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Reporter

MEDICINE
and
PUBLIC HEALTH
in the
PEOPLE'S REPUBLIC
OF CHINA

Compiled by MAUD RUSSELL

25 cents

MEDICINE AND PUBLIC HEALTH *in the* PEOPLE'S REPUBLIC OF CHINA

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Introduction

“The technological, scientific and social revolution taking place on the Chinese mainland, hitherto only a rumble as far as most Americans are concerned, has come through during the last two days, with thundering reality.” So reported the *New York Times* (December 28, 1960).

Seven thousand members of the American Association for the Advancement of Science gathered in New York for five days beginning December 26th for their annual 1960 meeting; included was a two-day symposium on China sponsored by the U.S. Government's National Science Foundation and ten leading scientific societies, a symposium “designed to help fill in large gaps in American knowledge of scientific and technological developments in Communist China.” “The accomplishments of Communist China . . . during the last ten years are worthy of study,” declared one scientist in the opening remark of his paper.

This pamphlet deals mainly with the symposium's presentation of medicine and public health in China; but a few of the highlights of other accomplishments in China can well be noted.

Dr. J. Tuzo Wilson of the University of Toronto described the recent developments on the mainland of China as a scientific “renaissance”; he said that the science of geophysics was “invented” in China; the seismometer was developed there in the 2nd century and the compass and the clock as well as printing, paper and explosives all originated in China; rain gauges were set up in many areas of China long before such weather studies began in the Occident. The Chinese, he continued, have traced their earthquake records back to 1139 B.C.

after having put 150 historians to work examining the ancient records; the result is a map of seismicity (or frequency of quakes) that is used in designing dams and other structures. Another scientist, from the American Meteorological Society, told of the increase of mainland weather stations from fewer than 100 a decade ago to more than 400 now. Sixty or seventy of them release weather balloons daily for high altitude observations, with upper air maps from China on a par with those from the Soviet Union. In the last ten years, it was reported, China has jumped from 20th place, in extent of weather observations, to rival Canada for 3rd place (The U.S. and the S.U. lead in this field).

China has made important advances in nuclear physics; they now have four known nuclear reactors; the symposium was told that these are all apparently designed for research rather than for making atomic bomb fuel.

The Communist regime is pouring money into science; one scientist's paper reported that China's scientific budget for 1960 was \$440,000,000; and that during the year 1956-1957 China spent \$9,000,000 in British sterling for the purchase of scientific literature from non-Communist countries. Education is emphasized; in 1958 alone, these scientists learned, primary school enrollments on the mainland jumped from 64,000,000 to 86,000,000, those in secondary schools from 7,000,000 to 10,000,000 and on the college level from 440,000 to 600,000.

A *New York Times* editorial (December 26, 1960) said: "There can be no question but that within the next decade or two China will be one of the world's scientific giants," and that the regime "fully understands the importance of science and is devoting great attention both to promoting research and to training able scientists for the future. Given the vast population of the Chinese mainland, there must be an enormous number of potentially able scientists among the young people of that area. In past generations many such talented youngsters received little or no opportunity to get the training needed to apply their capabilities fruitfully. It is un-

doubtedly the regime's intention to make sure such enormous waste is not repeated."

Nor does China lack the natural resources to undergird the use of its scientifically trained population. The symposium learned that intensive geological prospecting on the Chinese mainland during the past ten years has disclosed mineral resources so extensive that they appear to make China one of the world's chief reservoirs of raw materials. In 1949 there were fewer than 200 active geologists in China; now there are 21,000 geological workers, though many of them are poorly trained by American standards. There are 21 high technical schools of geology turning out geologists by the thousands every year; in addition, more than 400 foreign geologists have been brought in. Among the deposits found was an unsuspected reserve of 7,000,000,000 (yes, billion) tons of iron ore in the Shansi central area of China. Another deposit, estimated at 3,000,000,000 tons has been found in Honan Province, assaying more than 50% iron oxide. Two large molybdenum deposits have been brought to light, giving China a reserve of this important alloy larger than that of any other nation. China has one of the eight vertical zinc plants in the world, and plentiful coal deposits, including coking coal.

Though most of the speakers in the symposium on China found the Chinese far behind the most advanced countries, in spite of the rapid gains of the last decade, they seemed agreed that the Chinese were moving rapidly toward a mobilization of the talents of a quarter of the world's people. Having done so, they will be a force to reckon with scientifically as well as economically and politically, declared the *New York Times*. And, in the editorial quoted above, the *New York Times* continued, "In the years to come no doubt there will come from China a new wave of scientific creativity and contribution in many fields."

