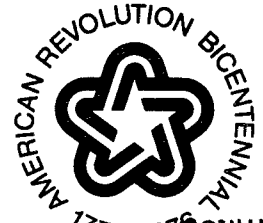
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JPRS 68310

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USSR

USSR ACADEMY OF MEDICAL SCIENCES



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Current JPRS publications are announced in Government Reports Announcements issued semi-monthly by the National Technical Information Service, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Indexes to this report (by keyword, author, personal names, title and series) are available through Bell & Howell, Old Mansfield Road, Wooster, Ohio, 44691.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

BIBLIOGRAPHIC DATA SHEET	1. Report No. JPRS 68310	2.	3. Recipient's Accession No.
4. Title and Subtitle USSR ACADEMY OF MEDICAL SCIENCES			5. Report Date 2 December 1976 6.
7. Author(s) A. M. Chernukh, Editor			8. Performing Organization Rept. No.
9. Performing Organization Name and Address Joint Publications Research Service 1000 North Glebe Road Arlington, Virginia 22201			10. Project/Task/Work Unit No. 11. Contract/Grant No.
12. Sponsoring Organization Name and Address As above			13. Type of Report & Period Covered 14.

15. Supplementary Notes

AKADEMIYA MEDITSINSKIYA NAUK SSSR, 1976, Moscow

16. Abstracts

The report contains a description of the USSR Academy of Medical Sciences, its components and membership.

17. Key Words and Document Analysis. 17a. Descriptors

USSR
Medical Sciences
Academy History

17b. Identifiers/Open-Ended Terms

17c. COSATI Field/Group 06

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
Unlimited Availability Sold by NTIS Springfield, Virginia 22151	UNCLASSIFIED	264
	20. Security Class (This Page) UNCLASSIFIED	22. Price

THIS FORM MAY BE REPRODUCED

JPRS 68310

2 December 1976

USSR ACADEMY OF MEDICAL SCIENCES

JPRS 68310

2 December 1976

USSR ACADEMY OF MEDICAL SCIENCES

Moscow AKADEMIYA MEDITSINSKIKH NAUK SSSR in Russian 1976, 176 pages

[Book edited by A. M. Chernukh]

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[I - USSR - O]

PUBLICATION DATA

Author(s)	:
Editor(s)	: A. M. Chernukh
Signed to press	: 13 February 1976
Date of publication	: 1976
Technical reviewer(s)	: V. A. Grigor'yeva
Copies	: 5,000
Publisher	: Sovetskaya Entsiklopediya
Printing plant	: Moscow, Soyuzpoligrafprom No 2

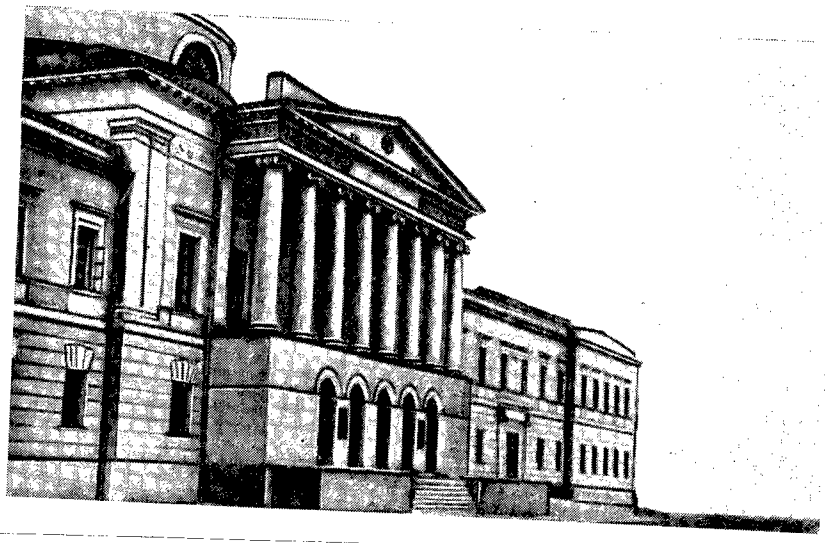
THE USSR ACADEMY OF MEDICAL SCIENCES -- AN OVERVIEW

The USSR Academy of Medical Sciences [AMS] is the supreme scientific medical institution of the USSR, which unites the outstanding scientists of our country who work in the field of medicine and public health. It comprises full members (academicians), corresponding members, as well as foreign members of the Academy, the total number of which is determined by the USSR Council of Ministers. Members are elected to the Academy by secret ballot at least once every 2 years, to the extent of existing vacancies. The Academy is attached to the USSR Ministry of Health, and it is under the immediate jurisdiction of the Minister of Health.

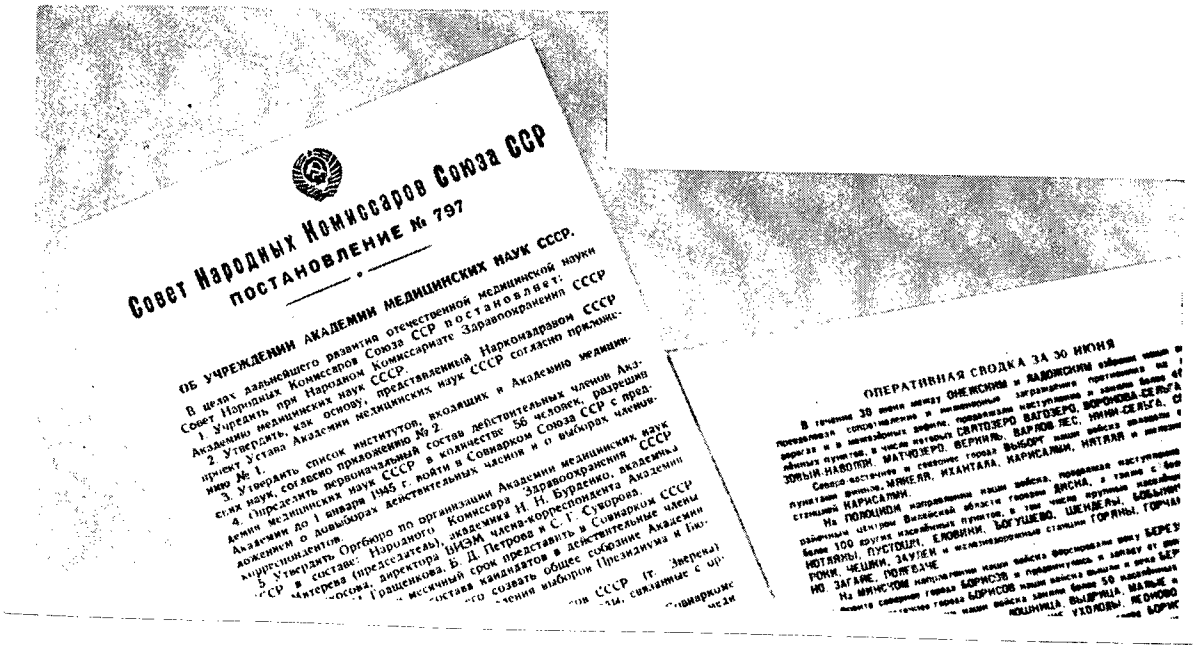
The USSR AMS is the largest center for basic research in the field of medicine. According to its charter, its main tasks are: to solve the most pressing scientific medical problems; to conduct scientific research in the main directions of experimental, preventive and clinical medicine, on the basis of the practical requirements of public health care and continued development of theory of medical science on the basis of Marxist-Leninist methodology; scientific approval [usually involves testing] of the most important discoveries and proposals in the field of medicine, and preparation of recommendations for use thereof in public health practice; to investigate and summarize the worldwide scientific achievements and implement full application of these achievements in our nation's health care.

The Academy defines the main directions of development of medical science in our country pertaining to problems of national importance, and it conducts research in its subordinate institutions; it plans, coordinates and forecasts, as well as controls scientific research in the USSR, for the purpose of solving the problems of paramount importance to medical science and Soviet health care practice.

The Academy pursues research that is important to medical science in collaboration with the USSR Academy of Sciences and USSR Ministry of Health, in accordance with common plans and programs. The academies of sciences of Union republics, sectorial institutions and organizations referable to many agencies, and in some cases academies of sciences of other socialist nations participate in this work. Scientific conferences and meetings are held by the Academy to deal with pressing problems of medicine.



Building of the Academy



Совет Народных Комиссаров Союза ССР
ПОСТАНОВЛЕНИЕ № 797

ОБ УЧРЕЖДЕНИИ АКАДЕМИИ МЕДИЦИНСКИХ НАУК СССР.

ОПЕРАТИВНАЯ СВОДКА ЗА 30 ИЮНЯ

Reproduction of first pages of Decree No 797

Training of scientific personnel and advanced training of specialists in all branches of medicine, for Union republics and institutions under the jurisdiction of various agencies, occupy a prominent place in the activities of the Academy. It is also very active in the publication field, with the major Meditsina and Sovetskaya Entsklopediya publishing houses as its base.

The Academy has extensive ties with foreign and international organizations; it is a member of many international scientific medical organizations; it is actively involved in major international scientific measures, and it also concludes agreements with academies of medical sciences and scientific institutions of other countries for joint research purposes.

In the years of its existence, the Academy has evolved into a major scientific complex and organizational center for the development and management of medical science in the Soviet Union.

On the History of the Academy

The USSR Sovnarkom [Council of People's Commissars] supported, by a decree issued on 30 June 1944, the initiative of Soviet scientists to establish an academy of medical sciences in our country. The foundation of this supreme scientific and organizational center for development and management of medical science in the Soviet Union, during the Great Patriotic War, was vivid evidence of the exceptional concern given by the Communist Party and Soviet government to the needs of Soviet science and Soviet health care.

Organization of the Academy was preceded by much difficult work, that was done by the Organizational Committee approved by the USSR Sovnarkom; this committee consisted of the following: G. A. Miterev, USSR people's commissar of health; N. N. Burdenko and A. IL Abrikosov, academicians of the USSR Academy of Sciences; N. I. Grashchenkov, director of the All-Union Institute of Experimental Medicine and corresponding member of the USSR Academy of Sciences; professors B. D. Petrov and S. G. Suvorov; and A. F. Tret'yakov, RSFSR People's Commissar of Health.

Under the rigorous wartime conditions, some difficulties were involved in the organizational work to found the Academy. In spite of this, on 20-22 December 1944, in the Mramornyy [Marble] Hall of the Moscow Council of Workers' Deputies, the constituent session convened of the USSR AMS. Among its participants were 60 of the most outstanding medical scientists of the nation, recommended by the Organizational Committee and approved by the USSR Sovnarkom as full founding members of the Academy. Not only outstanding achievements, but creation of new directions in medicine are linked with the names of many of them. Many medical scientists, representatives of the USSR Academy of Sciences, sectorial academies and public organizations participated in the work of this session. It discussed the state of medical science in the USSR and outlined the ways and means of future development of the Academy. Academician of the USSR Academy of Sciences, N. N. Burdenko, an outstanding scientist and public health organizer, was elected the first president of the USSR AMS. Its presidium consisted of 11 scientists. The following were elected vice presidents: A. I. Abrikosov, Academician of the USSR Academy of Sciences, and P. A. Kupriyanov and M. S. Malinovskiy, academicians of the USSR AMS; V. V. Parin was elected academician secretary; A. A. Bogomolets, I. V. Davydovskiy, Yu. Yu. Dzhanelidze and L. A. Orbeli were elected as presidium members; the following were elected as departmental academician secretaries: V. F. Zelenin (Department of Clinical Medicine), F. G. Krotkov (Department of Hygiene, Microbiology and Epidemiology) and I. P. Rzenkov (Department of Biomedical Sciences).



First president of USSR AMS Nikolay Nilovich BURDENKO (1876-1946), first president of the USSR AMS (1944-1946), academician of the USSR AS; deputy to the USSR Supreme Soviet, first and second convocations; Hero of Socialist Labor; laureate of the State Prize of the USSR: honored scientists of RSFSR and honorary member of several foreign academies of sciences



First vice president, USSR AMS Aleksey Ivanovich ABRIKOSOV (1875-1955), vice president of the USSR AMS (1944-1948); member of the presidium of the USSR AMS (1944-1950); academician of the USSR AS; Hero of Socialist Labor; laureate of USSR State Prize; corresponding member of the Polish Academy of Sciences



Academicians A. I. Abrikosov and N. N. Burdenko (right) at a meeting of the constituent session of the USSR Academy of Medical Sciences

The All-Union Institute of Experimental Medicine was the chief scientific headquarters of the confirmed Academy. The Academy system included 25 institutes and independent clinical, biomedical and hygienic laboratories; there were 153 doctors of sciences and 349 candidates of sciences working in these institutions in 1945.

