water to the fields.

This winter has been a very cold one in China, and the Chinese have been using ice boats on the canals around Peking, carrying cargo, et cetera.

So what the Chinese are doing in irrigation and many of their other projects in this "walking on two legs" is this multipurpose idea--using it for anything and everything. I estimate that by 1980--it could be 1970, but I'm conservative--China will have 250 billion kilowatt hours of electric capacity. I should have mentioned that in my main talk, because, as you all know, electricity is a must for industry.

China has today in the neighborhood of 40 billion kilowatt hours. And she is building awfully rapidly.

I was extremely interested in noticing the products of the satellites. China has been getting a lot of generating equipment from the satellites, from Czechoslovakia particularly, and also from Poland. China obtained some mobile generating plants on locomotives. These locomotives with the generating plants on them can be sent up the railroad to a point where a small amount of current is needed to develop a commune. They can then be mobile enough to ship to any other place. These plants put out a few kilowatts, which can be taken on the system and utilized wherever small increments of power are needed.

So China's electric capacity is being built up rapidly. Most of the large cities in China have electric lights now. The large cities all have sewage systems of a type; and quite a few of them have running water. Whether it's drinkable or not I don't know; but, at least, it's not the way things used to be.

QUESTION: Returning to your scientific education, I saw an article recently which indicated that the politicians were putting on a rather vigorous drive to remove all western influences and aspects from their scientific and technical education. Could you comment on whether this is so; and, if so, what effect it will have on quality?

COLONEL SMITH: I believe that part of that is propaganda. Part of this so-called looking down their noses at western education is propaganda.

They are always saying in Red China today, "We are moving forward with vigor, have repudiated the 'decadent bourgeois cultures of the West.' Their educational system in the West was only textbook education," say the Communists. "We have discovered a new brand of education, where a student works and studies simultaneously."

Now, literally thousands of school buildings, high schools, in China have not been built by the state, but by students, who have built those buildings themselves. Hundreds of laboratories have been equipped by students making the simple equipment--the benches and so on--for their laboratories. And in the colleges you also have students developing scientific equipment, which has added to the university's laboratory, etc.

Now, this is really a work-and-study program. The idea is certainly not new, but the Communists, at least, are bragging that they have developed a unique idea in education, which is pragmatism--trial and error. If at first you don't succeed, education, a new experiment, will bring out something else. They feel that the West is formula-bound and that we therefore don't have the imaginative breadth that the new Chinese scientific education has. That's stupid, because they are looking for and getting and acquiring every bit of scientific material they can, using these old formulas. Some of this other stuff is window dressing so far as their claim to their new philosophy of education goes.

QUESTION: There has been some speculation in the press recently that part of the leverage that Soviet Russia will bring to bear on this summit business of disarmament and the negotiations that are going on and will be going on is the addition of Red China to the atomic club. They call attention to the fact that one of the former MIT professors is head of the Chinese rocket program. I was just wondering if you were in position to comment on the participation of Russia in this Chinese weaponry program, and could speculate about at what point China might become independent from the Soviet in atomic weapons.

COLONEL SMITH: Last summer the Chinese military commanders wanted to get guided missiles of Russian manufacture positioned across the Straits of Formosa. They built their launching sites, etc. It was rumored from very creditable sources that the request for these missiles was turned down by the Russians giving excuses why they couldn't provide the Chinese with this type of rocketry.

There also were rumors in Hong Kong last summer, when I was on the trip with General Mundy, talking to people--and the Chinese really are gossipers--that the Red command was getting a little impatient with their Russian cousins for dragging their feet and not giving them the missiles--just conventional weapons.

There is in Communist literature today a feeling that they are getting ready to dispense with Russian aid because of advances being made in their own scientific know-how. There are indications in the Chinese press that they know how to explode an atomic bomb right now. An Indian Member of Parliament a few weeks ago stated that China would explode a bomb on March 28. Nothing happened. It was a pretty good rumor that he had, because he talked recently with Chinese scientists.

I think that the Chinese know all about the theory of the Hiroshima-type bomb. They are having a little trouble in some of the technical trigger mechanisms that went into that simple bomb, in terms of producing it in their own industry. But I think that if the Russians keep dragging their feet, the Chinese won't have to depend on them very much longer, at least for the Hiroshima-type bomb. They have information. They can machine some parts right now that are causing trouble.