The fact that the truth about China engaged for two days the serious attention of American scientists meeting in New York and the fact that the revealing and arresting information from this symposium was carried in newspapers throughout

the United States is an omen that may encourage us to believe that statesmen too, as well as scientists, are ready for a realistic approach to the existence of the People's Republic of China.

So much for some indication of the scope of the presentations made to the Symposium on Communist Chinese Sciences at the 1960 annual meeting of the American Association for the Advancement of Science.

Included in the subjects considered was *Medicine and Public Health in China*. This pamphlet deals at length with that subject; all the following facts and observations, under the heading "Medicine and Public Health in Communist China," are taken verbatim from a major paper presented to the Symposium.

MEDICINE AND PUBLIC HEALTH IN COMMUNIST CHINA

*As presented to the American Association for the Advancement of Science
Symposium on Communist Chinese Sciences.
(Verbatim excerpts)*

Being a great country with a population of over 600,000,000 and a territory as big as the United States, the accomplishments of Communist China in medicine and public health during the last ten years are worthy of study. In order to cope with the demand for national industrialization and reconstruction, much attention has been paid to public health and medicine in an effort to prevent disease and promote health and thus increase productivity. Since public health practice is closely related to the political system and governmental structures, it serves as an indirect reflection of the political-socio-economic status of present day China.

In a book written in 1937 the authors (R. K. S. Lim and C. C. Chen) wrote that "because 84% of the total population in the rural areas was incapable of paying for private medical care, the only early solution of such a tragedy was believed to be a system of state (or socialized) medicine."

Before the Communist regime took control in China in 1949 medical and public health achievements there were still in their infancy and far from modern standards. Poverty and disease raged over the country. For example, the general death rate in Peking was as high as 14.1 per 1,000. Over 75% of the population was illiterate. There were only a handful of modern medical doctors. The total number of modern scientifically-trained doctors was estimated at only 12,000 in about 500 hospitals; the country was capable of producing only 500 medical graduates per year for an estimated population of 400,000,000.

Medicine in China today emphasizes quantity. Owing to the shortage of physicians and other medical personnel, emphasis on medical education in the past etn years has been on quantity rather than on quality. Mass production of medical personnel of various levels has been the theme. It is claimed that during the last decade more than 40,000 graduates came out of medical and phramacological schools. This figure is nearly four times the total number of graduates from 1928 to 1947. Graduates from secondary medical schools and secondary public health schools, which provide only two or three years training, numbered more than 143,000. Various auxiliary educational methods have been used to increase the training of such workers. In tune with the over-all national policy that education should serve the working people, much political training was enforced in medical schools, perhaps to the point of being scientifically detrimental.

Following the over-all educational policy of "field movement," that is, going-down-to-the-countryside movement, all professional teachers and students must go to the rural areas and factories to work together with the farmers and workers and gain practical field experience. They must live with the peasants and labor with them, eat the same food and live the same lives. In this way, the Communist government believes that they can make the medical workers serve the people in the best way to promote their productivity and to strengthen the commune system. This greatly corrected the concen-

tration of medical personnel in the big cities. In general, during every school calendar year 38 weeks are ear-marked for teaching, 6 weeks for vacation and holidays, and 8 weeks for practical field work.

In order to cope with the task facing them the Communists were desperately in need of medical manpower. One realistic way was to make use of thousands of "traditional" Chinese doctors throughout the country. It has been reported that there are still 370,000 such doctors today. These doctors are not scientifically trained but are of the empirical school, using native Chinese herbs and drugs and healing methods based on the old Chinese medical theories. The supplemental use of the traditional doctor was definitely frowned upon by the modern Chinese medical doctors and many difficulties ensued due to the objections of the latter. Yet the Communist government was determined to carry out such a policy, and re-emphasized the need of "cooperation between traditional Chinese and Western medicine to promote people's health." . . . It was repeatedly emphasized that as early as 200 B.C. the earliest Chinese Canon of Medicine (The Nei Ching) was published. From that time several thousand volumes of Chinese medical writings were handed down from generation to generation. Thousands of Chinese herbs and drugs have been in use for several thousand years. Empirical physical treatments, such as acupuncture, moxibustion, massage and breathing exercises have been widely practiced for centuries. At the end of 1958 the Ministry of Health officially enforced the full-time study of Chinese traditional medicine by modern Western-trained medical doctors. It has been reported that by the end of last year 2,100 modern doctors had been enrolled in 30 full-time classes to study Chinese traditional medicine. In addition, many institutes and schools of traditional Chinese medicine have now been established to train qualified new traditional medical doctors with simultaneous instruction in scientific medicine; in 1958 there were 3,200 such students graduated. At present a department of traditional Chinese medicine has been established in most of the larger hospitals and

a considerable number of traditional doctors are on the staffs of county and commune hospitals. It is obvious that the integration of traditional medicine and Western medicine is growing stronger rather than weaker.

