OTS: 60-11,358

JPRS: 2332

11 March 1960

19981014 101

IMPORTANT RESULTS OF PHYSIOLOGICAL INVESTIGATIONS

- USSR -

by L.L. Shik

DTIC FILE

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

DTIC QUALITY INSPECTED 4

Distributed by:

OFFICE OF TECHNICAL SERVICES
U. S. DEPARTMENT OF COMMERCE
WASHINGTON 25, D. C.

Price: $0.50

U. S. JOINT PUBLICATIONS RESEARCH SERVICE
205 EAST 42nd STREET, SUITE 300
NEW YORK 17, N. Y.

Reproduced From
Best Available Copy

JPRS: 2332

CSO: 3558-N

IMPORTANT RESULTS OF PHYSIOLOGICAL INVESTIGATIONS

/This is a translation of an article written by Professor L.L. Shik in Priroda (Nature), No 10, 1959, pp 57-59/

Ninth All-Union Congress of Physiologists, Biochemists, and Pharmacologists

On 10 to 18 June 1959 there took place in Minsk the Ninth Congress of the All-Union Society of Physiologists, Biochemists, and Pharmacologists. Over 1000 delegates and 300 guests who had arrived from the entire Soviet Union participated in the work of the Congress.

Four years have elapsed since the previous -- eighth -- Congress of Physiologists. Many new data obtained by Soviet scientists have accumulated during this period and the Organizational Committee faced a difficult task: to present in the most complete form the present state of physiological science, to make possible the discussion of the maximum number of original reports on various subjects, and, in addition, to devote sufficient attention to the main and most important problems, as well as to organizational problems. In this connection for the first time in the history of physiological congresses in our country the entire program was composed of three sections: plenary meetings, symposiums on the most important problems, and sectional meetings with brief reports. In addition there were demonstrations of new experimental methods of investigation and instruments, as well as scientific films.

It is impossible in a short article to relate even in the most condensed form the new facts, achievements, and controversial positions which had been subjected to discussion at the Congress. It is sufficient to mention that the short theses of sectional reports which had been printed for the Congress comprised two volumes, and papers of the reports at the symposiums comprised the third volume. We shall try to elucidate only certain important characteristics of the development of physiological science in our country, brought out as the result of the work of the Congress.

The first plenary meeting was devoted to the results and perspectives of cosmic physiology (speakers: V.V. Parin, V.N. Chernigovskiy and V.Ya. Yazdovskiy). The achievements of the Soviet Union in the study of the cosmos, which had amazed the entire world, led to the emergence and systematic development of this new field of physiology. An extensive survey report submitted to the Congress showed the entire complexity and importance of problems under investigation, without the solution of which one can not sucessfully master cosmic spaces and the flights of human beings into them, the important achievements in this field based upon a remarkable technology, and the fascinating perspectives. There was no doubt left in the minds of the delegates that physiology makes a substantial contribution to the greatest venture of natural science and technology -- the conqest of the cosmos a feat worth of the epoch of Communism.

Three days of the work of the Congress were devoted to 14 symposiums on the most important problems of physiology, biochemistry, and pharmacology. Parallel with problems traditional to Russian physiology ("Mechanism of the Making of a Temporary Connection", "On the Interaction of two Signal Systems", "Mechanisms of Cortico-Visceral Relations", "Evolution of the Functions of the Central Nervous System") which reflect the development of the ideas of I.M. Sechenov and I.P. Pavlov, special symposiums were devoted to endocrinology, regulation of respiration and blood circulation, and to the structural and enzymic chemical basis of contractility and excitation. The problems of pharmacology of coronary circulation and synaptic transmission and the physiology and biochemistry of nutrition, important in practice, were also discussed at special symposiums. Considerable interest was aroused by symposiums devoted to problems of the structure and functions of cerebral reticular formation and the mechanisms of central coordinations which have been intensively studied in recent years. Very informative and replete with important scientific data were the majority of reports heard and discussed at symposiums, on the biosynthesis of proteins and nucleic acids, and on energy metabolism; they were of interest not only to biochemists; problems of great general biological significance, important to physiology and medicine were discussed in these reports. Thus, the problematics of the symposiums attested to the many-sided development of Soviet physiological science and the breadth and urgency of the scope of problems which were worked out in numerous scientific institutions. It is to be regretted that the subjects of some symposiums were too broad (for instance, "Regulation of Respiration and Blood Circulation"),

the extensive and numerous reports took up too much time, and thus it was frequently necessary to limit the discussion to comparatively brief addresses in debates. Only in a few symposiums, for example, on the nature of contractility and excitation (leader -- Kh. S. Koshtoyants) was it possible to effect the broad development of a lively exchange of opinions and to organize direct replies by the speakers to oral questions, which in their turn led to more questions and critical remarks. It gave the discussion the breadth, sharpness, and freedom which are needed in symposiums.

The Congress devoted three days to the work of sections. Most of the section meetings were well attended and lively. A total of 300 brief reports were made, of which many contained new and important scientific data. There were two sessions at which were discussed problems of the physiology of domestic animals -- an important field in the national economy, which has expanded notedly in recent years.

The number of reports on human physiology increased considerably. In addition to the traditional section of the physiology of labor and sports, they were represented in various sections and touched upon problems of the physiology of respiration and blood circulation, electical physiology, physiology of motion, problems of compensation of impaired functions, and many other pressing problems of public health. The reports demonstrated that many problems of human physiology are being developed in close connection with the clinic and that as a result of these studies, clinical medicine and physiology are mutually enriched.

For the first time a section on new systematic means of investigation and new techniques in physiology was organized at this Congress. The role of physics, radio-electronics, and technology in modern physiology is very great; the reports reverted new possibilities in principle for a thorough study of the nature of many physiological phenomena at the cellular and molecular level and new ways of controlling the functions of an organism on the basis of achievements in cybernetics.

Among the delegates and guests there were a number of young scientific workers who had taken an active part in the work of the Congress. It is particularly gratifying that comparatively young scientists appeared at the sectional meetings and symposiums with valuable original reports which created considerable interest.

The Congress elected a new staff of the Central Council of the Society composed of 100 members, which included, in addition to the leading scientists of our country, representatives of the numerous branches of the Society. In a

detailed resolution adopted by the Congress an evaluation was given of the state of physiological science in our country, shortcomings and bottlenecks noted, and measures outlined for their elimination. The Congress noted that the remarkable program of the extensive building of Communism in the USSR adopted by the 21st Congress of the CPSU and the rapid growth of science and technology were creating exceptionally favorable prospects for the development of physiology.

END