* * *

[Interjected comments pertaining to foregoing text and photographs reproduced before and after this page]

> In the years of the Great Patriotic War, the best medical personnel of our country worked at military hospitals and field medical institutions. Among them were 4 academicians of the USSR AS [Academy of Sciences], 22 honored scientists, 275 professors, 558 docents, 306 doctors of medical sciences and 1199 candidates of medical sciences.
>
> * * *
>
> By the end of 1944, state awards (not counting medals for capturing cities) were bestowed upon 25,000 officers of the medical corps. The Order of Lenin was awarded to 60 people, Order of the Red Banner, to more than 700. The high rank of Hero of the Soviet Union was bestowed upon 12 medical workers
>
> * * *
>
> "Soviet medical science urgently requires the foundation of an authoritative scientific body that would sum up the work done in all its special branches, synthesize it, and would offer new concentration and guidance of scientific thought, promptly commending valuable creative research, suggestions and practical recommendations....
>
> The Academy of Medical Sciences must become the supreme scientific institution in the Soviet Union in the field of medicine, uniting the most outstanding scientists of our country" (N. N. Burdenko).
>
> * * *

The scientists of the Academy concentrated primarily on solving the most important problems pertaining to restoring the health of those disabled in the Great Patriotic War and the people that had suffered the tragedy of fascist invasion. Under the guidance of these scientists, a vast network of therapeutic institutions succeeded in such important areas as development of effective methods of treating wounds and wound infection, upgrading methods of anesthetization, processing donor blood for the front, mass production of bacterial products, etc. The clinical use of these achievements in military medical institutions in the field was a significant contribution to the common cause of conquering fascist Germany.

The preventive and epidemic-control measures developed with the help of Academy scientists, the effective methods they developed for treatment of particularly dangerous infectious diseases made it possible to rapidly eradicate the sequelae of the war in liberated regions of the country. In 1944-1950, many Academy scientists were awarded the USSR State Prize for outstanding work in the field of surgery, development and mass production



(1)



(2)



(3)

Constituent session of the USSR Academy of Medical Sciences, 20-22 Dec 1944: in the presidium of the constituent session (1); in the meeting hall (2) and group of founding members of the USSR AMS (3).

of antibacterial agents, methods of prevention and treatment of particularly dangerous infections. They included clinicians--D. A. Arapov, M. I. Arinkin, A. N. Bakulev, Yu. Yu. Dzhanelidze, T. P. Krasnobayev, A. A. Liberg, N. N. Petrov, A. L. Polenov, V. V. Chirkovskiy, S. S. Yudin, D. D. Yablokov and others, and also hygienists, microbiologists and epidemiologists--G. F. Gauze, Z. V. Yermol'yeva, N. N. Zhukov-Verezhnikov, L. A. Zil'ber, M. M. Mayevskiy, Ye. N. Pavlovskiy, I.I. Rogozin, P. G. Sergiyev, K. I. Skryabin, V. D. Solov'yev, V. D. Timakov and others.

There was a sharp widening of the front of basic research in the postwar years, pursued by scientists of the Academy in the most important biomedical, clinical and hygienic branches of medical science. To back this up, large scientific institutions were developed, which made broad use of the basically new opportunities offered by technological progress and advances in scientific disciplines bordering on medicine. The scientific base of the Academy was enlarged with new scientific research institutes (of cardiovascular surgery, poliomyelitis and viral encephalitis, genetics, gerontology, development of new antibiotics, and others) and laboratories (of resuscitation, allergology, organ and tissue transplantation, enzymology, experimental immunobiology and others).

The Academy scientists combined their basic research in the main branches of theoretical and clinical medicine with work on pressing problems that arose in Soviet health care practice and tasks pertaining to the building of socialism.

The annual sessions of the General Meeting of the Academy focused on problems of importance to continued development of medical science and upgrading of medical care of the nation's people. The topics of the sessions of the General Meeting covered virtually all branches of medicine. Even in the first few years of its activity, the sessions discussed problems of development of the preventive direction in medicine (8th session), nervism (2d and 8th), immunity (3d and 6th), oncology (3d and 6th), essential hypertension and influenza (4th, 5th and 6th sessions), etc. There have been two joint sessions of the USSR AMS and AS dealing with the problem of the physiological teaching of I. P. Pavlov, at which the advances of Soviet physiology were discussed and the routes spelled out for future development of the scientific legacy of this great physiologist.

The General Meeting discussed, at its sessions, questions of fulfilling the Five-Year-Plans for development of medical science to further improve medical and health care of the people of our country (14th-16th sessions). At its annual sessions, the Academy discussed important problems: lifestyle and health of Soviet people, problems of gerontology (11th session), malignant neoplasms (10th), trauma (12th), eradication of infections and control of tuberculosis (14th-16th), problems of virology (17th), cardiovascular disease and prevention thereof (12th and 16th), pathology of the liver (12th), defense functions of the organism (16th); they also dealt with problems of using new technology in medicine and biology (18th) and chemistry in medicine (19th session).



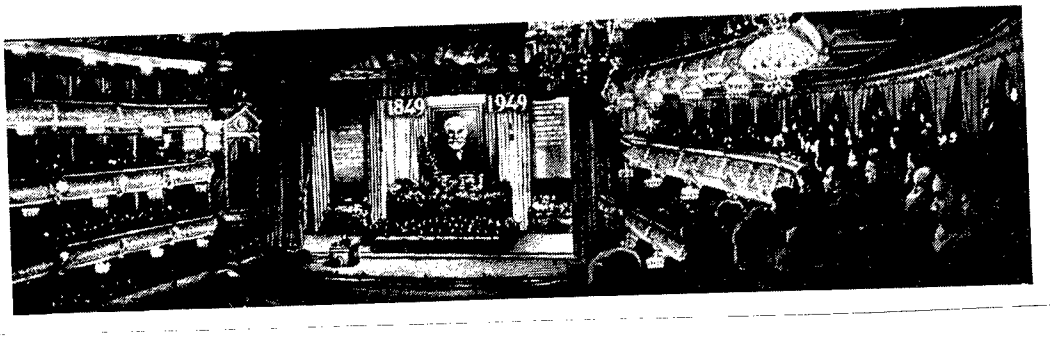
In the presidium of meeting in Ryazan'



Meeting hall, Tavricheskiy Palace



Exterior, Tavricheskiy Palace
Leningrad



Meeting in Bol'shoy Theater, Moscow

Joint Session of the USSR AMS and USSR AS in commemoration of the 100th anniversary of the birthday of I. P. Pavlov (September 1949)

[Commentary accompanying photographs on facing page]:

> The annual sessions of the General Meeting of the Academy always concentrate on problems that are important to the development of medical science and aid in upgrading medical care and intensifying health care of the people of our country.
>
> The most typical feature of medicine in the USSR is its preventive orientation, the unity of prophylactic and therapeutic principles. The concepts of I. P. Pavlov play a large role in development of all branches of medicine, and first of all of physiology and clinical medicine. [or symptomatology]. At sessions of the General Meeting of the USSR AMS, there was repeated discussion of the teaching on physiology of I. P. Pavlov, and of the need to continue development thereof, not only by representatives of experimental medicine, but also and particularly by clinicians. Just under 6 months after the end of the Great Patriotic War, in September 1945, the Joint Session of the USSR AS and USSR AMS commemorating the 10th anniversary of the death of I. P. Pavlov convened. In 1949, a similar session convened in commemoration of the 100th anniversary of the birthday of I. P. Pavlov. Session meetings convened in Ryazan', this scientist's birthplace, in Leningrad and Koltushy, as well as in Moscow.

* * *

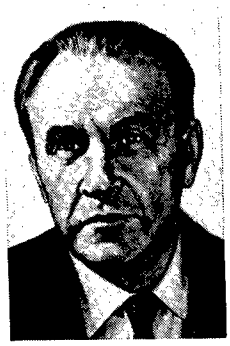
At the 20th jubilee session of the General Meeting of the Academy, prominent scientists delivered scheduled papers dealing with pressing problems of pathogenesis of internal disease, cardiac surgery, prevention and treatment of malignant neoplasms, and development of science of hygiene.

In the last decade some important steps were taken to enlarge the role to be played by the Academy in further development of basic research in the field of medicine and biology, ensuing from the tasks set forth by the Communist Party and Soviet government with regard to health care and strengthening of the physical condition of our nation's people. At this time, at the annual sessions of the General Meeting of the Academy, there were extensive discussions of methodological and methodical bases of theoretical medicine, prospects for continued development of research in all branches of medicine (25th session), the problem of "Medicine and Scientific-Technological Progress" (30th session), tasks for medical science in the light of the decisions of the 24th CPSU Congress (31st session).

The 28th session of the Academy's General Meeting convened in 1969, and it was dedicated to the 25th anniversary of the USSR AMS. In 1970, at the 29th visiting session in Ul'yanovsk, commemorating the 100th anniversary of the birthday of V. I. Lenin, there was discussion of pressing problems of cardiovascular disease, with delivery of several "parasession" papers for practicing physicians--internists, surgeons and pediatricians. In 1972,



Nikolay Nikolayevich ANICHKOV (1885-1964), president of USSR AMS (1946-1953); academician of USSR AS; deputy to the Supreme Soviet, 2d convocation; laureate of USSR State Prize; honored scientist of RSFSR



Aleksandr Nikolayevich BAKULEV (1890-1967), president of USSR AMS (1953-1960); academician of USSR AS; deputy to the Supreme Soviet USSR, 3d, 4th and 5th convocations; Hero of Socialist Labor; laureate of Lenin and USSR State prizes; honored scientist of RSFSR



Nikolay Nikolayevich BLOKHIN (born 1912); president of USSR AMS (1960-1968); member of USSR AMS presidium since 1972; deputy to USSR Supreme Soviet, 7th and 8th convocations; Hero of Socialist Labor; chairman of the Committee for International Lenin Peace Prizes since 1975; honorary member of several foreign academies of sciences



Vladimir Dmitriyevich TIMAKOV (born 1905), president of USSR AMS since 1968; academician secretary of USSR AMS (1953-1957); academician of USSR AS; deputy to USSR Supreme Soviet, 9th convocation; Hero of Socialist Labor; laureate of Lenin and USSR State prizes; honorary member of several foreign academies of sciences

Presidents of the USSR AMS (1944-1976)

the jubilee, 33d session of the Academy's General Meeting was dedicated to the 50th anniversary of the USSR: it discussed problems of mother and infant care in the Soviet Union.

Problems of physiology and pathology of the fetus and infants (22d session), impaired cerebral circulation (24th), physiology and pathology of the brain (32d), modern aspects of immunology (33d), status and objectives of research in the field of surgery, genetics and nutrition (34th) and current problems of traumatology (joint scientific session of the USSR AMS and Military Medical Academy imeni S. M. Kirov, 1974) were discussed at annual sessions of the General Meeting of the Academy.

In the years of its existence, the Academy's scientists made a significant contribution to development of theoretical medicine. Anatomists originated the functional and experimental directions in morphology. The work of V. N. Tonkov proved the great adaptability of blood vessels to changing conditions, and the influence of the nervous system on forming new blood vessels and collateral circulation. V. A. Dolgo-Saburov developed the morphological principles of interoception; D. A. Zhdanov and others developed the modern teaching on the lymphatic system and collateral circulation. The foundation was laid for evolutionary histology (A. A. Zavarzin, N. G. Khlopin, B. I. Lavrent'yev and others) in the field of histology and embryology, and the most important patterns of origin and development of tissues were established.

Important research was done in physiology, dealing with problems of cortical regulation of internal organ function (P. S. Kupalov, V. V. Parin, K. M. Bykov, V. N. Chernigovskiy and others); studies were made of the patterns of development of reflexes in embryogenesis, and this helped solve the problem of correlation between conditioned and unconditioned reflexes, cortical-subcortical interaction as related to functions of the reticular formation; the mechanism of the conditioned reflex was identified; theory of functional systems was expounded (P. K. Anokhin). Some valuable information was obtained on the patterns of interaction between excitation and inhibition (I. S. Beritashvili); a teaching was developed on the adaptational and trophic influence of the sympathetic nervous system (L. A. Orbeli). The research of V. V. Parin laid the foundation for Soviet space physiology. The works of P. K. Anokhin and N. A. Bernshteyn made a significant contribution to the formation of physiological cybernetics.

Among the achievements of biochemists of the Academy in the field of metabolic research, discovery of the transamination process (A. Ye. Braunshteyn) was important; this also applies to demonstration of intimate reactions of the nervous system which are the basis of excitatory and inhibitory processes (A. V. Palladin), research on the role of processes of phosphorylation (V. A. Engel'gardt) and nitrogen metabolism (S. Ye. Severin and S. R. Mardashev), discovery of a new group of connective tissue proteins--procollagens (V. N. Orekhovich). There was been some contribution to the study of chemistry of enzymes, vitamins, physiological role of hormones and development of problems of clinical biochemistry (N. A. Yudayev, V. G. Baranov and others). In clinical pharmacology of the nervous system, the work of S. V. Anichkov and his school is important; the research of V. V. Zakusov and his school was important to the study of cholinolytics.



М.С. МАСЛОВ.

(1)



Л.А. ОГАНЕСЯН

(5)



А.Н. АБРИКОСОВ

(9)



Н.Н. АНИЧКОВ

(13)



А.Д. СПЕРАНСКИЙ

(2)



К.К. СКРОБАНСКИЙ

(6)



И.В. ДАВЫДОВСКИЙ

(10)



Ю.Ю. ДЖАНЕЛИДЗЕ

(14)



Г.М. МУХАДЗЕ

(3)



Л.А. ОРБЕЛИ

(7)



В.П. ОСИПОВ

(11)



Е.Н. ПАВЛОВСКИЙ

(15)



В.М. СКВОРЦОВ

(4)



К.И. СКРЯБИН

(8)



Г.Н. СПЕРАНСКИЙ.