QUESTION: A previous speaker on China told us that the Russians had provided the Chinese Communists with \$4 billion in aid and that this was instrumental in allowing the Communists to take over from the Nationalists. If you consider that the United States total aid program to Russia during World War II was only \$11 million, and the difficult economic straits that Russia faced at that time, and the pell mell rate at which they pursued the dismantling of factories in Manchuria, does this seem like a reasonable estimate?

COLONEL SMITH: I don't know who that speaker was, but in my personal opinion \$4 billion is excessive. Most of the current authorities, like Mr. Barnett, in China's recent National Planning Association's Report, places the aid program somewhere in the neighborhood of \$2 billion rather than \$4 billion. So I think the \$4 billion is excessive.

Now, another feature of that is this: Don't for a minute think that China has been receiving handouts from the Soviet Union. She got a cash outlay of \$300 million; and the rest of the time, Chinese trade with the Soviet Union satellites has been on a pay-as-you-go basis.

In 1956 China was able to export a surplus over what she was receiving from the Soviet Union--\$150 million in 1956, \$250 million in China's favor in 1957, and 1958 looks like a possible \$300 million balance in favor of China. So China has been paying the Soviet Union with goods. This is not an aid program in a benevolent, altruistic sense at all.

QUESTION: Could you add just one thing? Is this \$2 billion over the whole period from 1945 to now or not?

COLONEL SMITH: We have no way of accurately determining the 1945 period, simply because, as you recall, the Russians looted the Manchurian factories, thinking that Chiang Kai-shek might find them useful. When Stalin woke to the fact that Chiang Kai-shek was on the way out and his Red Chinese cousins were coming in, the Russians then replaced machinery, frequently bringing new machinery into those plants. That plant rehabilitation program was part of the cost--for my money at least it's too hard to estimate it--and possibly the speaker had in mind the rehabilitation program of reconstituting those plants in Manchuria. That's probably what he had in mind.

QUESTION: I would be interested in a little information on the intelligence that we're getting out of China today, both economic and otherwise. Are we getting anything at all besides the propaganda that is released by the Chinese themselves?

COLONEL SMITH: Thank you very much. I think that many of you here think I have been talking intelligence this morning. I haven't. I'm talking unclassified material, all of which comes out of Communist China. At least 10,000 words in English are available per day, on what Red China is boasting about doing and claiming to have done.

I am an old intelligence officer--I'm old anyway--and I believe that our best sources of intelligence do not come from classified documents, but can be obtained from open-source material. If you are sophisticated enough and study the problem long enough, you can read between the lines, catch the Communists off base on some of their stupidly wild claims, and then come up with a figure which can be extremely close to the truth by using intelligently commonly available source material.

Let me give you just one example. In 1959 the Chinese announced proudly that they had broken all records--that in 1958 their crop increase had been 100 percent over 1957. All right. The year 1958 was a wonderful one for crops climatewise, but 100 percent is hard to swallow over the production in 1957.

When I was with General Mundy last summer I saw an Englishman in Hong Kong, Dr. Kirby, who I think is the greatest English authority in the field, and an agriculture man in the consulate there. We just took China's acreage of 330 million acres, and we put everything we could on it, the highest yields and so on; and we found that the Communists were lying for the 1958 increase. They couldn't possibly have that much increase.

We finally fiddled around and we looked at the fertilizer problem. We took all the natural fertilizer, the odoriferous type that you're familiar with. We spread that on as thickly as we could. Then we looked at chemical fertilizers. In 1957 we know pretty accurately how much chemical fertilizer they produced--880,000 tons. We spread that out. Dr. Kirby and this other gentleman, with myself sitting by interestedly, all worked out a 25 percent increase 1958 over 1957.

Now, in August of 1959 the Communists came in and said that they were all wrong. They didn't produce that much yield, that much agriculture. And their agriculture claim, revised, was 35 percent increase 1958 over 1957.

This gentleman that I quoted you today, Mr. Li Fu-chun, is certainly a liar today, because he pointed out that in 1959, this last year, China produced 16.7 percent more agricultural output than in 1958. Now, this is impossible. Fifty-eight was probably the most favorable year for crops in a decade in Red China. Weather conditions were perfect. Nineteen hundred and fifty-nine, gentlemen, was one of the most disastrous years as far as farming is concerned in Red China. Eighty percent of their best agricultural area was just damaged with everything--from rain, drought, pests. If you name it, they had it. They had all kinds of disasters. It was the worst year in a century, in my opinion.

We know what the weather was in 1959, and Li is stupid when he says that 1959 was a better crop year than 1958. So here's an instance where your figures can quickly be found completely wrong.

