

## THE OCCASION OF THE TWENTY FIRST EXTRAORDINARY CONGRESS OF THE COMMUNIST PARTY

On January 27, 1959 is to be summoned the 21st extraordinary congress of the Communist Party of the Soviet Union in order to discuss the control figures for the development of the national economy of our country in the years 1959-1965.

In the time which has elapsed since the 20th congress of the Communist Party, socialist economics, science and culture have achieved new successes in our country, which has made possible the further growth of the material welfare of the population. The resolutions passed at the 20th congress of the Communist Party, and the carrying out of these resolutions have laid the way for these successes, of which many examples are to be seen. At the present time the Soviet Union has surpassed all the capitalist countries of Europe in the level of its industrial production, and in the tempo of its growth it has outstripped such a highly developed industrial country as the United States of America.

Only last year the USSR was very close to the USA in its output of a number of agricultural products, and in a few of these it has already caught up to or even surpassed the present level of production of these products in the USA. The present year, 1958, has witnessed the achievement of some particularly important result in the field of agriculture in our country; the harvest of grain and of several other important crops has been on an unprecedented scale. Because of the achievements of our country in the realms of industry and agriculture, the national income of the USSR has increased.

The exploits of Soviet scientists, and of all our people, have aroused the universal admiration and acknowledgement of all progressive mankind. In August, 1957 was launched the first long range intercontinental rocket capable of reaching any part of the earth's surface. On October 4, 1947, which has become a historic data in the life of progressive mankind, the first artificial earth satellite was launched. One month afterwards an even more audacious plan was carried out — the launching into the cosmos of an entire scientific laboratory, on board which was the first living creature to ascend into the cosmos. On 15 May, 1958 the third Soviet artificial satellite reached an even greater height. The data received as a result of the launching of three artificial earth satellites is of exceptional value to the science of the whole world. The Soviet Union has been highly successful in the practical use of atomic energy for peaceful purposes. The first electric power station in the world worked by atomic energy was put into action in the Soviet Union. The first atomic icebreaker was constructed in the Soviet Union, and in April 1957 the most powerful synchrophasotron — an accelerator of nuclear particles — in the world began its work in the Soviet Union. Finally the first powerful jet aircraft to be used on passenger lines in the world were introduced in the Soviet Union. The discoveries of our scientists in the Arctic and Antarctic are widely known. Scientists from our country are the first speakers at the international tribunal on controlled thermonuclear reactions.

In the Soviet Union nuclear radiation is widely used for its action on various processes taking place in the body. Radioactive isotopes have found wide application in our country in industry, agriculture, biology and medicine. Soviet science is making a valuable contribution to the technical progress of our country, and to its economic and cultural development, and to the strengthening of the defensive forces of the socialist state. Its outstanding successes in the fields of mathematics, physics, chemistry, electronics, etc. have led to the solution of the most complicated problems in the development of power engineering, machine construction, metallurgy, radiotechnics, automation and telemechanics, and to the introduction into industry of the latest technics and to the development of the most highly efficient technological processes.

The grandiose plans for the development of the economy, culture and science of our country outlined in the

speeches of comrade N. S. Khrushchev to the 21st extraordinary congress of the Communist Party of the Soviet Union give evidence of the new and gigantic race of our country towards communism. These plans inspire the entire Soviet people and all Soviet scientists to further venture and to successful struggles in the building up of communism. In this new 7-year plan for the future great attention has been paid to the development of medicine and biology.

The achievements of our country in the development of a socialist economy have facilitated further progress in the field of the technical sciences, physics and mathematics and have created favorable conditions for the successful development of biology and medicine.

During the last 10-15 years, Soviet doctors and biologists have enriched our medical science with many valuable pieces of research, which have laid the foundation for new successes by the public health departments in the further improvement of the health of the population of our country, the further reduction in the general mortality and the systematic reduction in the morbidity.

In their activities Soviet medical scientists are guided by the noble purpose of standing guard over the health of the working population, to prevent disease and not only to treat it, and to carry out extensive health measures. The development of Soviet science, and in particular of branches such as biology, physiology and pathology, have made it possible to penetrate deeply into the essence of vital phenomena.