Traditional Chinese medicine is an empirical healing art based on 4,000 years of practical experience. Its theory of disease is simple and medieval. Its concept of health and disease is the functional bodily harmony or disharmony between two forces, the Yin (the negative) and the Yang (the positive). Anatomically and physiologically, traditional Chinese medicine has practically nothing to offer, yet the vast volumes of herbs and drugs and medical treatises recording observations of diseases is precious. The results of the use of these drugs and the healing art of acupuncture, moxibustion, massage, and breathing therapy have their empirical value.

Acupuncture is a healing art peculiar to China. It was practiced as early as 200 B.C. It consists of the introduction of hot and cold needles into the body at specific points. The needles may be either fine or coarse, short or long (from 3cm. to 24cm.). The application is based on the old Chinese medical theory that internal organs and different body parts are intimately related and work in harmony for the maintenance of health. These organs and body points are hypothetically connected by twelve channels (ching). When the needles puncture and stimulate different tissues or organs at various depths they cause physiological reactions and thus produce healing results. Practicing acupuncture in ancient times was dangerous owing to ignorance of aseptic techniques and the lack of anatomical knowledge.

Acupuncture was carried from China to Japan at an early period but was not introduced to Europe until later. At one time it created considerable interest in Europe, especially in France. . . . In 1956 the Russians sent a group of doctors to Peking to study the art of acupuncture. At present intensive studies on the unknown mechanism of acupuncture are being conducted in Moscow by Soviet and Chinese doctors. The hypothesis is that stimulation from puncture is conducted

from the peripheral nerves to the brain cortex and suppresses the pathological irritational in the brain. Such explanations seem to be in harmony with the Pavlov theory of conditioned reflex. Acupuncture has been widely used in practically all kinds of diseases ranging from surgical conditions such as appendicitis to chronic conditons such as diabetes. It is believed that it produces best results in illnesses of the nervous system or those of neurological origin. Good results have been reported in the treatment of facial paralysis, arthritis, eczema, and others. One Russian physician reported that his long history of miserable arthritis was much improved by acupuncture. A doctor from India who went to China and studied acupuncture in 1958 entertained certain doubts as to its value at first; however, he believed afterwards that the integration of traditional medicine and Western medicine has already accomplished remarkable success. He was also treated successfully by acupuncture for his acute sinusitis.

Dr. Wu Lien-teh, the great plague fighter during the severe Manchurian Plague epidemic half a century ago, said in the preface of his book, *History of Chinese Medicine*, that "Chinese medicine to be understood and its significance appreciated, must be studied as one whole. In no other field of endeavor in this country (China) has the experimental method realized such concrete and far-reaching results as in the domain of medicine."

Whether the Communists will succeed in their ambitious endeavor to produce a new Chinese medical science by incorporating old traditional medicine with modern scientific medicine only time will tell. Whatever the outcome, its development is worthy of our constant attention.

It is a tremendous undertaking to train the number of doctors and to establish the number of hospitals to cope with the need of a huge population like China's. Calculating on the basis of only one doctor per 1,500 population, it would require 266,000 doctors for 400,000,000 estimated population—estimated before Communist rule. If we take a minimum standard of five hospital beds per 100 population, 2,000,000

beds would be required at a time. With the population increased to 600,000,000, as claimed by the Communist government today, there should be an increase of 30% over these figures. Even in America today we are confronted with a shortage of trained medical doctors and some top-grade medical schools have already started to shorten training and reduce the cost of tuition. It is easy to understand why the Communists have preferred mass production rather than individual craftsmanship.

Most visitors to China have noticed that China has achieved great success in preventive medicine and sanitation in stamping out many major infectious and parasitic diseases during the past ten years. This resulted in the decline of the general death rate in Peking from 14.1 to 7.4 per 1,000 during this period. It may be of interest to examine how the Communists did this job. The first step they took was to start a campaign to eliminate the four major pests, that is, mosquitoes, flies, rats and grain-eating sparrows. They integrated public health work with mass action by the so-called "patriotic health movement." Millions of people were mobilized to kill these four pests throughout the country with all available anti-vermin chemicals and devices including swatting of mosquitoes and flies and manual combat of rats and sparrows with sticks and stones. They not only mobilized adults but also utilized the aged and the very young. Under such all-out war launched by millions of human beings against vermin and birds, the humans finally won the battle and were eventually able to prevent and control many communicable diseases spread by these vectors. It has been reported that in 1959 over a billion sparrows, one and a half billion rats, 100,000,000 kilograms of flies and 11,000,000 kilograms of mosquitoes were eliminated. It was humorously reported that many sparrows which were not actually killed by shooting or striking but were constantly chased by the people hour after hour finally died of sheer exhaustion. It is surprising to many visitors today that these former plaguing pests have practically disappeared from China.