(12)



Н.Д. СТРАЖЕСКО

(16)

Founding members of the USSR Academy of Medical Sciences, approved by the USSR Council of People's Commissars in Decree No 1580, dated 14 November 1944

Key:

1) M. S. Maslov
2) A. D. Speranskiy
3) G. M. Mukhadze
4) V. M. Skvortsov
5) L. A. Oganesyan
6) K. K. Skrobanskiy
7) L. A. Orbeli
8) K. I. Skryabin
9) A. I. Abrikosov
10) I. V. Davydovskiy
11) V. P. Osipov
12) G. N. Speranskiy
13) N. N. Anichkov
14) Yu. Yu. Dzhanelidze
15) Ye. N. Pavlovskiy
16) N. D. Strazhesko

[photographs of all other founding academicians will be found on several pages that follow]

In the field of pathology, there was development of the nosological and functional direction which deals with the organism as a whole. A major practical role was played by development of the clinicoanatomical direction represented by the schools of A. I. Abrikosov and I. V. Davydovskiy. The research on pathomorphology of tuberculosis, rheumatism, wounds, infectious and other diseases, the teaching on pathology of cholesterol metabolism (N. N. Anichkov and others), the teaching on the role of connective tissue in reactivity of the organism (A. A. Bogomolets and A. I. Strukov), the teaching on the trophic role of the nervous system in pathology (A. D. Speranskiy and A. M. Chernukh) and original theories on the mechanisms of aging (A. A. Bogomolets and I. V. Davydovskiy) have all gained universal recognition. A. P. Avtsyn developed the bases of Soviet geographic pathology.

In the last 20 years, the Academy scientists developed a number of basic branches of immunobiology: experimental modeling of genetic anomalies on different levels of biological organization (N. N. Zhukov-Verezhnikov et al.), immunobiology of neoplastic pathology (L. A. Zil'ber), immunology of incompatibility in organ and tissue transplantation and immunology of embryogenesis (P. G. Svetlov), space microbiology and cytology, with genetics of bacteria.

The works of clinicians of the Academy are characterized by dealing with the patient in his social environment, i.e., realization in practice of ideas of the physiological direction, closely related to principles of prevention, the desire to identify the mechanisms of onset and development of diseases for the purpose of substantiating pathogenetic and cause-related therapy, early diagnostics and treatment of diseases. Problems of pathology of the circulatory system are being dealt with by basic research on myocardial infarction, essential hypertension and atherosclerosis, circulatory insufficiency (N. D. Strazhesko, G. F. Lang, A. L. Myasnikov, V. N. Vinogradov, V. Kh. Vasilenko, P. Ye. Lukomskiy, Ye. I. Chazov and others), problems of renal pathology (M. S. Vovsi, Ye. M. Tareyev and others), endocrine system pathology (N. A. Shereshevskiy and others), blood diseases (M. I. Arinkin, A. A. Bagdasarov, I. A. Kassirskiy and others), pathology of the lungs, the problem of clinical pharmacology (B. Ye. Votchal, N. S. Molchanov and others). The infection and allergy theory of rheumatism and complex treatment thereof have been developed and substantiated (A. I. Nesterov, P. N. Yurenev, V. A. Nasonova and others).

The considerable progress in surgery is related to work on problems of anesthetization, prevention of postoperative complications, methods of blood transfusion and transplantation of organs and tissues, including methods of local anesthesia (A. V. Vishnevskiy), transfusion of cadaver blood and preservation of blood (S. S. Yudin, V. N. Shamov and others), and advances in instrument technology. Problems of surgical management of pathology of abdominal and thoracic organs have been resolved (S. I. Spasokukotskiy, A. G. Savinykh, S. S. Yudin, B. V. Petrovskiy, L. K. Bogush, V. I. Struchkov, B. A. Korolev and others); methods have been developed of surgical management of pathology of the heart and great vessels (A. N. Bakulev, P. A. Kupriyanov, B. V. Petrovskiy, A. A. Vishnevskiy, N. M. Amosov, V. I. Burakovskiy and others). Development of transplantation problems is represented in works dealing with dermatoplasty (Yu. Yu. Dzhanelidze), corneal transplants (V. P. Filatov), osteoplasty (V. D. Chaklin) and kidney transplants (B. V. Petrovskiy, N. A. Lopatkin et al.).


(1)
И.С. БЕРИТАШВИЛИ


(5)
А.А. БОГОМОЛЕЦ


(9)
Н.Н. БУРДЕНКО


(13)
К.М. БЫКОВ


(2)
Б.С. ДОЙНИКОВ


(6)
А.А. ЗАВАРЗИН


(10)
Б.И. ЗБАРСКИЙ


(14)
В.Ф. ЗЕЛЕНИН


(3)
А.В. ПАЛЛАДИН


(7)
В.В. ПАРИН


(11)
Я.О. ПАРНАС


(15)
О.Н. ПОДВЫСОЦКАЯ


(4)
И.Д. СТРАШУН


(8)
А.Н. СЫСИН


(12)
В.Н. ТЕРНОВСКИЙ


(16)
В.Н. ТОНКОВ

Founding members of the USSR AMS [continued]

Key:

1) I. S. Beritashvili
2) B. S. Doynikov
3) A. V. Palladin
4) I. D. Strashun
5) A. A. Bogomolets
6) A. A. Zavarzin
7) V. V. Parin
8) A. N. Sysin
9) N. N. Burdenko
10) B. I. Zbarskiy
11) Ya. O. Parnas
12) V. N. Ternovskiy
13) K. M. Bykov
14) V. F. Zelenin
15) O. N. Podvysotskaya
16) V. N. Tonkov

Academy scientists have made a considerable contribution to the solution of problems pertaining to different aspects of extracorporeal circulation, resuscitation and anesthesiology (S. S. Bryukhonenko, V. A. Negovskiy, V. I. Burakovskiy and others).

In traumatology and orthopedics, there was extensive development of the active surgical direction; original methods of treatment and prosthetics, as well as artificial articulations have been developed (N. N. Priorov, T. P. Krasnobayev, P. G. Kornev, M. V. Volkov and others).

New, modern methods have been developed for surgical management of pathology of the autonomic nervous system and cerebrocirculatory disorders, as well as tumors of the central nervous system (A. L. Polenov, N. N. Burdenko, B. G. Yegorov, A. I. Arutyunov and others).

In the field of oncology, Academy scientists investigated the causes, mechanisms and patterns of development of neoplasms; at the same time, they developed methods of surgical and conservative treatment (N. N. Petrov, N. N. Blokhin, L. F. Larionov, L. A. Zil'ber, A. I. Rakov and others).

Research dealing with obstetrics and gynecology was devoted to problems of physiology and control of parturition, psychoprophylaxis of painful labor, prevention of eclampsia and postpartum complications, and control of fetal asphyxia (M. S. Malinovskiy, A. P. Nikolayev, L. S. Persianinov and others).

Academy pediatricians have investigated the anatomical and physiological distinctions of the child organism; they developed questions of hygiene and nutrition for the healthy child, methods of treating and preventing childhood infections, acute pathology of the gastrointestinal tract and cardiovascular system, pneumonia, rickets and rheumatism; they have investigated the clinical distinctions of diseases of infancy and hereditary childhood pathology, and have developed methods of treatment thereof (G. N. Speranskiy, M. S. Maslov, V. I. Molchanov, A. F. Tur, Yu. F. Dombrovskaya and others), as well as methods of surgical management of childhood diseases (T. P. Krasnobayev, P. G. Kornev, S. D. Ternovskiy, Yu. F. Isakov and others).

The basic research of Ye. B. Sepp and Ye. V. Shmidt deals with pathology of the nervous system. The work of I. N. Filimonov on neuromorphology of the brain is recognized as classical; the works of this scientist and his school, in the field of architectonics and evolutionary morphology of the brain, are widely known. The research of M. M. Astvatsaturov and S. N. Davidenkov originated genetic investigations in Soviet neurology.

The distinction of pediatric neurology and psychiatry is linked with the names of V. P. Osipov and V. A. Gilyarovskiy. Work dealing with the problem of schizophrenia, organic and vascular psychoses, etc. made a significant contribution to psychiatry (Ye. N. Popov, O. V. Kerbikov, A. V. Znezhnevskiy and others).


(1)
В.Н. ВИНОГРАДОВ


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В.И. ВОЯЧЕК


(9)
В.А. ГИЛЯРОВСКИЙ


(13)
С.С. ГИРГОЛАВ


(2)
П.Г. КОРНЕВ


(6)
Ф.Г. КРОТКОВ


(10)
П.А. КУПРИЯНОВ


(14)
Н.И. ЛЕПОРСКИЙ


(3)
Н.Н. ПЕТРОВ


(7)
И.П. РАЗЕНКОВ


(11)
И.Г. РУФАНОВ


(15)
А.Г. САВИНЫХ


(4)
В.П. ФИЛАТОВ


(8)
М.М. ЦЕХНОВИЦЕР


(12)
Л.С. ШТЕРН


(16)
В.Н. ШЕВКУНЕНКО

Founding members of the USSR AMS [continued]

Key:

1) V. N. Vinogradov
2) P. G. Kornev
3) N. N. Petrov
4) V. P. Filatov
5) V. I. Voyachek
6) F. G. Krotkov
7) I. P. Razenkov
8) M. M. Tsekhnovitser
9) V. A. Gilyarovskiy
10) P. A. Kupriyanov
11) I. G. Rufanov
12) L. S. Shtern
13) S. S. Girgolav
14) N. I. Leporskiy
15) A. G. Savinykh
16) V. N. Shevkunenko

Academy scientists worked out the most important problems of theory of epidemiology and control of infectious and parasitic diseases: teaching on patterns of the epidemiological process and correlation between social and biological factors in development of epidemics (L. V. Gromashevskiy), on endemicity of communicable and parasitic diseases (Ye. N. Pavlovskiy), dehelminthization and extermination of sources of infection (K. I. Skryabin). V. N. Beklemishev, P. G. Sergiyev and others made the contribution of initiating work to eradicate malaria in the USSR.

The research of N. F. Gamaleya, V. D. Timakov, P. F. Zdrodovskiy and others dealt with problems of experimental microbiology, morphology, taxonomy, ecology, biochemistry, genetics and variability of microorganisms. The discovery of the viral nature of tick-borne spring and summer encephalitis, Far East hemorrhagic nephrosonephritis and hemorrhagic fevers and identification of influenza virus types were of great practical importance (L. A. Zil'ber, V. M. Zhdanov, V. D. Solov'yev, A. A. Smorodintsev, M. P. Chumakov and others). The work of Z. V. Yermol'yeva, G. F. Gauze and others made a great contribution to development of new antibiotics and other antibacterial agents.

Development of hygienic sciences and broad differentiation thereof were a reflection of the social, preventive direction of Soviet medicine. Research pursued by scientists of the Academy on problems of hygiene of water and water supply, sanitation of populated areas and others served as the basis for legislation dealing with protection of reservoirs, air and soil from pollution and development of sanitary standards for quality of drinking water, city planning and designing industrial enterprises (A. N. Sysin, A. N. Marzeyev and others). Principles of prevention were adopted in school hygiene (N. A. Semashko and others). The works of A. A. Letavet, L. K. Khotsyanov and others established some original directions of work on problems of industrial hygiene and occupational pathology.

Academy scientists made a significant contribution to development of Soviet science of nutrition (O. P. Molchanova, B. A. Lavrov, B. I. Zbarskiy, S. Ye. Severin, A. A. Pokrovskiy and others) and scientific substantiation of rational nutrition standards ("balanced" diet) for different population groups (A. A. Pokrovskiy and others), etc.

The names of Academy scientists are linked not only with specific achievements and development of new directions in modern medicine, but formation of major scientific schools. In the field of theoretical medicine, large scientific schools were created by A. I. Abrikosov and I. V. Davydovskiy (clinicoanatomical direction in pathomorphology), N. N. Anichkov (pathological anatomy), S. V. Anichkov (pharmacology of the nervous system), B. I. Lavrent'yev (neurohistology), S. R. Mardashev (medical enzymology), A. D. Speranskiy (pathophysiology), M. M. Shemyakin (cytology), N. A. Yudayev (biochemistry of hormones). The scientific schools of N. F. Gamaleya (microbiology) and V. I. Ioffe (clinical and epidemiological immunology, clinical immunopathology) are widely known. The scientific schools of A. N. Bakulev (thoracic surgery), A. V. Vishnevskiy (clinico-physiological direction in surgery), N. V. Konovalov, N. K. Bogolepov



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Н.Н. ГРАЩЕНКОВ



(5)

Л.В. ГРОМАШЕВСКИЙ



(9)

М.О. ГУРЕВИЧ



(2)

М.С. МАЛИНОВСКИЙ



(6)

Б.Н. МАНЬКОВСКИЙ



(10)

А.Н. МАРЗЕЕВ



(3)

Н.А. СЕМАШКО



(7)

Е.К. СЕПП



(11)

П.Г. СЕРГИЕВ



(4)

И.И. ШИРОКОГОРОВ



(8)

В.А. ЭНГЕЛЬГАРДТ



(12)

С.С. ЮДИН

Founding members of the USSR AMS [end of listings]

Key:

1) N. N. Grashchenkov
2) M. S. Malinovskiy
3) N. A. Semashko
4) I. I. Shirokogorov
5) L. V. Gromashevskiy
6) B. N. Man'kovskiy
7) Ye. K. Sepp
8) V. A. Engel'gardt
9) M. O. Gurevich
10) A. N. Marzeyev
11) P. G. Sergiyev
12) S. S. Yudin

(neurology), G. F. Lang and N. D. Strazhesko (cardiology), N. N. Petrov (oncology), B. V. Petrovskiy (cardiovascular surgery), G. N. Speranskiy (pediatrics), V. D. Timakov (microbiology), V. P. Filatov (ophthalmology), V. N. Shevkunenko (operative surgery and topographical anatomy), V. I. Struchkov (infections in surgery), A. V. Snezhnevskiy (psychiatry) and others made a significant contribution to development of clinical medicine.