QUESTION: I'd like to ask a development question. You said that the Communists were building barracks. There are 55,000 communes. If each commune has 25,000 people in it, you've got to have something like a million barracks.

COLONEL SMITH: There are 26,000 commune units.

QUESTION: That costs a lot of money. They will have to appropriate millions for barracks.

COLONEL SMITH: That's right.

QUESTION: You take the whole nation and put barracks up, and then all of a sudden you talk about abandoning them and building houses. I don't see how they can do it.

COLONEL SMITH: These barracks weren't all built. The program initiated for the first six months had lots of barracks. The program started in the north and it's moving south.

After six months of experimentation, the barracks program was abandoned. Many of the farmers had been ordered to tear their little cottages down. So the building program turned to an apartment-type, row house, apartment dwelling, and a common mess hall. Their common mess hall today is very much a feature.

For example, you have heard, I think, that the communes are moving into cities. This was announced initially--that the communes would first be in the country, and then the whole country would be urban communes and rural communes. Well, the urban commune program has bogged down. I happened last week to read that in the city of Peking today there are about 500 public mess halls where the industrial workers eat. These cafeterias are run by the state. They talked about that area being one of the first urban communes. So the program of urbanizing communes is developing. Only the future can tell us the problems which will develop.

QUESTION: Could you indicate the extent of Communist Chinese interest in Outer Mongolia and influence, and the reasons why they might be interested in it in comparison with the Russian interest?

COLONEL SMITH: That's an interesting question. I have a vugraph that I use on the road which shows that outside the present boundaries of China today are close to 2 million square miles of territory which China once in her history controlled either directly or indirectly. It is interesting to note where that territory lies.

Of course, the Russian decision on Outer Mongolia was not popular in Peking. They said "Yes," but they weren't happy. The Chinese have never quite forgiven Russia for separating Outer Mongolia and making it

independent from Inner Mongolia. Here is a source for future tension between the Soviets and the Chinese.

Incidentally, a Chinese school map for 1956 shows China claiming all of the territory which she is disputing with India over. That territory which India claims shows on the Chinese school maps as a part of the Chinese Communist territory.

There are these 2 million square miles roughly lying all around the land borders of China. Kashmir is claimed by Red China, because theoretically she once held it thousands of years ago. These are all potential areas of dispute.

I might mention one thing briefly. It's quite interesting. The agricultural program and the scientific program are really being pushed hard. Next year Red China is putting 3.5 percent of her national budget into education and scientific development.

I was quite interested to note that Dr. Wilson, in talking with a Chinese agronomist in Lanchow last year, found that this gentleman has been experimenting with the tumbleweed, which grows in these semi-arid regions. It's a species of plant similar to tumbleweed, namely *Polumba*. It's just a weed. This Chinese professor has been trying to develop fibers from this desert plant, to be used in textile production; and he has had, he claims, fairly good success.

Now, if this agricultural experiment continues with this simple weed, which is only one of hundreds of thousands being investigated, the Chinese think that they can by 1962 release 32 million acres of land now raising cotton, for an additional reservoir of food for its growing population. But this type of experimentation with the tumbleweed is only one instance of literally thousands of experiments in finding new products to develop.

QUESTION: A previous speaker expressed some concern over the long-range outlook for stability of the Chinese Government, in that when Mao and his contemporaries pass from the scene, he didn't feel that there was an adequate second team possessing commensurate capability to move in and take over. Do you share this feeling with him?

COLONEL SMITH: I was cautious. I was listening to Paul Linebarger's tape yesterday; so I know what Paul said on that score.

I think Dr. Linebarger had a very good point--of what will happen when the triumvirate, the three and a half men, as he calls it, disappears. It could be a military dictatorship, because the officers in the Red army are getting politically conscious; and if they don't have any wars to fight, they may become politically ambitious in the next few years. From my studies, however, I begin to see a second team emerging from the leaders who could take over.

The point that I think is important, though, is this, gentlemen: As Dr. Linebarger said, these Chinese are fanatics. And, believe you me--please check--I think they have made a greater industrial rate of progress than the Soviet Union in comparable periods. They're fanatics. They work hard. They are dedicated, and so on.

Now, what will happen when this present generation of fanatics dies off? There might be relaxation in China, as there is discernible in Russia today. The people don't seem to be quite as fanatical in their communism as they were 20 years ago. So I think this could cause a, shall we say, reduction of the output, a slowing down of the rate.

If you ask me whether this means a revolution or not, or chaos, I would say, I wish I could be that optimistic.

(10 August 1961--5, 400)B/de:en