It has to be pointed out that such concerted mass action was made possible through effective enforcement of police power and through the voluntary cooperation of the people. In carrying out such a campaign, families in each block or ward in a city formed their own groups and elected a group leader of the so-called Street Committees. Under the chairmanship of a member from the local district council, the Street Committee served as the basic unit in carrying out the government orders of public health together with the other vital functions, such as education, welfare, security, including arbitration between neighbors. They also represented the voice of the people through the committee chairman to the government. Such two way public representation was believed to be the reason for the success of this battle.

The improvement of general environmental sanitation and the practice of personal hygiene both in the cities and in the rural areas, is also phenomenal. Everywhere rivers and streams have been drained and irrigation improved. Countless old refuse dumps and stagnant pools have been transformed into parks and recreational areas throughout the country. Reconstruction of slums is another area of interest to the Communists. Much attention is being given to research on various sanitation problems ranging from disinfection of well water and washing and cooking of vegetables to the effect of heat on factory workers and the climatic influence on infant mortality.

Since the Communist Party took over China great strides have been made in the improvement of sanitation, health education and prevention and control of common infectious and parasitic diseases. Hand in hand with the public health work, clinical medicine is claimed to have contributed to the total disappearance of cholera in China. Plague and small-pox have been eradicated. Typhus, relapsing fever and other "notifiable" or "reportable" infectious diseases have been brought under control.

Great improvements have also been made in the control of major parasitic diseases. The number of victims of schis-

tosomiasis was up to 10,000,000 persons at one time; it has been reported that 4,000,000 such patients have been cured and many areas freed from such a disease. . . . Millions of malaria patients have been treated and its incidence rate has dropped to less than a 3% level. . . . Filariasis has been practically eliminated from 38 districts and municipalities and 2,600,000 patients have been cured. . . . Hookworm infection is still widespread in the country; it is reported that 36,000,000 patients have so far been cured. . . . The mortality rate of tuberculosis has also dropped rapidly; for example, TB declined from 230 per 100,000 in 1949 to 46 per 100,000 in 1958 in Peking. Syphilis and gonorrhoea are no more a health menace due to the proper practice of personal hygiene and effective treatment. . . . Much work on influenza has been done in the past few years, especially after the 1957 influenza epidemic. An All-China Influenza Conference was called and one central and several regional research laboratories were established at that time. . . . Polio virus, adeno virus and coxsackie virus have been isolated and studied.

A number of Chinese herbs and acupuncture therapy have been tried in the treatment of hypertension and reported to have had good effect. . . . For palliative treatment of ascites in liver cirrhosis a combination of Western medical treatment and traditional Chinese medicine have reportedly kept many patients free from abdominal fluid for as long as 18 months. Treatment for pulmonary tuberculosis by traditional Chinese medicine in combination with modern drugs has been tried extensively, reportedly with good results. Several herbal drugs have also been used in the treatment of bronchial asthma. Goiter is an important endemic disease in China; much survey work has been done and preventive measures taken.

Extensive medical and industrial health work has been done to check the widely prevalent silicosis and much progress in its diagnosis and treatment has been related.

Progress in the field of surgery has been rather slow. During the past ten years China has concentrated on establishing surgical facilities in many hospitals. However, many sur-

geons have acquired considerable experience in modern surgical techniques. Anesthesiology has become a well-recognized specialty and new techniques have been adopted. It has been reported that in a series of 1,785 cases of acute perforation of gastro-duodenal ulcer, 32.8% were treated by gastric resection with a mortality rate of only 2.6% and an ulcer-recurring rate of 2.4%. . . . Thoracic surgeons in China have made several modifications in the technique of thoracoplasty. . . . Along with the development of cardiology, rapid progress in cardiovascular surgery has been made. Such operations as mitral commissurotomy, pericardiectomy and ligation of patent ductus arteriosus are practiced in most medical college hospitals and provincial hospitals. Modern cardiac operations such as direct vision intra-cardiac operations and transplantation with preserved or artificial blood vessels are performed in increasing frequency at a number of medical centers.