The development of Soviet medicine has taken place on the foundation of the Soviet theory of the influence of the nervous system. To take into account the special role of the nervous system as a system unifying all the functions of the body enables an understanding of the mechanism of the most diverse processes.

Soviet physiologists have continued to utilize and develop the ideas of I. P. Pavlov and have greatly increased our knowledge by their studies of the mechanisms of the higher nervous activity of man and animals. By making good use of modern methods of electrographic analysis of the processes taking place in the central nervous system, physiology in our country has applied the results which have accumulated to the treatment of a number of diseases of the central nervous system. Modern neurosurgery, neuropathology and psychiatry make extensive use in diagnosis and treatment of several facts established by physiologists. Other sections of physiology have yielded equally fruitful results. The joint working of physiologists and clinicians has developed successfully. Nowadays it is impossible to imagine any major hospital or clinic in which physiological methods of examination of the function of the circulation, respiration, digestion and so on are not practised. It has become the custom for our clinical hospitals to have physiological laboratories to assist in the diagnosis and treatment of disease.

Considerable success has been attained by Soviet pathologists in the study of the mechanisms of disease and recovery, and in the theoretical analysis of diseases such as hypertension, peptic ulcer and some infectious diseases. In this way a characteristic feature of the development of these two disciplines has been the significant penetration into pathology of physiological methods of analysis of pathological processes. In their turn, physiologists have also studied and investigated physiological processes by making use of the wide range of methods of pathology.

A conspicuous place in research has been occupied by work on ontogenesis and age characteristics of higher nervous activity. This research has resulted in the collection of some very valuable material on the subject of the age characteristics of physiological and pathological processes.

In the 7-year plan for the future development of Soviet medical science, new tasks have been placed before physiologists and pathologists, the solution of which should lead to a significant advance in theoretical and practical medicine. A special feature of the research which is planned here is not only the mutual penetration of physiology and pathology, but the maximum association of these subjects to the requirements of public health. One of the most important conditions for the successful solution of the tasks which are laid down is the continual raising of the standard of the methods and technical equipment of experimental research.

Further advances have been made in the field of pharmacology. The more profound study of the nervous regulation of the functions and reactivity of the individual links of the reflex arc in relation to various chemical substances has enabled the synthesis or isolation from medical plants of a whole series of new drugs (spasmolytics, curare-like drugs, cardiac drugs and many others) possessing the property of action on individual mechanisms of effect and regulation of physiological functions in normal and pathological conditions.

New antibiotics and synthetic chemotherapeutic preparations have been obtained and studied. Progress has

been made in the field of obtaining drugs for vitamin and hormone therapy. The plan for the future calls for the further development of this work in order to completely equip Soviet medicine with effective drugs of low toxicity for the treatment of the most diverse infectious and noninfectious diseases.

Very recently real progress has been made in the study of the problem of premature senility, and the special features of the physiology and pathology of old age. These tasks will be undertaken particularly by the newly organized Institute of Gerontology of the AMN SSSR.

The study of the structure and function of protein and its role in metabolism plays a prominent part in the development of medical biology in our country. The progress of research in this direction has led to the accumulation of some very valuable data on the composition and structure of proteins, on individual proteins, on ways of conversion and synthesis of proteins in the body, and the role of proteins and their functions in the tissues of the nervous system. The results obtained indicate new lines for research in this field.

Soviet microbiologists have done a great deal of research on the laws of variation of microorganisms and have studied its importance in biology and medicine. The facts which have been gathered provide the basis for proper notions of the evolution of living creatures and shows the way to develop this problem so that it may be put to practical use and also solve some fundamentally important theoretical problems. A characteristic feature of the development of this particular problem during the last five years was the determination of the possibilities of artificial interference in the processes of formation of species of bacteria, yeasts and molds of practical importance, with the aim of modifying their hereditary nature. Much of the experimental work on Soviet microbiologists was directed towards the establishment of the principle in accordance with which the external environment, under certain conditions, creates new properties and external signs in an organism and does not merely bring to light existing features as determined by heredity.