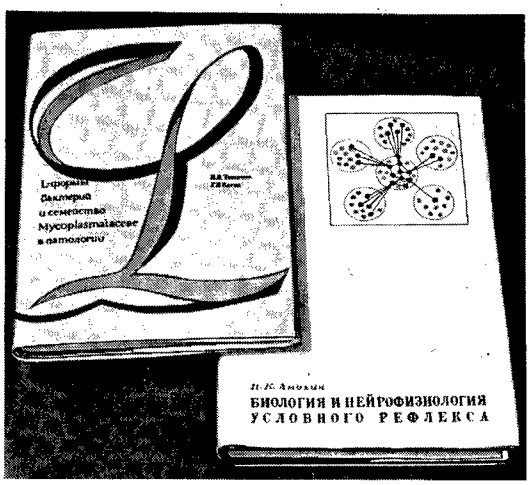
State awards, honorary titles, Lenin and State prizes have been bestowed upon Academy scientists for outstanding discoveries and work. The title of Hero of Socialist Labor has been conferred upon 48 scientists; the Lenin Prize has been bestowed upon 41 scientists; the USSR State Prize has been awarded for the works of 86 scientists. The laureates of the Lenin Prize include surgeons--A. N. Bakulev, L. K. Bogush, A. A. Vishnevskiy, P. A. Kupriyanov, B. V. Petrovskiy, V. I. Struchkov and others, who developed and adopted in clinical practice some new methods of surgical management of pathology of the heart and other thoracic organs. For outstanding research, the Lenin Prize was also awarded to P. K. Anokhin, I. V. Davydovskiy, P. F. Zdrodovskiy, N. V. Konovalov, N. A. Krayevskiy, A. A. Letavet, N. N. Petrov, A. A. Smorodintsev, A. I. STrukov, V. D. Timakov, M. P. Chumakov, V. N. Shamov, S. S. Yudin and others.

In the period of building of communism in the USSR, vast opportunities were afforded to medical science for continued development. Problems of development of health care and medical science are reflected in the CPSU Program. The Party and Government organize and guide the activities in Soviet medical science in accordance with the objectives of safeguarding and strengthening the health of the people. There is a many-thousand army of medical scientists in our country whose activities are directed toward meeting these goals. The USSR Ministry of Health, headed since 1965 by B. V. Petrovskiy, academician of the USSR AS and AMS and Hero of Socialist Labor, implements overall management of these activities.

The Academy as Headquarters for Development of Soviet Medical Science

Medical and biomedical research is conducted in the Soviet Union by all scientific research institutions and VUZ's of the nation together. Under the sole scientific, methodological and coordinating guidance of the USSR AMS, all of the scientific research institutions, regardless of the agency to which they belong in the public health field, work on problems of national [Union] importance.

As of 1 January 1976, the Academy consisted of 270 academicians [full members] and corresponding members (including 7 academicians and 3 corresponding members of the USSR AS), as well as 26 foreign members. Among these members, there are 48 Heroes of Socialist Labor and 41 Lenin Prize laureates. The foreign members of the Academy include great scientists of England, Bulgaria, Brazil, Hungary, GDR, Democratic Republic of Vietnam, India, Italy, China, Cuba, Poland, Romania, United States, France, Czechoslovakia, Sweden, Yugoslavia and others.



The Lenin Prize was awarded for the book of P. K. Anokhin, "Biology and Neurophysiology of Conditioned Reflexes," and the one by V. D. Timakov and G. Ya. Kagan, "L-Forms of Bacteria and the Mycoplasmataceae Family in Pathology"

The executive bodies of the Academy are formed by means of elections by secret ballot. The General Meeting of the Academy, which is convoked once a year, is the supreme administrative body. Pressing problems of medical science, the main directions of research at scientific medical institutions, reports of Academy departments, reports on the work of the Academy as a whole and of its different institutions, question of training scientific personnel, adopting medical scientific advances in clinical practice and the principal organizational questions are discussed at the annual sessions of the General Meeting.

During the period between sessions of the General Meeting, the Presidium of the USSR AMS, which is elected by the General Meeting for a 4-year period, is the supreme body governing all work of the Academy. The Presidium consists of a president, first vice president, vice president, chief scientific of the Presidium, departmental academician secretaries and members of the Presidium. In addition, the chairman of the Scientific Medical Counsil of the USSR Ministry of Health, head of the Siberian Branch of the USSR AMS, chairmen of scientific councils for the principal problems and USSR AMS members, representing Union republics, are elected to work in the Presidium on a voluntary [nonstaff] basis.

Outstanding scientists have been elected as presidents of the Academy: academicians of the USSR AS and AMS, N. N. Burdenko (22 Nov 1944 to 29 Oct 1946), N. N. Anichkov (29 Oct 1946 to 15 Dec 1953) and A. N. Bakulev (15 Dec 1953 to 30 Jan 1960), and N. N. Blokhin, academician of the USSR AMS (30 Jan 1960 to 8 Feb 1968).

V. D. Timakov, academician of the AS and AMS, has been president of the USSR AMS since 8 February 1968.

The Presidium of the Academy plans and coordinates scientific research on the most important problems of medical science; it considers and approves the plans for scientific research in departments, institutes and laboratories within the system of the Academy; it convokes scientific meetings, conferences and symposiums; it organizes research expeditions; it maintains scientific ties with academies of sciences and other scientific institutions of the USSR and Union republics; it awards commemorative academic prizes for outstanding scientific work and scientific discoveries; it administers training of scientific personnel in institutes of the Academy; it establishes scientific contacts and concludes agreements concerning scientific collaboration and coordination of scientific research with scientific institutions of foreign countries; it examines questions of adoping new technology, and it also develops suggestions to make practical use of the achievements of scientific institutions of the Academy.

All of the organizational activity of the Presidium of the Academy is implemented by means of its governing system ["machinery"] and departmental offices, as well as the assistance of permanent and temporary commissions and committees appointed by the Presidium among academicians, corresponding members of the Academy and outstanding scientists working in the field of medical science. The system of the Presidium includes a number of sections (scientific coordination, scientific engineering, international ties, technological and others) and administrative subsections (secretariat, executive personnel, scientific archives, business management, clerical, etc.). The deputy president implements business and financial management of the Academy, with the help of the corresponding subsections (planning and finance department, central accounting office, department of supplies and equipment, major construction management, etc.).

The following are under the Academy's Presidium: main editorial board of "Bol'shaya Meditsinskaya Entsiklopedia" [Great Medical Encyclopedia]; chairs of philosophy and West European languages; two medical schools; a comprehensive library; department of scientific and experimental cinematography; central design office with an experimental plant; vivarium for laboratory animals; scientific research council (NISO); scientific engineering council; Pirogov commission; scientific councils and problem commissions for problems of national significance.

Scientific research institutes with their clinics, laboratories set up as independent institutions and scientific teams of some academicians and corresponding members of the Academy, organized by the Academy in accordance with the general plan for development of medical science, constitute the Academy's base for scientific research. The system of the Academy (as of 1 Jan 1976) consisted of 32 scientific research institutes, 7 independent laboratories and 27 academic scientific teams. Over 5,000 scientists, including 857 doctors of sciences and 3,174 candidates of sciences work in these institutions. The bed resources of clinical institutes of the Academy constitute 4,235 beds.







[Caption provided on facing page]

[Caption for photographs on page 22]

Top to bottom:

Vice president of the Czech Academy of Sciences, Academician B. B. Rositskiy, received in the Presidium of the USSR AMS; left to right: V. I. Struchkov and V. V. Kovanov, academicians of USSR AMS; Academician V. D. Timakov and B. B. Rositskiy, academician of the Czech Academy of Sciences.

Signing of the plan for scientific collaboration between the USSR Academy of Medical Sciences and GDR Academy of Sciences. Signers: S. R. Mardashev, academician of the USSR AMS and R. Baumann, academician of the GDR AS (on the left).

Signing of the statement concerning scientific collaboration in the field of medical sciences between the USSR AMS and Swedish Royal Academy of Sciences. Signers: V. V. Kovanov, academician of the USSR AMS, and K. G. Bernhard (on the left), academician of the Swedish Royal Academy of Sciences.

* * *

International collaboration in the field of medical science is developing fruitfully. Collaboration of socialist countries provides for coordination of scientific research and mutual aid therein, extensive exchange of information, training and advancement of specialists, and joint activity in international organizations. In addition, agreements have been signed on collaboration in the field of medical science and public health between the USSR, the United States, England, France, Italy, Finland and other countries; they provide for mutual exchange of delegations and various specialists, exchange of information and medical literature, opportunities for scientists to work at various scientific institutions and laboratories, invitation of prominent specialists to deliver lectures, organization and participation at different congresses, conventions, symposiums, etc.

* * *

The activities of Academy members and coordination of the work done by the network of its scientific research institutions are governed by the Presidium of the USSR with the help of the offices of three specialized departments: clinical medicine; biomedical sciences; hygiene, microbiology and epidemiology. These departments are scientific and scientific-organizational centers that unite Academy members in the relevant branches of medicine. The Siberian branch of the Academy (with departmental standing [rights]) was founded in 1970; it unites Academy members among its departments in different specialties, who work in the scientific institutions of Siberia, the Far East and Extreme North.



Boris Vasil'yevich PETROVSKIY (born 1908), USSR minister of health; academician of USSR AS and AMS; elected candidate to the CC CPSU at the 23d and 24th CPSU congresses; deputy to the USSR Supreme Soviet, 6th, 7th, 8th and 9th convocations; Hero of Socialist Labor; laureate of Lenin and USSR State prizes; honorary member of several foreign academies of sciences.

The Department of Clinical Medicine (DCM) comprises 53 academicians and 78 corresponding members of the USSR AMS. It is in charge of 13 scientific research institutions and 21 academic teams. Among the scientific institutions there are 12 institutes: of obstetrics and gynecology, gerontology, cardiology imeni A. L. Myasnikov, medical radiology, neurology, neurosurgery imeni N. N. Burdenko, pediatrics, psychiatry, rheumatism, cardiovascular surgery imeni A. N. Bakulev, surgery imeni S. V. Vishnevskiy, experimental and clinical oncology, as well as the Laboratory for Tissue and Organ Transplantation. The DCM Office supervises the activities of two scientific councils that coordinate scientific research in the field of cardiovascular disease and malignant neoplasms, and 40 problem commissions dealing with problems of national importance.

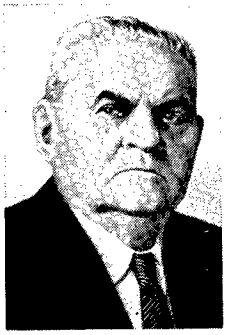
The Department of Biomedical Sciences (DBMS) includes 34 academicians and 44 corresponding members of the USSR AMS. It consists of 14 scientific research institutions and three scientific academic groups [teams]. The scientific institutions include 10 institutes: of biological and medical chemistry, medical genetics, brain, human morphology, normal physiology imeni P. K. Anokhin, general pathology and pathological physiology, pharmacology, experimental medicine, experimental pathology and therapy, experimental endocrinology and hormone chemistry, as well as four laboratories: allergological, experimental biological models, experimental physiology dealing with resuscitation and enzymology. The DBMS Office supervises the activity of a scientific council that coordinates scientific research in physiology and pathology of the nervous system, and 14 problem commissions dealing with problems of national significance.

The Department of Hygiene, Microbiology and Epidemiology (DHME) consists of 26 academicians and 35 corresponding members of the USSR AMS. It includes eight scientific research institutions and one academic team. There are seven institutes among the research institutions: virology imeni D. I. Ivanovskiy, industrial hygiene and occupational pathology, general and municipal hygiene imeni A. N. Sysin, nutrition, search for new antibiotics, poliomyelitis and viral encephalitis, epidemiology and microbiology imeni N. F. Gamaleya, as well as the Laboratory of Experimental Immunobiology. The DHME Office supervises the activities of three scientific councils that coordinate scientific research on viruses and virology, microbiology and immunology, general and special problems of epidemiology, and scientific council for hygiene. These councils are referable to 21 national [All-Union] problems.

