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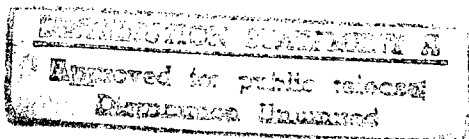
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GENERAL MEETING OF THE DEPARTMENT OF BIOLOGY
OF THE ACADEMY OF SCIENCES USSR

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On 27 September 1960 a general meeting of the Department of Biology of the AS (Academy of Sciences) USSR was held jointly with the representatives of the Academy of Medicine USSR and the All-Union Academy of Agriculture imeni V. I. Lenin in order to prepare the proposals concerning the further development of biology.

An extensive report on the problems of the scientists of the Department was delivered by Academician N. M. Sisakyan, Secretary of the Department of Biology. He stated that the prospects for the development of the national economy open unlimited possibilities for an upsurge of the national welfare, the development of industry, agriculture, science, technology, and culture. In the over-all requirements of the communist society, an important part is assigned to biology, which includes the sciences of medicine and agriculture, which are intimately related to it.

The speaker noted that within the next few years biology should attain extraordinary heights. Whereas the preceding period was marked by development of nuclear physics and the mastery of atomic energy, at the present time the center of gravity of natural sciences will shift more and more toward the biological sciences. The knowledge of the profound processes on which the vital phenomena are based will be the reason for the extraordinary successes of humanity in mastering the forces of nature, increasing economic potential, travel to the other planets, fight against diseases, increasing longevity, further improvement in the material living conditions of human society, etc.

The speaker described the principal divisions of the future plan, remarking that he was giving only general outlines of the trends of the development of biology and was

pointing out certain principal problems among which are, for example, the artificial synthesis of protein which, in addition to the properties of the proteins of the known natural compounds, would also exhibit new and perhaps definitely prescribed properties; decisive successes in learning the mechanisms of photosynthesis and preparation for performing the photosynthetic process outside the green leaf; direction of heredity by means of various factors, including the especially active substances which are assimilated by the organism and have a decisive effect on its development; establishing the principles of self-regulation of living systems, beginning with the self-regulation of living systems, and ending with the most complex mechanics of the activity of the central nervous system; creation of the necessary conditions for many years of life in a space ship, investigation of the existence of life in interstellar space, etc., solution of the fundamental problems related to the study and efficient utilization of natural resources, etc.

The economic importance of these problems merits the concentration of effort and appropriate funds. In order to solve these problems, a wide application of electronics, automation, and computing mechanisms in the biological experiments will be necessary.

Subsequently, Academician N. M. Sisakyan dwelt on the prospects of the development of investigations on the principal problems and trends in biology which were approved by the general meeting of the Academy of Sciences USSR, and briefly described the problems posed before the scientists in connection with working out of the long-range plan of the development of biology.

Having completed the general preliminary outline of the future plan, the speaker proceeded to describe the problems connected with the three important divisions of the plan, the solution of which will be important in the development of the country's national economy.

1. Supplying the population with food. The following measures will manifest a significant meaning for the solution of this problem: compiling tables of the chemical composition of native foodstuffs, development of ways for increasing protein resources, increasing the amount of fats and raising their nutritive value, expanding vitamin production until the requirements for them are met. Completion of these measures will contribute to the solution of the fundamental problem, namely, of supplying the population with food according to optimum physiological norms, taking into account the features characteristic of age, profession, and geographic location.

2. Providing the care of public health. Solution of

a number of problems in this sphere is called upon to ensure further decrease in the morbidity and fatality rates, to eliminate harmful after-effects appearing in new industries, in the development of new territories, and also in space exploration. The joint efforts of the Academy of Sciences USSR, the Academy of Medicine, the Ministry of Health USSR, and the State Scientific Technological Committee of the Council of Ministers USSR are required to solve some of the problems, for example, the development and adoption of physiological-hygienic work and rest norms in connection with automation and complex mechanization of industry and shortening of working time; prevention of and struggle against diseases in new branches of industry; establishing the causes of cancer and development of measures for its prevention and treatment and also the treatment of other diseases, such as nervous, cardiovascular, etc.

3. General problems of distribution of productive forces. This includes the principles of the development of scientific foundations for a more efficient distribution and utilization of natural resources (soils, vegetation, animals, water resources). The speaker dwelt on the necessity for putting into practice a number of measures necessary for conserving and increasing the fertility of the soils, correct utilization of the vegetable and animal world. The necessity of an intense fight against the helminths, insect pests, etc., was especially emphasized.

In concluding his speech, Academician N. M. Sisakyan pointed to the great national importance of the above-mentioned problem, the solution of which will have a tremendous significance in building Communist society in our country, in the cause of peaceful competition with capitalism, in the beneficial effect on the development of other countries. "We must develop our science in every possible way," concluded the speaker, "mobilize all its creative capabilities for making the greatest possible contribution to the public cause of building communism."

The report of Academician N. M. Sisakyan was followed by an extensive constructive discussion.