In recent years new experimental and clinical findings have been gathered on the nature and role of the so-called precancerous diseases in the origin of malignant tumors. The study of this problem has led to an approach being made to the problem of the prophylaxis of malignant tumors in man. Research on the immunology of cancer, the detection and removal of carcinogenic factors in the external environment have led to the separation of cancer prophylaxis as an independent problem. The development of a method of chemotherapy and hormone therapy of tumors is of great importance. Research in this direction must occupy a prominent position in the plan of future work. Since the problem of cancer itself is not purely medical but biological as well, its solution must concern institutions of various types, and increasingly wide participation in this research must be given by representatives from biology, biochemistry, chemistry, physics and other specialties.

Many changes have taken place in recent years in the field of study of regeneration, which is of great importance in medicine and, especially, in surgery. Whereas formerly reparative regeneration was studied mainly in cold-blooded animals, nowadays the main test objects have become mammals, which brings this division of biology closer to medicine. In the plan for future research on this problem great attention must be paid to physiological regeneration, whose importance in normal and pathological physiology has long been underestimated. This problem must be treated not so much from a general biological as from a medical aspect.

Discussions in the field of genetics have aroused great interest in inherited changes in somatic cells, which have made it possible to make use of genetic data in studying the mechanisms of malignant growth and have shed light on certain problems of homografting of tissues. At the same time there has been a considerable lagging behind in the study of the role of heredity in the development of certain diseases. The widespread use of atomic energy has stimulated the development of radiation genetics and has posed a number of new tasks before Soviet biologists and doctors.

Research in the field of embryonic development of living creatures is sharply subdivided at the present time. Thus, we have the physiology and biochemistry of embryonic development, the immunology of embryogenesis, the dynamics of embryonic development and so on. The most interesting for medicine at the present time are the biochemistry and immunology of embryogenesis, since purely immunological forms of pathology of intra-uterine development of man have been discovered, and since the immunological and biochemical features of embryogenesis which have attracted the attention of all biologists may lead to an explanation of some of the peculiarities of development of cells and tissues in embryogenesis.

These lines of activity in medical biology are extremely topical, and must be the subjects of the most concentrated attention in the coming years.

The research carried out by Soviet biologists and medical scientists in the fields of development both of medical theory and practice have borne real fruit. These have been reflected in the statistics of the birth rate and the expectation of life, and in the general physical development of the population. The birth rate and the natural increase of the population are higher in our country than in the leading capitalist countries.

The general mortality rate of the population of the USSR has fallen to one quarter of its prerevolutionary level, and the infant mortality rate has fallen 6.1 times. In the years of the fifth five-year period alone the population of our country has increased by 16.3 million persons, which is equal in number to the combined population of Sweden, Norway and Finland. The mean longevity of the population of the USSR, from the figures for 1955-1956, had more than doubled the figures for the prerevolutionary period. Morbidity and mortality have sharply declined.

The eradication of a number of diseases, particularly infectious, has been placed on a scientific footing. Nowadays students of Soviet medical institutes learn about certain diseases only from books, being unable, happily, to study them in practice.

The forthcoming extraordinary 21st congress of the Communist Party of the Soviet Union will discuss the control figures for the development of the national economy of the USSR in 1959-1965. In these figures will be reflected the results of the building of socialism in our country, and in particular the planned future progress of the country on the path towards communism. The congress will work out a militant program for a new and powerful upsurge in the socialist economy, culture and welfare of the people.

The new plan for the future development of the national economy of our country, which will be the subject for discussion at the 21st congress of the Communist Party, will undoubtedly play a tremendous part in the development of Soviet medicine and biology.

In its program, the Communist Party of the Soviet Union makes great demands on medical science, its theory and practice. The main task which is put before Soviet medicine is to stand guard over the health of the working population, and not only to treat but to prevent disease.

With this summary of certain of the positive achievements of our work, Soviet doctors and biologists must not forget that ahead of them lie many more unsolved problems. However, there is no doubt that the rich experience of the development of Soviet medicine will open up new and even greater prospects of the successful campaign for the health of the Soviet citizen and for the universal development of all his physical and spiritual powers.