These three offices, headed by departmental academician secretaries, that supervise the work of the departments and scientific institutions under their management. The offices coordinate and plan scientific research; they supervise the scientific activities of full and corresponding AMS members in the departments; they settle questions of organizing new institutions and reorganizing existing scientific institutions; they examine long-term and annual research plans of scientific institutions and reports on fulfilment thereof; they see to it that institutions are adequately manned by scientific personnel; they approve newly elected administrators of scientific sections; they enroll graduate students and clinical residents annually; they participate in preparations for congresses, conventions, conferences and symposiums dealing with problems in their domain; they examine suggestions for publication of the major and original scientific works.

The Siberian Branch of the Academy consists of three scientific research institutions: two institutes-- clinical and experimental medicine (in Novosibirsk) and physiology (Novosibirsk), Laboratory of Polar Medicine (Noril'sk) and the scientific team of Professor V. P. Bisyarina, academician of USSR AMS. In 1975, two new scientific research institutions were added to the system of this branch: Institute of Complex Problems of Industrial Hygiene and Occupational Pathology (Kemerovo) and Institute of Medical Problems of the North (Krasnoyarsk). The Siberian branch is charged with development of the most important problems of regional pathology and adaptation, coordination and long-term planning of medical and biomedical research conducted at scientific research institutions and medical VUZ's of Siberia, the Far East and Extreme North. As of 1 January 1976, it employed 5 academicians and 4 corresponding members of USSR AMS, 21 doctors of sciences and 75 candidates of sciences. The branch is under the jurisdiction of the Presidium of the Academy; it has the standing of an Academy department, in accordance with its charter. Management of scientific activity of this branch is implemented by an Office (presidium) headed by a member of the Presidium of USSR AMS who is also the head of the branch. A scientific council was appointed for the Siberian Branch of USSR AMS, for the purpose of operational [day to day] coordination and planning of biomedical research in eastern parts of our country; in addition to members of the branch's Office, it consists of well-known scientists and organizers of biomedical science, representing scientific research and educational institutes of the RSFSR Ministry of Health, Siberian department of USSR AS and other agencies.

Planning, coordination and supervision of scientific research in the field of medicine in the nation, forecasts of development of medical science for the next 15-20 years occupy a special place in the activities of the Presidium of the USSR AMS, its departments and Siberian Branch. In addition, the Presidium implements all activities pertaining to planning and coordinating scientific research dealing with 74 problems of national significance. For this purpose, the Presidium of the USSR AMS organizes scientific councils and problem commissions manned by scientists with the most experience in a given branch of science; it implements scientific methodological guidance for work on priority problems and coordination of research conducted at scientific research institutions and VUZ's in the nation. Most of the



Mikhail Sergeyevich MALINOVSKIY (born 1880); vice president of USSR AMS (1944-1946); Hero of Socialist Labor; Honored Scientist of RSFSR



Petr Andreyev KUPRIYANOV (1893-1963), vice president of USSR AMS (1944-1950); Hero of Socialist Labor; Lenin Prize laureate; Honored Scientist of RSFSR



Ippolit Vasil'yevich DAVYDOVSKIY (1887-1968), vice president of USSR AMS (1946-1950; 1957-1960); member of the Presidium of USSR AMS (1944-1960); Hero of Socialist Labor; Lenin Prize laureate



Ivan Petrovich RAZENKOV (1888-1954), vice president of USSR AMS (1948-1950); academician secretary of DBMS (1944-1948); member of Presidium of USSR AMS (1944-1952); USSR State Prize laureate

Vice presidents of USSR AMS (1944-1976)

Academy institutes and laboratories are the leading [chief] institutions that are in charge of problems of national importance. Together with the problem commissions and scientific councils of the Academy, the chief institutions plan and coordinate the work of executor institutions that jointly develop a given problem, and they also render consultant assistance.

The Academy scientists and its scientific research institutes work on the main problems of medical science that determine the current level of scientific research. In the last few years, particular attention was devoted to problems put to Soviet medicine by the 24th CPSU Congress: development of

scientific research pertaining to prevention and treatment of cardiovascular diseases and hereditary diseases; development of physiologically active agents; environmental protection. On the basis of the results of such research, recommendations are prepared to upgrade medical and preventive care of the public, and to render scientific-organizational and consultant-methodological assistance of institutions of the USSR and Union republic ministries of health.

Continued progress of Soviet medical science is closely linked with the scientific-technological revolution. The undesirable sanitary and hygienic consequences due to scientific and technological progress are studied at several of the Academy institutes; they develop preventive methods and means of eliminating the potentially deleterious environmental effects on physiological adaptational capabilities of the human body. They concentrate on problems of protecting the environment from pollution and unrational use of natural resources in newly reclaimed regions, and they work on development of methods of improving working, recreation and living conditions, problems of population growth, etc. In particular, the Institute of Epidemiology and Microbiology imeni N. F. Gamaleya is conducting a joint study with scientific research institutions of Siberia along the route of construction of the Baykal-Amur highway (BAM).

Technological progress has significantly augmented the possibility of accelerating scientific research. The use of new instruments and equipment with high resolution and precision, and automatic recording methods (x-ray diffraction analysis, electron microscopy, radioactive tracers, etc.), cybernetic systems, mathematical methods, analytical equipment, as well as analogue and digital computers has become a common practice, not only in theoretical and experimental scientific research institutions, but in clinical institutes.

In the field of physiology, Academy scientists are concentrating primarily on the study of physiology of the central nervous system, physiology and pathology of the cardiovascular system. As a result of completed investigations, the basic tenets of theory of functional systems (P. K. Anokhin) were formulated, and they served as the foundation for in-depth investigation of mechanisms of brain activity in theoretical and clinical neurology and psychology. This theory found broad applications in various branches of medicine, physiology, psychology, pedagogics, philosophy and engineering. Of particular interest is the attempt to decipher the cerebral code of mental processes, resulting in discovery of the word code in impulsation activity of groups ["ensembles"] of neurons of the human brain, correlated with their acoustical characteristics (acoustical code); and the correlation between cerebral dynamics thereof as function of time and individual basis of long-term memory has been demonstrated.

Research on physiology and pathology of the cardiovascular system revealed previously unknown mechanisms of compensation of impaired functions of the heart; the systemic nature of pathogenesis of essential hypertension has been demonstrated, and new patterns have been established in regulation of



Nikolay Vasil'yevich KONOVALOV (1900-1966), vice president of USSR AMS (1950-1953); Lenin Prize laureate



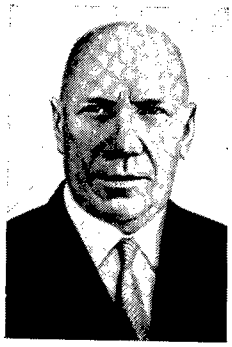
Anatoliy Georgiyevich IVANOV-SMOLENSKIY (born 1895), vice president of USSR AMS (1950-1951); USSR State Prize laureate



Nikolay Nikolayevich ZHUKOV-VEREZHNIKOV (born 1908), vice president of USSR AMS (1950-1953); USSR State Prize laureate; Honored Scientist of Uzbek SSR



Vladimir Nikolayevich CHERNIGOVSKIY (born 1907); vice president of USSR AMS (1953-1957); member of Presidium of USSR AMS (1950-1957); academician of USSR AS; corresponding member of Romanian Academy of Sciences



Fedor Grigor'yevich KROTKOV (born 1896), vice president of USSR AMS (1953-1957); academician secretary of DHME (1944-1950); Hero of Socialist Labor



Anatoliy Innokent'yevich NESTEROV (born 1895), vice president of USSR AMS (1953-1957); academician secretary of USSR AMS (1950-1953); Hero of Socialist Labor; Lenin and USSR State prizes laureate; Honored Scientist of RSFSR

Vice presidents of USSR AMS (1944-1976) [continued]

a stable blood pressure level. The role of activation of synthesis of nucleic acids and proteins was established in onset of hypertrophy of the heart, and significance was determined of depression of this synthesis to development of chronic cardiac insufficiency. The autoimmune theory of

pathogenesis of atherosclerosis has been formulated. On the basis of this theory, a study was pursued of immunological tolerance to experimental atherosclerosis. Models were developed of neurogenic lesion to the heart, stomach, liver and lungs; it was proven that excessive synaptic impulsation and developing energy crisis ["disaster"] associated with depletion of the mediator, norepinephrine, are involved in development of such lesions (S. V. Anichkov). In collaboration with designing institutions, new instruments were developed by physiologists for diagnostic and therapeutic purposes: electronic stimulators, cardiac monitors, a set of cardiological diagnostic equipment, etc.

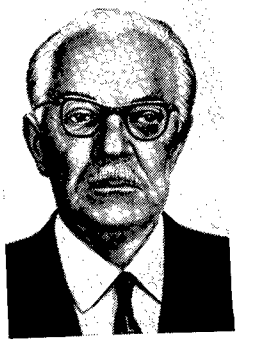
In the last few years, there has been significant upgrading of quality of research on physiology of the endocrine system and endocrinology as a whole. For the first time, molecular mechanisms were identified in interaction between hormones and enzymes, the structure of several protein hormones has been deciphered (lipotropin, prolactin) and human insulin has been synthesized. Some valuable results were obtained from research on symptomatology, diagnostics and therapy of endocrine pathology.

Research in the field of biochemistry, pathological chemistry and metabolism was oriented primarily toward investigation of enzymatic processes at the basis of a number of pathological states. This made it possible to outline new approaches to comprehension of the pathogenesis of angina pectoris, depressive states, pathology of the central nervous system, etc.

Important research has been done in the field of experimental and clinical enzymology. A general theory of action of pyridoxal enzymes was expounded, on the basis of which biochemical reactions of metabolism of amino acids, biogenic amines and other nitrogen compounds have been explained. The significance of neural and endocrine factors, and functional state of the liver has been determined with reference to genesis of atherosclerosis.

Scientists have developed new methods and organizational measures pertaining to emergency care of myocardial infarction and its serious complications, management of the recovery period, the use of which in public health practice has resulted in lowering mortality due to myocardial infarction. A system has been organized for rehabilitation of patients with cardiovascular diseases. There is an opportunity for considerable expansion of research in this field in view of construction of a major cardiological center by the Academy.

Major advances have been made in recent years in development of cardiac, vascular and pulmonary surgery. Academy scientists are successfully performing operations on the heart with excluded circulation (on the "dry" heart) under hypothermic conditions, as well as with the use of a Soviet extracorporeal circulation machine, and combination of extracorporeal circulation and hypothermia; heart surgery under hyperbaric oxygenation conditions is now being performed in clinical practice (B. V. Petrovskiy and others).



Petr Grigor'yevich SERGIYEV (1893-1973), vice president of USSR AMS (1957-1960); academician secretary of DHME (1953-1957); member of Presidium of USSR AMS (1946-1960); Hero of Socialist Labor; twice a USSR State Prize laureate



Vasiliy Nikolayevich OREKHOVICH (born 1905), vice president of USSR AMS (1960-1963); academician secretary of DBMS (1957-1960); member of Presidium of USSR AMS (1953-1963)



Vasiliy Vasil'yevich PARIN (1903-1971), vice president of USSR AMS (1963-1966); academician secretary of USSR AMS (1944-1947; 1957-1960); member of Presidium of USSR AMS (1944-1947 and 1957-1966); academician of USSR AS; honorary member of several foreign academies of sciences



Sergey Rufovich MARDASHEV (1906-1974), vice president of USSR AMS (1963-1974); academician secretary of DBMS (1962-1963); Hero of Socalist Labor; USSR State Prize laureate



Vladimir Vasil'yevich KOVANOV (born 1909), vice president of USSR AMS since 1966; Honored Scientist of RSFSR



Aleksey Mikhaylovich CHERNUKH (born 1916), vice president of USSR AMS since 1974; member of Presidium of USSR AMS since 1972

Vice presidents of USSR AMS (1944-1976) [end of listings]

Cardiosurgical institutions of our country now practice the method of prolonged catheterization of the heart, which permits early detection of acute cardiac insufficiency following open heart surgery. There has been substantiation of indications and methods of surgical management of myocardial ischemia by means of aortocoronary shunts; electrostimulation of the heart in the presence of a transverse block is now practiced (B. V. Petrovskiy, A. A. Vishnevskiy and others).

The methods of diagnostics and surgical management of pulmonary pathology developed by scientists of the Academy are used extensively in therapeutic and preventive institutions of our country.

As a result of research pursued on the problem of rheumatism, a method of seasonal prophylaxis of recurrent rheumatism and treatment of patients with primary and relapsing rheumatism has been developed and adopted in clinical practice, as a result of which there has been a significant decline in number of patients with lesions to the cardiac valves.

In oncology, extensive basic research is being pursued on etiology, pathogenesis and immunity of malignant neoplasms and endogenous carcinogenic factors. Investigations are in progress for development of new antineoplastic agents and methods of radiation therapy of malignant neoplasms, as well as on the role of viruses in onset of leukemia in man. As a result of adopting new methods of treating malignant neoplasms in clinical practice, tumors of some localizations are now being cured. The All-Union Oncological Center of the Academy, which will have a large set of laboratories and 1,000-bed hospital, now under construction will aid in continued development of scientific research in the field of oncology.