As the result of saving the life of one severe burn case (involving 89.3% of his body surface) great enthusiasm has been engendered in the treatment of burns. Reportedly many more lives have been saved by emphasizing proper management of restoring the balance of water and electrolytes and prevention of wound infection.

Little on the quality of medical education has been emphasized during the past ten years. . . . Although the idea of quantity versus quality is subject to argument, the fact remains that much progress has been achieved in the field of preventive medicine and public health.

It has been announced recently in the Chinese Medical Journal that a new medical college has been established in Peking. This new college, called China Medical College, will offer an eight-year medical course instead of short term-training. Three years will be devoted to basic sciences; two years to basic medical knowledge, two years to clinical medicine, and one year to practical field experience. English and Russian are the two compulsory languages required in this medical college. . . . One of the evidences of China's realiza-

tion of the importance of quality as well as quantity is the establishment of this new eight-year medical college. There are other examples, including achievements of the Chinese Medical Association.

This Chinese Medical Association was in existence in Nanking as early as 40 years ago; under the Communist regime it was later moved to Peking. By the end of 1958, membership had increased from 4,000 in pre-Communist days to 18,472. There are all together 16 professional societies within the Association with 54 branch associations throughout the country. A new five-story headquarters with a sizeable medical library was built for the Association in 1957. Its activities have increased every year and many important national conferences have been sponsored jointly with the Ministry of Health. Publication of medical journals and books is also an important part of its work. Twenty-five major medical journals are now published and more than 1,200,000 copies are circularized. It has been reported that 422 journals in 30 countries have exchange agreements with the Association.

All important medical books and journals have been published by "The People's Medical Publisher" in Peking since 1953. Up to the present there are 77 kinds of medical and health periodicals published throughout the country. The Chinese Medical Journal is published monthly both in Chinese and English editions. The monthly editions of the Chinese Journal of Internal Medicine and the Chinese Journal of Surgery have English abstracts. The bi-monthly publication of the Chinese Journal of Pediatrics, the Chinese Journal of Ophthalmology, the Chinese Journal of Radiology, the Chinese Journal of Neurology and Psychiatry all have English abstracts. The Chinese Journal of Pathology is a quarterly publication, also with English abstracts. Two monthly English scientific publications, the *Scientia Sinica* and *Science Record*, eight quarterly *Acta Experimentalis in Biologica Sinica* are published by the Chinese Academy of Medical Sciences. The Central Research Institute of Health is responsible for the preparation of the widely read monthly publication of

"People's Health," which was formerly included as part of the Chinese Medical Journal. The National Library of Medicine of the United States Public Health Service (formerly Army Surgeon General's Medical Library) has a good collection of such periodicals available for reference.

Medical Care: Philosophy

The practice of medical care in China today may be said to be a modification of the Russian "socialized medicine." However, patients do pay small fees to hospitals, clinics, or health centers. Usually very small fees are charged for doctors' services but more substantial ones for expensive drugs, X-rays, and surgery. The trend at present is to provide more hospitals and clinics in order to render more free medical care to the people. This has already started with the so-called "privileged groups" in most cities. It has been reported that there are at present 300,000 hospitals and clinics with more than 400,000 hospital beds and 1,400 anti-epidemic stations throughout the country. Recently it has been claimed that 700,000 industrial workers, 360,000 teachers and university students and government workers in Peking alone are receiving such free medical services. In Shanghai the same privilege has been given to 1,160,000 workers, 280,000 teachers and students and government workers. More than 1,000,000 dependents of factory workers receive the privilege of paying only half of their medical expenses.

It is quite obvious that in China medical doctors do not have the freedom of medical practice that medical doctors have in this country (the U.S.). All doctors, nurses, technicians, sanitarians and other health workers are government employees and are paid set salaries by the hospitals or health agencies. Although private practice still exists in some big cities the scope is negligible. Restrictions set by government regulations on fees make it impossible for practitioners to earn greater incomes.

In various city and country resorts, hundreds of sanatoria

are now available free of charge for those privileged groups mentioned above. Hundreds of beautiful villas in the famous seaside resort of Tsingtao, which was formerly used exclusively by war-lords and industrial tycoons, are now used by national "model" workers, combat heroes, scientists, doctors, professors, writers, artists, opera singers, waiters, cooks, shop assistants, drivers, railroad conductors and nurses.

Three Level System

The medical care system is divided into three levels. The primary, or lower level medical care starts in the municipal clinics in cities and in the county health centers in rural areas. Patients are seen by modern medical or traditional doctors for general diagnosis and primary treatments on three eight-hour shifts. When doctors are not immediately available for house calls, emergency first aid treatment is rendered by nursing aides or health aides in the villages.