Agreeing with the speaker that it is necessary to extend further the study of the substratum of vital activity, Associate Member of the AS USSR S. Ye. Severin proposed to expand the plans outlined for supplying energy to the metabolic processes developing in the substratum of the vital activity processes, and for the problem of regulation. The necessity for singling out the problem of regulation was also pointed out by Academician V. N. Chernigovskiy. In essence, all modern physiology and, to an appreciable extent, biochemistry and a number of other disciplines are sciences which study the laws governing regulation. The investiga-

tions of the physiology of the healthy human being, the builder of communism, must not be overlooked either. Academician V. N. Chernigovskiy remarked on the necessity of including in the plan certain organizational measures which would enable us to accomplish all the proposed investigations. Associate Member AS USSR Ye. N. Mishustin also stated that the fulfillment of the enormous problems delineated by the speaker will call forth a revision of the measures required for the realization of the plan. This also applies to the network of scientific-research institutions, the problems of finances and trained personnel, and the coordination of these plans with the plans for operating other institutions.

Academician Ye. N. Pavlovskiy dwelt on the study of natural resources and also of the biological research necessary for the solution of a number of health problems, in particular, the focal nature of diseases. That is a very important and extremely complex problem which can be successfully solved only through the efforts of a series of specialists -- parasitologists, virologists, microbiologists, medics and veterinarians. As a result, we should be able to detect and render harmless such foci in actual practice. In addition, Academician Ye. N. Pavlovskiy pointed to the necessity of increasing the fight against water pollution, which causes great harm to the fishing industry.

The speaker for the Academy of Medicine (AM) USSR, Member of the AM USSR V. D. Timakov, described problems to the solution of which the scientists of the Academy of Medicine USSR could contribute. These are the problems of liquidation of infectious diseases which are still causing great damage to the health of the population, of cardiovascular diseases and, finally, of malignant formations. V. D. Timakov called the attention of the meeting to the need for closer contact and coordination between the scientific research operations of both Academies.

A number of speeches (Academician V. N. Shaposhnikov, Prof V. L. Kretovich, Associate Member of the USSR A. Z. Imshenetskiy) were devoted to the problems of the future development of biochemical and microbiological research with the objective of meeting the ever increasing demand for antibiotics and vitamins, the enrichment of food products with various nourishing substances, and perfecting food production techniques.

Academician I. V. Tyurin dwelt in his address on the problems of pedology connected with the increase of effective fertility of soils and farm crop yield; application of mineral and other fertilizers based on preliminary soil analysis; improvement of the methods and system of soil cultivation, soil reclamation techniques, etc. Parallel to the

above it will be necessary to continue the operations of estimating land resources, development of methods of compilation of soil maps at various scales, profound study of soil composition and properties, etc.

In speaking on the subject of public health, Associate Member of AS USSR Kh. S. Koshtoyants noted that the biologists must pay more attention to the scientific examination of the problems of protection of the health of the younger generation, beginning even with the embryonic state. It is especially important to raise the standard of nourishment in the formative period. Another important problem is putting into practice the synthesis of chemicals having therapeutic significance, including antibiotics. We are concerned not only with the increase of their number but also with the study of their action upon the organism in general, so that measures counteracting their toxic action may be developed, which is of especial importance in treating childhood diseases, since a large number of antibiotics, parallel to suppressing the microbes, inhibit the growth of the child.

The addresses of the representatives of the All-Union Academy of Agriculture (Associate Members I. L. Orlov and N. S. Sokolov) were on the problems of further coordination of the work of the Academies, elaboration of the prospects of joint research, elucidation of the problems the solution of which will increase productivity in animal husbandry and soil fertility and will raise crop and forest husbandry to new heights. They also pointed to the extremely significant problem which is being worked on by many institutions of the Academy, namely, elimination of losses incurred by our agriculture through diseases, pests and weeds.

Academician N. V. Tsitsin reported on the increased wheat crop obtained by the method of distant hybridization and on the prospects opening before the national economy through extensive introduction of high-yield hybrid wheat.

The problems posed before the scientists of the Division for Carrying out the Long-Range Plan were also discussed by Associate Members of the AS USSR V. L. Ryzhkov, G. M. Frank, Candidate of Biology L. K. Shaposhnikov, and others.

In his brief concluding speech N. M. Sisakyan summed up the discussion of the report, stating that only a portion of the forthcoming work had been completed. All the suggestions made must be taken into consideration in outlining specific propositions. "In conducting all our work," stated Academician N. M. Sisakyan, "of planning scientific research we should constantly bear in mind the problem brought up at the XXIst Party Congress, namely, we should strive for a maximum gain in time in the peaceful economic competition between socialism and capitalism."

The general meeting unanimously passed a resolution

on the order of accumulating data for the project and formed a number of special committees which were assigned the tasks of working out specific proposals for the development of research in all branches of biology and also of preparing recommendations for sections of the project concerning practical utilization of the achievements of biology in the national economy.