Much work is being done on symptomatology, epidemiology, etiology and pathogenesis of schizophrenia; the problem of oligophrenia is being studied complexly [i.e., by specialists in several allied fields].

There has been an increase in scope of research on organ and tissue transplantation, mechanisms and patterns of immunological tolerance and tissue incompatibility; a center was opened for typing donors, and methods have been developed for treating immunodeficient states.

Scientific research in the field of pediatrics has made it possible to develop and substantiate practical measures to further lower child morbidity and mortality.

Jointly with the USSR Ministry of Health, the USSR AMS has implemented a number of organizational measures to broaden research on medical genetics. The Institute of Medical Genetics was founded and, for the first time in the USSR, medical genetic consultation offices have been organized.

The Academy institutes are the scientific centers for research on viruses and viral diseases of man, interaction between viruses and cells, development of diagnostic and therapeutic-prophylactic agents against viral infections.



Semen Aleksandrovich SARKISOV (1895-1971), academician secretary of USSR AMS (1947-1950; 1965-1966); member of the Presidium of USSR AMS (1947-1953; 1957-1960; 1962-1966)



Viktor Mikhaylovich ZHDANOV (born 1914), chief scientific secretary of Presidium of USSR AMS (1960-1963)



Oleg Vasil'yevich KERBIKOV (1907-1965), chief scientific secretary of Presidium of USSR AMS (1963-1965); member of Presidium of USSR AMS (1962-1965)



Viktor Ivanovich STRUCHKOV (born 1907), chief scientific secretary of Presidium of USSR AMS since 1966; Lenin and USSR State Prize laureate; Honored Scientist of RSFSR

Academician secretaries (chief scientific secretaries) of USSR AMS (1944-1976)

On the basis of theoretical research in microbiology, immunology and epidemiology of infectious diseases, a system was developed of epidemic-control and preventive measures referable to a number of infectious disease, and it is being used with success in public health practice.

Institutes dealing with hygiene orient their activities toward solving the most important theoretical and practical problems of prophylaxis, planning, urban development and sanitary amenities of populated areas; the results

of these investigations served as the basis for preparing the first hygienic standards for urban construction. Scientific research dealing with industrial hygiene and development of methods of preventing occupational disease is gaining increasing importance.

The Institute of Nutrition is the chief institution in which the scientific bases are developed for nutrition of health and sick people; research is pursued there to find the means of augmenting alimentary protein resources and production of special mixtures for commercial manufacture of foodstuffs.

The results of several investigations referable to the last few years have been recognized as discoveries and registered with the State Committee for Inventions and Discoveries of the USSR Council of Ministers. In 1970, invention certificates were awarded to Ye. A. Korneva, doctor of medical sciences, and L. M. Khay, candidate of medical sciences ("On the Properties of the Posterior Hypothalamic Nucleus, With Regard to Influence on the Process of Antibody Production"). In 1971 and 1973, two discoveries of S. V. Anichkov, academician of USSR AMS and Hero of Socialist Labor, and his colleagues were registered ("The Significance of Catecholamines in Trophic Organic Disturbances," and "Regulatory Role of Carotid Chemoreceptors in Endocrine Gland Function").

In the last few years, the achievements of Academy scientists have been rated highly. In 1970, the Lenin Prize was awarded to Academician P. K. Anokhin for his monograph, "Biology and Neurophysiology of Conditioned Reflexes." The USSR State Prize was awarded to the following: Academicians B. V. Petrovskiy, Ye. V. Shmidt and A. A. Pokrovskiy; corresponding member of the USSR AMS, Ye. I. Vorontsova in 1971; in 1972: academician of the USSR AMS, M. V. Volkov, and in 1973, to V. I. Burakovskiy, corresponding member of USSR AMS. In 1971, the USSR State Prize and USSR Council of Ministers prizes were awarded for the many years of research by scientists of the Institute of Nutrition on biomedical assessment of proteins of unicellular organisms. In 1974, the Lenin Prize was bestowed upon A. I. Strukov, A. I. Nesterov and Ye. M. Tareyev, academicians of USSR AMS, for their research on the pathogenesis of rheumatic disease, and upon V. D. Timakov, academician of the USSR AS and AMS, for a cycle of investigations on the role of L forms of bacteria and the Mycoplasmatacea family in infectious pathology. In 1974, the USSR State Prize was awarded to L. K. Bogush, academician of USSR AMS, for developing and introducing to clinical practice surgical operations of the trachea and bronchi. In 1975, the USSR State Prize was conferred upon M. M. Krasnov, V. S. Savel'yev and V. I. Struchkov, academicians of the USSR AMS. Election of Academy scientists to foreign academies of sciences, as honorary members of scientific medical societies, members of editorial boards of journals, gold and commemorate medal awards and other marks of excellence are indicative of the international recognition of their achievements. They include V. V. Zakusov, A. A. Vishnevskiy and M. P. Chumakov, academicians of USSR AMS, recipients of the Purkinje gold medal; A. L. Myasnikov, awarded the Gold Stethoscope by the International Association of Cardiologists; V. A. Negovskiy, awarded the gold medal of the International Congress of surgeons. V. D. Timakov,



Vlail' Petrovich KAZNACHEYEV (born 1924), member of Presidium of USSR AMS since 1972; administrator of Siberian Branch of USSR AMS



Andrey Vladimirovich SNEZHNEVSKIY (born 1904), academician secretary of DCM (1966-1968, and since 1969); Hero of Socialist Labor



Valentin Dmitriyevich SOLOV'YEV (born 1907), academician secretary of DHME since 1968



Nikolay Aleksandrovich FEDOROV (born 1904), academician secretary of DBMS since 1968



Mstislav Vasil'yevich VOLKOV (born 1923), member of Presidium of USSR AMS since 1972; USSR State Prize laureate



Veniamin Iosifovich VOTYAKOV (born 1921), member of Presidium of USSR AMS since 1972

Members of Presidium of USSR AMS as of the last convocation

academician of the USSR AS and AMS, was awarded the Czech gold medal. B. V. Petrovskiy, academician of the USSR AS and AMS, was awarded the Leon Bernard Prize with medal.

The Institute of Biological and Medical Chemistry was awarded the medal of the 3d International Congress of Biochemists, the Pasteur medal and medal of the French Biochemical Society, for discovery of a new group of connective tissue proteins, procollagens. The scientists of the Institute of Poliomyelitis and Viral Encephalitis were awarded prizes by the German Democratic Republic, Czechoslovakia, Hungary and other countries.

Each year, more than 1,000 scientific articles, monographs, scientific collections dealing with special topics, etc. are published. The activities of the Academy referable to different branches of science are discussed in the journal, VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR [Vestnik of the USSR AMS] and nine journals that the Academy publishes jointly with the relevant All-Union scientific medical societies: ARKHIV ANATOMII, GISTOLOGII I EMBRIOLOGII [Archives of Anatomy, Histology and Embryology], ARKHIV PATOLOGII [Archives of Pathology], BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY [Bulletin of Experimental Biology and Medicine], VOPROSY VIRUSOLOGII [Problems of Virology], VOPROSY MEDITSINSKOY KHIMII [Problems of Medical Chemistry], MEDITSINSKAYA RADIOLOGIYA [Medical Radiology], PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA [Pathological Physiology and Experimental Therapy], FARMAKOLOGIYA I TOKSIKOLOGIYA [Pharmacology and Toxicology] and EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZIOLOGIYA [Experimental Surgery and Anesthesiology].

The Presidium of the Academy is aided in its publishing work by the Scientific Publication Council of USSR AMS, which is manned by prominent scientists who are specialists in the main branches of science. Majo specialized publishing houses, Meditsina and Sovetskaya Entsiklopediya, constitute the principal base. In 1971-1974 alone, the Scientific Publication Council of the Academy recommended for publication about 300 monographs authored by Academy scientists.

Commemorative academic prizes have been awarded for a number of monographs. In 1970, the prize imeni F. F. Erisman was bestowed upon Professor Ye. V. Khukhrina and V. V. Tkachev, candidate of engineering sciences, for the monograph, "Pneumoconiosis and Prevention Thereof." In 1974, the F. F. Erisman prize was awarded to A. A. Minkh, academician of USSR AMS, for his monograph, "Methods of Research in Hygiene" (4th edition). The A. I. Abrikosov prize for 1971 was awarded to A. I. Strukov, academician of the USSR AMS, for his work, entitled "Chronic Nonspecific Pathology of the Lungs." In 1974, the N. A. Semashko prize was awarded to Soviet and foreign scientists who authored the collective monograph, "Society and Human Health" (edited by Professor G. I. Tsaregorodtsev).

The works of Academy scientists are widely known abroad, and many of them have been published by national publishing houses. In the last few years alone, the following have been published in the United States (in English): "Problems of Classification of Antagonist Actinomycetes" and "Means of Searching for New Antibiotics," monographs by G. F. Gauze, academician of USSR AMS; monographs by scientists in the Laboratory of Experimental Physiology for Resuscitation of the Organism were also published in England,

Holland, Spain and other countries. The latest works of I. N. Filimonov, academician of the USSR AMS, were translated into English, as classics in research on neurophysiology of the brain. The Pergamon Press Publishing House (England) has accepted for publication the monograph, "Neurogenic Dystrophy and Pharmacotherapy Thereof," by S. V. Anichkov, academician of USSR AMS, and his coworkers. The monograph, "Physiology and Pathophysiology of Deep Structures of the Brain," by N. P. Bekhtereva, corresponding member of the USSR AS and academician of USSR AMS, and her colleagues.



Aleksey Alekseyevich POKROVSKIY (born 1916), member of Presidium of USSR AMS since 1972; USSR State Prize laureate

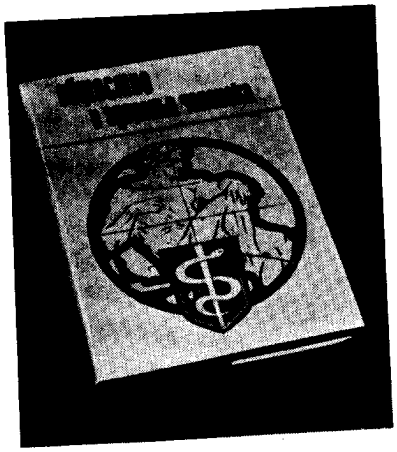


Andrey Petrovich ROMODANOV (born 1920), member of Presidium of USSR AMS since 1972



Yevgeniy Ivanovich CHAZOV (born 1929), member of Presidium of USSR AMS since 1972; deputy to USSR Supreme Soviet of 9th convocation; USSR State Prize laureate

Members of Presidium of USSR AMS as of last convocation [end of listing]



In 1971-1974 alone, the Presidium of USSR AMS awarded commemorate prizes for the best scientific works of 30 Academy scientists.

In 1974, the N. A. Semashko prize, for the best work in theory and history of Soviet public health was awarded to the authors of the monograph, "Society and Human Health," by Soviet and foreign scientists, who wrote this work with the participation of the chair of philosophy, USSR AMS

Preparation of medical encyclopedic works occupies a special place in the publishing activities of the Academy. In the years of its existence, the Academy prepared and published 7 encyclopedias, the total printing of volumes of which was in excess of 5.5 million books. Virtually the entire Academy staff is involved in scientific editorial and scientific methodological work on the encyclopedias. At the present time, the main editorial board of BME [Great Medical Encyclopedia] is publishing, under the guidance of the Academy, the third edition of BME (in 30 volumes), and it is also preparing a 3-volume medical dictionary ["Encyclopedic Dictionary of Medical Terminology"]. The latter publication is the result of the Academy's work in the area of organizing and regulating Soviet medical terminology, which is coordinated with the Terminological Commission of USSR AMS.

Considerable work is being done in the Academy in the area of training, educating and appointing scientific personnel to different regions. In the period of 1968-1974 alone, the scientific degree of doctor of sciences was conferred upon 404 Academy staff members and 1,322 defended candidatorial dissertations. Each year, more than 250 specialists from our country's scientific institutions receive on-the-job advanced training at Academy institutes, and they study new methods of medical and biomedical research. The Academy renders appreciable assistance of the Union republics, with regard to training of national scientific personnel, by means of special purpose graduate studies [for candidatorial degree] and doctoral studies. A total of 1,200 specialists completed specialized graduate studies [for candidate's degree] and 200 scientists from Union republics have prepared doctoral dissertations.

The Presidium of the USSR AMS instituted two M. C. Maslov prizes for the best work in pediatrics as an incentive for young scientists; they are awarded to graduate students and clinical residents once every 2 years.

In 1974, 40 specialists from socialist and other countries of Europe, Asia and Africa complete their graduate studies.

All-Union schools for young scientists, organized jointly with the Central Committee of the Komsomol, dealing with the most important directions of medical science and pressing problems of public health practice, are of great importance in training scientific personnel ["cadres"]. These schools are organized at international young camps of the Central Committee of Komsomol and leading scientific institutions. The head institutes are called upon to organize and implement scientific guidance, and major scientists of the country are appointed as governors of these schools.