At the secondary or middle level, medical care is given at better staffed and better equipped county or district hospitals. These hospitals have a bed capacity of between 200 and 300 to handle specific medical or surgical cases. For general public health work, the county or district health department is responsible with assistance of one or more anti-epidemic stations. These stations are charged with laboratory work and preventive medicine and health educational responsibilities.

The high or third level medical care consists of highly specialized hospitals or health institutions operated by big municipalities, provincial governments, or medical colleges, similar to big medical centers in the United States. The general public health responsibility at such a level rests with the health department of the province or special municipalities; they are under the direction of the Ministry of Health of the Central Government.

Medical Care in People's Communes

The Communists believe that a commune system is an integrated organization of workers, farmers, merchants, stu-

dents, and soldiers. They are organized in militia to meet any military emergency and into production brigades to attain the quota set for national reconstruction. Within the commune there are medical and health installations, mess halls, kindergartens, nurseries, gynecological and obstetrical hospitals, and institutes for the reverence of the aged.

In order to see the trend of medical care in China it will be helpful to study an example of a typical people's commune. In the rather hilly countryside of North China is a county called Mec Hsien which has recently developed into a prosperous coal-mining area with various small industries. It is composed of seven communes with different population sizes. One of these communes has a population of 40,121, which is divided into 17 "production brigades." Each production brigade is sub-divided into 4 to 10 "production regiments" in the various villages.

Each people's commune has a managing council which controls all production brigades as well as supervising the functions of the medical and health agencies. The medical and health agencies include a commune health center clinic with several health stations, obstetrical clinics and many health aides, nursing aides and obstetrical aides. The commune health center clinic has a staff of 43 among which are nine modern medical doctors, 7 traditional doctors, 10 nurses, 11 technicians, 3 administrators, 2 public health personnel and one maternal care nurse. There are 25 simple type hospital beds at this clinic, calculating on a hospital bed and population ratio of 0.6 to 1,000.

There are 17 production brigades in this commune and each production brigade has a health station. The health station, however, is directly under the administrative direction of the commanding officer of the production brigade, while the director of a health center has only technical responsibility. They serve an area of about a 3 to 4 mile radius covering 8 to 10 natural villages, and provide out-patient care at the station and make emergency house visits whenever called upon.

There is a maternal child health nurse at each health center clinic and she is responsible for the maternal and child health problems within the commune system. Each production brigade has one obstetrical clinic with an experienced obstetrical aide to assist the doctors. At present it is claimed that 60% of all babies are delivered by scientific methods. In the larger cities it has reportedly reached as high as 98%.

The need for nurseries and kindergartens depends upon the activities within the production regiments. During busy seasons of the year usually there are many nurseries established on a temporary basis. In each production regiment there are health aides, nursing aides and obstetrical aides working in their respective fields under the supervision of the doctors and nurses.

All patients are charged nominal medical fees at the health center clinic which is entirely supported by the whole commune. Charges for services given by the health stations vary with the productivity of the production brigades. Usually the patients pay only 30% to 50% of the cost of medicines.

Central Research Institute of Health

In 1950 the former Central Health Experimental Institute in Nanking was reorganized into the Central Research Institute of Health and moved to Peking. It is mainly concerned with research directly or indirectly related to people's health. It consists of six departments, namely, microbiology, sanitary engineering, nutrition, pathology, pharmacology, and Chinese herbs. It has a branch institute in Nanking entirely devoted to the investigation of parasitic diseases, and a branch institute on Hainan Island studying malaria. At present there is a staff of more than 250 scientific research workers.

Much of the investigation in the department of sanitary engineering is on the problem of general sanitation and industrial ventilation and cooling. Many experiments have been conducted on the use of natural raw materials to produce insecticides such as DDT, 666, etc. Investigation of various parasitic and infectious diseases such as schistosomiasis,

malaria, etc., conducted or sponsored by this Institute have been reported above. Much research has been done on the nutritional value of wild vegetables in respect to their vitamin content. The study of milk substitutes using beans, rice and other foodstuffs has been pursued intensively. Much of the pharmacological research has been in the synthetic production of native anti-malarial and anti-TB drugs. Recently the study of physiques of the people has caught their interest in an effort to promote a better physical health and in meeting the needs of national defense and production.

Cancer Prevention and Control

Having been successful in combatting the infectious and parasitic diseases, the Communists have also realized the importance of preventing and controlling chronic diseases. Recently they launched a vigorous cancer campaign. Although their achievement in cancer research has not been of great significance, yet the scope of this problem with such a vast population warrants our attention. Mass detection of cancer, especially of the uterus and cervix, esophagus and nasopharyngeal cavity was started in 1958, and more than 4,000,000 people have been examined in 13 provinces and cities.

The Communists also paid great attention to the problem of liver cancer. Thirty-eight medical colleges have conducted intensive investigations of this problem. Some investigation of lung cancer-cigarette relationship has also been conducted.

The Symposium's Conclusion

In reviewing the progress of medicine and public health in China today, one of the most startling accomplishments is the prevention and control of many infectious and parasitic diseases which had ravaged the country for generations. The improvement of medical education, in quantity if not quality has been noted. However, other progress in medicine is not actually as rosy as the Communist propaganda indicates. The integration of traditional Chinese medicine with Western medicine is obviously over-done, but at present no one is in a

position to conclude that nothing of value or importance to medical science will result.

As we know, there is a great socio-economic revolution going on within one-fourth of the world's population, in China. No matter what the political outcome in that country, its impact on the philosophy and practice of medicine and public health should not pass unnoticed by the rest of the world. Although the enforcement of the commune system has met with much opposition within China and received severe criticism abroad, its success or failure will naturally depend upon the benefits reaped by the people, including the vital problem of medical care. Since the problem of medical care for the aged is one of the urgent problems in the United States today, it is not surprising that even the Communists are trying to find a solution.

Another facet of interest and importance is that most senior Chinese doctors and medical scientists in Communist China today are either American-trained or have visited the United States on an exchange basis. For the most part they are competent workers and thinkers and form the backbone of the medical service over there. They have great admiration for the advances and contributions of America in the field of medical science. From the viewpoint of a scientist, the exchange of scientific information with any scientific community is enriching.

Thus end the verbatim and copious excerpts from the information about health and medical work in China as presented to the Symposium on Communist Chinese Sciences.

The FAR EAST REPORTER would like to add:

CURRENT HEALTH WORK ADVANCES: 1961

An Example of Local Health Work Activity

New achievements in medical work in the small city of Fatshan in Kwangtung Province is an example of environmental hygiene. A complete network of medical service

shows that in addition to the city hospitals, polyclinics have been built in all the urban people's communes there. Red Cross stations have been set up under neighborhood committees, clinics in factories, and farming teams in the rural suburbs. Special reporters have been appointed from among the local inhabitants to keep the medical service posted on the possible outbreak of epidemics, with the result that epidemics which usually prevail at certain seasons have been kept under control.

Fatshan, located southeast of the capital of Canton, was notorious before Liberation for its filthy streets, open ditches, garbage, dumps, cesspools, flies, mosquitoes, epidemics and parasitic diseases. Immediately after Liberation public health work was made one of the main items on the agenda of the local Communist Party organization, on the people's government, and on the local population. In 1958 a thorough-going house-cleaning campaign involved the whole city, with the result that a complete sewage system was built, entirely changing the look of this small south China town. Since then further work has been done to tidy up the city still more; ponds with a total surface of over thirty thousand square meters have been thoroughly dredged and turned into fish-breeding grounds; twelve acres of unused lots and marsh land have been opened up as orchards and market gardens.

Steam sterilizing facilities, running water for washing, boiled water, and thermos containers have been installed in all restaurants and dining rooms, and measures have been taken to guard against flies and rats. No serious cases of intestinal or stomach complaints were reported for 1960.

Mass sports activities with physical culture exercises and the slow, rhythmic and health-giving style of Chinese traditional boxing, called "taichichuan," as the main items, have been popularized among the entire population. New labor-saving devices such as automatic feeders in metallurgical workshops have been generally introduced in factories, and special steps have been taken to combat occupational ailments.

To cope with the increasingly wide range of medical

services, 56 secondary medical workers for factory Red Cross societies and over 1,000 first aid workers were trained in 1960 to help the local doctors.

An Example of a National Health Conference

A meeting of the National Research Committee on Schistosomiasis held in Shanghai in January 1961 reviewed the experiences and achievements in combatting parasitic diseases, mainly schistosomiasis, in 13 southern provinces, cities and autonomous regions. According to recent investigations made in 14 people's communes in Hunan, Kiangsi and Hupeh Provinces, which were the areas formerly worst stricken by schistosomiasis, heavy morbidity of the disease is ended; very few patients have noticeable symptoms, and the contagion rate has fallen drastically. Effective treatment, including the combination of modern and indigenous methods, was carried forward in many places in 1960, and the three-day treatment of early cases has been widely adopted. In Shanghai, the combination of traditional Chinese and modern medicine has had results in 80% of late stage cases, most of which were formerly, according to modern medicine, regarded as hopeless.