The international scientific contacts of the Academy are broadening. Academy scientists are conducting joint scientific research in accordance with international and interinstitute agreements with socialist countries, as well as England, the United States, FRG, France, Sweden and other countries. The Academy is actively involved in the activities of the World Health Organization (WHO), in the international conferences, seminars and symposiums dealing with different problems, which WHO organizes. Many scientists are members of expert consultant committees of WHO; they work at WHO headquarters

and its regional offices. Regional and consultation centers of WHO, headed by Academy members are based at many of the Academy institutes, where seminars, symposiums and courses on different questions also convene. The Academy is a participant of many international medical associations.

Our country provides the opportunity for medical scientists from all over the world to meet for the discussion of pressing problems of modern medical science. In 1971-1974 alone, major international forums of medical scientists, such as the 24th International Congress of Surgeons, International Congress of Gerontologists, International Congress of Obstetricians and Gynecologists and International Congress of Neurosurgeons, convened in the USSR.

At the present time, the USSR Academy of Medical Sciences is a major scientific and scientific educational complex, the headquarters for continued development of medical science in our country. The advances of medical science and Soviet public health have resulted in lowering of general and child mortality, extending life expectancy and a sharp decline of infectious diseases. In performing their humane social and occupational duties, medical scientists, along with public health agencies, are aiding in growth of productivity of labor, extending the period of active fitness for work, and thereby they are making their contribution to the cause of building a communist society in the USSR.

As a result of successful fulfilment of the decisions of the 24th CPSU Congress, the USSR AMS has implemented a number of measures oriented toward a worthy welcome to the 25th CPSU Congress, based on taking on increased obligations with regard to development of scientific research in the field of medicine, as the basis for safeguarding the health of the Soviet people.

In accordance with the draft of the directives of the 25th CPSU Congress, the USSR AMS has made some appreciable amendments in the plan for scientific research for 1976-1980, which concentrates on the most important problems of All-Union significance. The main directions of medical science, the pursuit of which will serve as the basis for solving the most important problems of Soviet public health care, have been formulated for the purpose of more effective management of scientific research. These directions include, first of all, the following problems: environmental protection, cardiovascular disease, malignant neoplasms, hereditary diseases, investigation of physiologically active agents, mother and infant care, fundamentals of prevention and treatment of infectious diseases, physiology and pathology of the central nervous system.

STATUTE PERTAINING TO COMMEMORATIVE PRIZES TO BE AWARDED BY THE USSR ACADEMY OF MEDICAL SCIENCES FOR THE BEST SCIENTIFIC WORK IN MEDICINE

The following commemorative ["imeni"] prizes, of 1,500 rubles each, have been instituted for the purpose of development of medical science; they are awarded once every 4 years for the best scientific work in the following fields:

Imeni	Field
A. I. Abrikosov	pathological anatomy
M. I. Averbakh	eye pathology
A. N. Bakulev	surgery
V. M. Bekhterev	neurology and psychiatry
A. A. Bogomolets	pathological physiology
S. P. Botkin	internal pathology
N. N. Burdenko	neurosurgery or military surgery in the field
F. F. Erisman	hygiene
N. F. Filatov	pediatrics
V. P. Filatov	eye surgery and plastic surgery
N. F. Gamaleya	microbiology, epidemiology and immunology
V. S. Gruzdeva	gynecology
V. S. Gulevich	biological and medical chemistry
D. I. Ivanovskiy	virology
M. P. Konchalovskiy	internal pathology
S. S. Korsakov	psychiatry
N. P. Kravkov	pharmacology and toxicology
G. F. Lang	cardiovascular pathology
B. I. Lavrent'yev	histology
M. S. Maslov	pediatrics
A. L. Myasnikov	cardiology
N. N. Petrov	oncology
N. I. Pirogov	surgery
N. A. Semashko	theory and history of Soviet public health
V. N. Shevkunenko	topographic anatomy and operative surgery
V. F. Snegirev	obstetrics and gynecology
S. I. Spasokukotskiy	thoracic surgery
N. D. Strazhesko	internal medicine and rheumatology
V. P. Vorob'yev	normal anatomy

The following procedure has been established for making the above awards, for the purpose of involving the broad medical community in discussing works submitted for commemorative prizes of the USSR AMS:

1) Once every 4 years, the Presidium of the Academy publishes a notice of a forthcoming competition for the relevant prizes in MEDITSINSKAYA GAZETA [Medical Gazette].

2) The Academy's Presidium appoints a competition commission for the year in which a specific prize is awarded, for the purpose of examining and grading works submitted for that prize.

3) The scientific papers submitted for commemorative prizes of the USSR AMS must have been published, and they must be complete, original, theoretical or clinical investigations (monographs, journal articles, etc), that enrich theoretical and practical medicine and Soviet public health.

4) Works that were published in the 5 years preceding the application can be submitted for commemorative prizes of the Academy. Discoveries, inventions, rationalization suggestions in the field of diagnostics, therapy and prevention of diseases may be submitted only if they have already been adopted in public health practice following experimental and clinical testing.

5) Both individual and collective works by citizens of the Soviet Union, whether or not the authors have scientific degrees or titles, may be entered in the competition for commemorative prizes of the Academy.

THE DEPARTMENT OF CLINICAL MEDICINE

The Department of Clinical Medicine (DCM) is comprised of scientists and leading clinicians working in all branches of clinical medicine. In the department there are 53 academicians (one of whom is also an academician of the USSR AS), 78 corresponding members of the USSR AMS and 18 foreign members of the USSR AMS; among them, there are 13 Heroes of Socialist Labor, 12 Lenin Prize and 22 USSR State Prize laureates (figures as of 1 January 1976).

There are 13 scientific research institutions, consisting of 12 institutes and one laboratory with the standing of an independent scientific institution, under the jurisdiction of the department. These institutions employ 2,071 scientists, 355 of whom are doctors of sciences and 1,295, candidates of sciences.

The department supervises scientific research dealing with 41 problems of All-Union importance, referable to the main branches of clinical medicine; 24 are problems dealt with separately, while the others are under the jursidiction of several scientific councils of the USSR AMS.

There are two scientific councils that deal with 13 clinical and one biomedical problem of national importance (the latter is governed by the Institute of General Pathology and Pathophysiology, USSR AMS).

The scientific council for cardiovascular diseases coordinates research on four complex [combined] problems: three clinical ones, "Arterial Hypertension, Atherosclerosis, Cardiac (Coronary) Ischemia," "Cardiac Lesions and Circulatory Insufficiency" and "Surgical Management of Cardiovascular Disease," and one biomedical problem, "Physiology and Pathology of the Cardiovascular System."

The scientific council for malignant neoplasms coordinates research on 10 combined problems of national importance: "Biochemistry of Tumors and Biology of Tumor Cells," "Carcinogenesis," "Virology and Immunology of Tumors," "Morphology of Tumors," "Epidemiology of Malignant Tumors," "Diagnostics of Tumors," "Drug Methods of Treating Malignant Tumors," "Symptomatology, Surgical and Combined Therapy of Malignant Tumors," "Organization of Cancer Control Work and Prevention of Malignant Tumors" and "Radiation Therapy of Neoplasms."





A. V. ZNEZHNEVSKIY N. K. BOGOLEPOV

Academicians of USSR AMS





G. Ye. OSTROVERKHOV A. N. SHABANOV

Corresponding members of USSR AMS

Staff of DCM Departmental Office

Among the problems under the jurisdiction of DCM, there are five ("Principal Mental Illnesses," "Surgical Management of Pathology of the Central Nervous System," "Medical Psychology," "Principal Diseases of the Nervous System" and "Epilepsy") referable to the scientific council for physiology and pathology of the nervous system under the Presidium of the USSR AMS.

The separate ["independent"] problems are the following 24: "Kidney Transplantation," "Hyberbaric Oxygenation," "Emergency Vascular Surgery," "Reconstructive Surgery of the Trachea, Bronchi and Esophagus," "Anesthesiology and Resuscitation," "Pyogenic Infections in Surgery," "Age-Related Distinctions of the Child Organism Under Normal and Pathological Conditions," "Scientific Bases of Woman, Mother and Neonate Health Care," "Scientific Bases for Using Physical Environmental Factors for Therapeutic and Preventive Purposes," "Gerontology and Geriatrics," "Rheumatism and Joint Diseases," "Scientific Bases of Medical Radiology and Roentgenology," "Tuberculosis," "Pathology of Digestive Organs," "Nephrology," "Diseases of the Blood, Blood and Blood Substitute Transfusions," "Trauma, Traumatism and Orthopedic Pathology," "Principal Stomatological Diseases, Prevention and Treatment Thereof," "Problems of Otorhinolaryngology," "Scientific Bases of Dermatology

and Venereology," "Pathology of Respiratory Organs," "Oligophrenia," "Medical Problems of Physical Culture" and "Medical Problems of Athletics."

The scientists of scientific research institutes and medical VUZ's of our country participate in performing the research planned by the problem commissions. The problem commissions and Departmental Office develop the practice of cooperative scientific research pursued with institutions belonging to other agencies: institutes of the USSR AS, All-Union Academy of Agricultural Sciences imeni Lenin [VASKHNIL], Academy of Pedagogic Sciences [APN], Academy of Social Sciences under the Central Committee CPSU, USSR Ministry of Instrument Making and others.

In different years, the following have been academician secretaries of the department: V. F. Zelenin (1944-1946), I. G. Ruvanov (1946-1948), A. L. Myasnikov (1948-1953), G. P. Rudnev (1953-1957), B. G. Yegorov (1957-1960), V. Kh. Vasilenko (1960-1966), A. V. Snezhnevskiy (1966-1968) and A. I. Arutyunov (1968-1969).

DCM Departmental Office Staff (as of 1 January 1976)

Departmental academician secretary: A. V. SNEZHNEVSKIY (since 1969), Hero of Socialist Labor, academician of USSR AMS.

Deputy academician secretaries: N. K. BOGOLEPOV, academician of USSR AMS; G. YE. OSTROVERKHOV and A. N. SHABANOV, corresponding members of USSR AMS.

Office members: A. F. BILIBIN, L. K. BOGUSH, K. V. BUNIN, N. A. LOPATKIN, N. I. NISEVICH, L. S. PERSIANINOV, A. I. RYBAKOV, V. S. SAVEL'YEV and M. YA. STUDENIKIN, academicians of USSR AMS; Z. A. BONDAR', V. I. BURAKOVSKIY, P. N. MAZEYEV, K. P. MOLOKANOV, V. M. MOROZOV, L. A. NOVIKOVA and A. N. OBROSOV, corresponding members of USSR AMS.

DCM Personnel [Academic] (as of 1 January 1976):

Full Members (Academicians) of USSR AMS:

BARANOV, Vasiliy Gavrilovich (born 1899); endocrinology.

BILIBIN, Aleksandr Fedorovich (born 1897); infectious diseases.

BISYARINA, Valentina Pavlovna (born 1912); pediatrics; Siberian Branch of USSR AMS.

BLOKHIN, Nikolay Nikolayevich (born 1912), Hero of Socialist Labor; oncology, surgery; member of USSR AMS Presidium since 1972.

BOGOLEPOV, Nikolay Kirillovich (born 1900), Hero of Socialist Labor, State Prize winner; neuropathology.

BOGUSH, Lev Konstantinovich (born 1905), Lenin and USSR State prizes winner; surgery of pulmonary tuberculosis.

BUNIN, Konstantin Vladimirovich (born 1912); infectious diseases.

CHACHAVA, Konstantin Vladimirovich (born 1919), USSR State prize winner; obstetrics and gynecology.

CHAZOV, Yevgeniy Ivanovich (born 1929), USSR State Prize winner; therapeutics; member of USSR AMS Presidium since 1972.

CHEBOTAREV, Dmitriy Fedorovich (born 1908); therapeutics.

DOMBROVSKAYA, Yuliya Fominichna (born 1891), Lenin Prize winner; pediatrics.

ISAKOV, Yuriy Fedorovich (born 1923); pediatric surgery.

KAZNACHEYEV, Vlail' Petrovich (born 1924); therapeutics; director of Siberian Branch USSR AMS; member of USSR AMS Presidium since 1972.

KOVANOV, Vladimir Vasil'yevich (born 1909); operative surgery, topographic anatomy; vice president of USSR AMS since 1966.

KOLESNIKOV, Ivan Stepanovich (born 1901), Lenin Prize winner, surgery.

KOLESOV, Anatoliy Panteleymonovich (born 1924); surgery.

KOMAKHIDZE, Mamiya Esedovich (born 1906); surgery.

KOROLEV, Boris Alekseyevich (born 1909); surgery.

KRASNOV, Mikhail Mikhaylovich (born 1929), USSR State Prize winner; ophthalmology.

KUZIN, Mikhail Il'ich (born 1916); surgery.

LOPATKIN, Nikolay Alekseyevich (born 1924); USSR State Prize winner; urology.

LOPUKHIN, Yuriy Mikhaylovich (born 1924), USSR State Prize winner; topographic anatomy and experimental surgery.

MALAYA, Lyubov' Trofimovna (born 1917); therapeutics.

MALINOVSKIY, Mikhail Sergeyevich (born 1880), Hero of Socialist Labor; obstetrics and gynecology.