Further tasks in the scientific study and care of parasitic disease were set for 1961, including the elimination of the water snail, the speedy killing of its eggs, the development of new drugs, and measures of personal protection.

More than 80 leading doctors and public health workers and scientific research workers attended the meeting.

An Example of Expanding Medical Training

Peking Medical College today has an enrollment nine times as large as in 1949, when Peking was liberated. Three thousand and six hundred students from over thirty different nationalities in China are now studying at the college, the country's leading institution of medical education. In January 1949 there were only four hundred students. Since Liberation over 4,300 graduates have left the College to work as doctors or instructors in Peking, Shanghai, Tibet, Chinghai

and twenty-one other provinces and autonomous regions. This is in striking contrast to the 1,006 students who graduated in the 37 years before Liberation.

The College now has 625 professors, instructors and research fellows, over one-third of whom also serve as doctors at the college's hospitals and clinics. Many of the students come from worker or peasant families and some are the first groups of trainees in advanced medicine from minority nationalities in China. The students are provided with free tuition and lodging. Workers and government employees receive free medical attention.

This institution, as well as other such institutions in new China, has as its primary object a new type of medical worker dedicated to the cause of socialism and the protection of the health of the widest sections of the people; during training the staff and students maintain close contact with workers, peasants and other working people.

Large scale field work was carried out by staff members and students during the 1960-1961 winter season among factory workers and peasants in the Peking area; their services ranged from epidemic prevention, popularization of basic medical information, and training of first-aid workers to the improvement of public canteens and arrangement of scientific diets.

The amount of modern laboratory facilities and medical apparatus in the College has multiplied and the total floor space of buildings has increased five-fold, to reach well over two hundred thousand square meters. Three new experimental hospitals have been built under the College since 1958, bringing the total number of beds to over 2,400 as compared with just 134 in 1949. (In Peking as a whole, the number of hospital beds has increased eight times since 1949.)

Examples of Medical Colleges Participating in Rural Health Work

In 1959 the help to rural work, which medical colleges

started giving soon after Liberation, was developed on a larger scale. Each college adopted a particular area as its base for activities—teaching and scientific research closely combined with production. In this way the medical colleges get close to the problems of the people.

The staff and students of Shanghai First Medical College for the past two years have been helping Chingpu Village near Shanghai in their fight against schistosomiasis. This village was one of the areas worst affected by this dread endemic disease. The College, together with the local health workers, have cured most of the sufferers in the early stages of the disease and have reduced the density of water snails, the intermediate hosts of the schistosome, from 15 per square foot to 0.05. At least 50,000 early stage cases have been healed and tens of thousands of people have been restored to normal work capacity. Many women patients have regained their reproductive powers.

Teachers and students of the Sian Medical College, in Shensi Province, working in areas where “iron rickets” and “koshan disease” are peculiarly endemic, have transformed the pessimistic attitude that formerly prevailed toward these two diseases. The koshan disease usually begins with vomiting that can swiftly develop into severe heart impairment and cause death. Before Liberation nine out of ten sufferers from this malady died; now even many patients in the acute stage are being cured. Rickets has deformed many people; the Sian Medical personnel set up three bases and carried out research and treatment, developed methods of detecting, diagnosing and treating the disease at an early stage.

Harbin Medical College, in Manchuria, has set up regular contact with twenty people's communes in four nearby counties; not only has rural public health been improved, but 5,000 persons suffering from serious ailments have been treated and cured; and the fight against endemic diseases of the area, including thyrocele and trachoma, is being carried on relentlessly..

This practical work among the people and this close touch

with actual conditions has greatly enriched the research and theoretical work of the medical colleges. The college medical personnel have studied the local traditional indigenous methods and have derived benefit from the experience of the local people's practice in treating their endemic diseases.

CONCLUSION

The *New York Times* saw "the rapidity of developments in the last decade" as "attributed to such factors as the existence for the first time of a strong central government, the allocation by that government of extensive funds for science, and a sudden release of enthusiasm and interest in a scientifically-minded population." (December 27, 1960).

Certainly no one hearing or reading these reports made at the meeting of American scientists about China's material and personnel resources and the use of these assets for the improvement of the life of her people can fail to realize that a "technological, scientific and social revolution is taking place on the mainland of China."

No one who, like the publisher of FAR EAST REPORTER, has had the opportunity to visit China after ten years of the people's China, can doubt that today's China is a mighty nation—of almost seven hundred million people—seriously at work building, not for any destructive warfare, but for a future of peace for her people—and a mighty peace factor for the peoples of all the world.

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