MOROZOV, Georgiy Vasil'yevich (born 1920); psychiatry.

NESTEROV, Anatoliy Innokent'yevich (born 1895), Hero of Socialist Labor, Lenin and USSR State prize winner; therapeutics.

NIKIFOROV, Vladimir Nikolayevich (born 1919); infectious diseases.

NISEVICH, Nina Ivanovna (born 1911); pediatrics.

PAVLOV, Aleksandr Sergeyevich (born 1920); radiology.

PERSIANINOV, Leonid Semenovich (born 1908), USSR State Prize winner; obstetrics and gynecology.

PETROV-MASLAKOV, Mikhail Andreyevich (born 1896); obstetrics and gynecology.

PETROVSKIY, Boris Vasil'yevich (born 1908), academician of USSR AS, Hero of Socialist Labor, Lenin and USSR State Prize winner; surgery.

PREOBRAZHENSKIY, Nikolay Aleksandrovich (born 1918), Lenin Prize winner; otorhinolaryngology.

PUCHKOVSKAYA, Nadezhda Aleksandrovna (born 1908), Hero of Socialist Labor; ophthalmology.

ROMODANOV, Andrey Petrovich (born 1920); neurosurgery; member of USSR AMS Presidium since 1972.

RYBAKOV, Anatoliy Ivanovich (born 1917); stomatology.

SAMSONOV, Mikhail Andreyevich (born 1918); therapeutic nutrition.

SARADZHISHVILI, Petr Mikhaylovich (born 1894); neuropathology.

SAVEL'YEV, Viktor Sergeyevich (born 1928), USSR State Prize winner; surgery.

SAVITSKIY, Nikolay Nikolayevich (born 1892), USSR State Prize winner; therapeutics, toxicology.

SEREBROV, Aleksandr Ivanovich (born 1895); oncology, gynecology.

SHMELEV, Nikolay Andreyevich (born 1899); therapeutics, phthisiology.

SHMIDT, Yevgeniy Vladimirovich (born 1905), Hero of Socialist Labor, USSR State Prize winner; neuropathology.

SNEZHNEVSKIY, Andrey Vladimirovich (born 1904), Hero of Socialist Labor; psychiatry; departmental academician secretary since 1966.

STRUCHKOV, Viktor Ivanovich (born 1907), Lenin and USSR State prize winner; surgery; chief scientific secretary of USSR AMS since 1966.

STUDENIKIN, Mitrofan Yakovlevich (born 1923); pediatrics.

TAREYEV, Yevgeniy Mikhaylovich (born 1895), Hero of Socialist Labor, Lenin and USSR State prize winner; therapeutics.

TOPCHIBASHEV, Mustafa Agabek-ogly (born 1895), Hero of Socialist Labor, academician of Azerbaydzhan AS, USSR State Prize winner; surgery.

UGLOV, Fedor Grigor'yevich (born 1904), Lenin Prize winner; surgery.

VASILENKO, Vladimir Kharitonovich (born 1897), Hero of Socialist Labor; therapeutics.

VOLKOV, Mstislav Vasil'yevich (born 1923), USSR State Prize winner; traumatology and orthopedics; member of USSR AMS Presidium since 1972.

YABLOKOV, Dmitriy Dmitriyevich (born 1896), USSR State Prize winner; therapeutics; Siberian Branch of USSR AMS.

YANUSHKEVICHUS, Zigmas Ippolitovich (born 1911), academician of Lithuanian AS, USSR State Prize winner; therapeutics.

ZEDGENIDZE, Georgiy Artem'yevich (born 1902); roentgenology and radiology.

ZURABASHVILI, Avlipiy Davidovich (born 1902), academician of Georgian AS; psychiatry.

Corresponding Members of USSR AMS:

ALEKSANDROV, Nikolay Nikolayevich (born 1917); oncology.

AMOSOV, Nikolay Mikhaylovich (born 1913), academician of Ukrainian AS, Hero of Socialist Labor, Lenin Prize winner; surgery.

ANTONOV, Ignatiy Petrovich (born 1922); neuropathology.

ARAPOV, Dmitriy Alekseyevich (born 1897), USSR State Prize winner; surgery.

ASKERKHANOV, Rashid Pashayevich (born 1920); surgery.

BAIROV, Girey Aliyevich (born 1922); pediatric surgery.

BEREZIN, Ivan Filippovich (born 1896); surgery.

BOGDANOV, Ivan Luk'yanovich (born 1903); infectious diseases.

BONDAR', Zinaida Adamovna (born 1907); therapeutics.

BREDIKIS, Yurgis Yuozo (born 1929); medical electronics.

BURAKOVSKIY, Vladimir Ivanovich (born 1922), USSR State Prize winner; cardiovascular surgery.

CHAKLIN, Vasiliy Dmitriyevich (born 1892); orthopedics and traumatology.

DANILENKO, Mikhail Vasil'yevich (born 1918); surgery.

DAVIDENKOVA, Yevgeniya Fedorovna (born 1902); medical genetics.

DEMIN, Aristarkh Aleksandrovich (born 1918); therapeutics; Siberian Branch of USSR AMS.

DERYAPA, Nikolay Romanovich (born 1923); therapeutics; Siberian Branch of USSR AMS.

DOLETSKIY, Stanislav Yakovlevich (born 1919); pediatric surgery.

DZHAVAD-ZADE, Mir-Mamed Dzhavad ogly (born 1927); urology.

FANARDZHYAN, Varfolomey Artem'yevich (born 1898), academician of Armenian AS; roentgenology.

GASILIN, Vladimir Sergeyevich (born 1929); therapeutics.

GAVRILOV, Oleg Konstantinovich (born 1922); hematology, blood transfusion.

GEORGIU, Natal'ya Konstantinovna (born 1914); pediatric surgery.

ISLAMBEKOV, Radzhab Kaplanovich (born 1925), Lenin Prize winner; clinical endocrinology.

KALNBERZ, Viktor Konstantinovich (born 1928); traumatology and orthopedics.

KHAKIMOVA, Sof'ya Khafizovna (born 1924); obstetrics and gynecology.

KHECHINASHVILI, Semen Nikolayevich (born 1919), Lenin Prize winner; otorhinolaryngology.

KIPSHIDZE, Nodar Nikolayevich (born 1923); therapeutics.

KISLYAK, Natal'ya Sergeyevna (born 1926); pediatrics.

KOCHERGIN, Ivan Georgiyevich (born 1903); surgery.

KOMAROV, Fedor Ivanovich (born 1920); therapeutics.

KONOVALOV, Aleksandr Nikolayevich (born 1933); neurosurgery.

KORZH, Aleksey Aleksandrovich (born 1924); traumatology and orthopedics.

KRAKOVSKIY, Nikolay Ivanovich (born 1903), USSR State Prize winner; surgery.

LIKHACHEV, Andrey Gavrilovich (born 1899); otorhinolaryngology.

LOGINOV, Anatoliy Sergeyevich (born 1924); therapeutics.

MAKSUMOV, Dzhalal Nasyrovich (born 1920); radiology.

MALINOVSKIY, Nikolay Nikodimovich (born 1921); surgery.

MAZAYEV, Pavel Nikolayevich (born 1902); roentgenology.

MEGRABYAN, Andronik Ambartsumovich (born 1904); psychiatry.

MERKULOV, Ivan Iosifovich (born 1897); ophthalmology.

MESHALKIN, Yevgeniy Nikolayevich (born 1916), Lenin Prize winner; cardiovascular surgery; Siberian Branch of USSR AMS.

MIRRAKHIMOV, Mirsaid Mirkhamidovich (both 1927); therapeutics.

MISYUK, Nikolay Semenovich (born 1919); neuropathology.

MOLOKANOV, Konstantin Pavlovich (born 1904); occupational pathology, roentgenology.

MOROZOV, Viktor Mikhaylovich (born 1907); psychiatry.

MOSHKOV, Valentin Nikolayevich (born 1903); therapeutic physical culture.

MUSABAYEV, Isak Kurbanovich (born 1910), academician of Uzbek AS; infectious diseases.

NAMAZOVA, Adiliya Avaz-Kyzy (born 1926); pediatrics.

NASONOVA, Valentina Aleksandrovna (born 1923); rheumatology.

NOSOV, Sergey Dmitriyevich (born 1902); pediatrics.

NOVIKOVA, Lyudmila Alekseyevna (born 1901); oncology, gynecology.

OBROSOV, Aleksey Nikolayevich (born 1895); physiotherapy.

OGNEV, Boris Vladimirovich (born 1901); surgery.

OSTROVERKHOV, Georgiy Yefimovich (born 1904); operative surgery, topographic anatomy.

POKROVSKIY, Valentin Ivanovich (born 1929); infectious diseases.

PYTEL', Anton Yakovlevich (born 1902); urology.

ROKHLIN, Dmitriy Gerasimovich (born 1895); roentgenology, radiology.

SAARMA, Yuriy Martynovich (born 1921); psychiatry.

SAMOYLOV, Aleksandr Yakovlevich (born 1897); ophthalmology.

SEDOV, Konstantin Rafailovich (born 1918); therapeutics; deputy director of Siberian Branch of USSR AMS.

SHABANOV, Aleksandr Nikolayevich (born 1904); surgery.

SHAMSIYEV, Sayfi Shamsiyevich (born 1914); pediatrics.

SHAPOSHNIKOV, Oleg Kosntantinovich (born 1920); dermatovenereology.

SHCHELOVANOV, Nikolay Matveyevich (born 1892); physiology, pediatrics.

SHEBANOV, Filipp Vasil'yevich (born 1897); phthisiology.

SHKHVATSABAYA, Igor' Konstantinovich (born 1928); therapeutics.

SHUVALOVA, Yevgeniya Petrovna (born 1918); infectious diseases.

SOLDATOV, Igor' Borisovich (born 1923); otorhinolaryngology.

SOLOV'YEV, Gleb Mikhaylovich (born 1928), USSR State Prize winner; surgery.

TABOLIN, Vyzcheslav Aleksandrovich (born 1926); pediatrics.

TAGER, Iosif L'vovich (born 1900), Hero of Socialist Labor; roentgenology.

TIMOSHENKO, Leonid Vasil'yevich (born 1921); obstetrics and gynecology.

TRAPEZNIKOV, Nikolay Nikolayevich (born 1928); oncology.

UDINTSEV, Grigoriy Nikolayevich (born 1896), corresponding member of Kazakh AS; therapeutics.

UMIDOVA, Zul'fiya Ibragimovna (born 1897); therapeutics.

VANTSYAN, Eduard Nikitich (born 1921); surgery.

YEROSHEVSKIY, Tikhon Ivanovich (born 1902), Hero of Socialist Labor; ophthalmology.

YEVDOKIMIV, Aleksandr Ivanovich (born 1883); stomatology.

Foreign Members of USSR AMS:

BABICS, Antal (born 1902; Department of Medical Sciences, Hungarian Academy of Sciences [AS]); urology; elected in 1965.

BAUMANN, Rudolf (born 1911; director of Central Institute of Cardiovascular Regulation, GDR AS); therapeutics; elected in 1974.

BRECELJ, Bogdan (born 1906; director of Orthopedic Clinic in Ljubljana, Yugoslavia); surgery, orthopedics, traumatology; elected in 1963.

DE BAKEY, Michael (born 1908; president of Baylor Medical College, United States); surgery; elected in 1963.

FRIBERG, Sten (born 1902; Carolinska Institute, Sweden); orthopedics and traumatology; elected in 1967.

HUAN, Tsia Sy (born 1907; PRC AMS); surgery; elected in 1961.

HRBEK, Jaromir (born 1914 professor on the faculty of general medicine, Palacky University, Olomouc, CSSR), neurology, elected in 1969.

KRAATZ, Helmut (born 1902; GDR AS); obstetrics and gynecology; elected in 1963.

MALEYEV, Atanas Khristov (born 1917; head of Bulgarian Medical Academy); therapeutics; elected in 1974.

PRESNO ALBARRAN, Jose Antonio (born 1916; chief surgeon of Ministry of Public Health, Republic of Cuba); surgery; elected in 1966.

PUKHLEV, Oleksi Romanov (born 1905; head of chair of internal disease and therapy at the Higher Medical Institute, People's Republic of Bulgaria); therapeutics; elected in 1969.

RAWINSKI, Ksavery (born 1904; full member of Polish AS; head of chair of pediatric radiology, Medical Academy, Warsaw); pediatrics; elected in 1969.

ROSEN, Samuel (born 1897; professor at Columbia University, United States); otorhinolaryngology; elected in 1966.

SISKA, Karol (born 1906; director of Institute of Experimental Surgery, Slovak AS, CSSR); surgery; elected in 1969; foreign member of USSR AS.

STARY, Oldrzhikh (born 1914; Czech Ministry of Health); neurology; elected in 1967.

TASHEV, Tasho (born 1909; corresponding member of Bulgarian AS; director of Center for Hygiene, Medical Acadmey; director of Institute of Nutrition); therapeutics; elected in 1975.

TON THAT TUNG (born 1912; director of Vietnamese-German Friendship Hospital, DRV); surgery, elected in 1965.

VALLE, Rafael Moreno; orthopedics; elected in 1965.

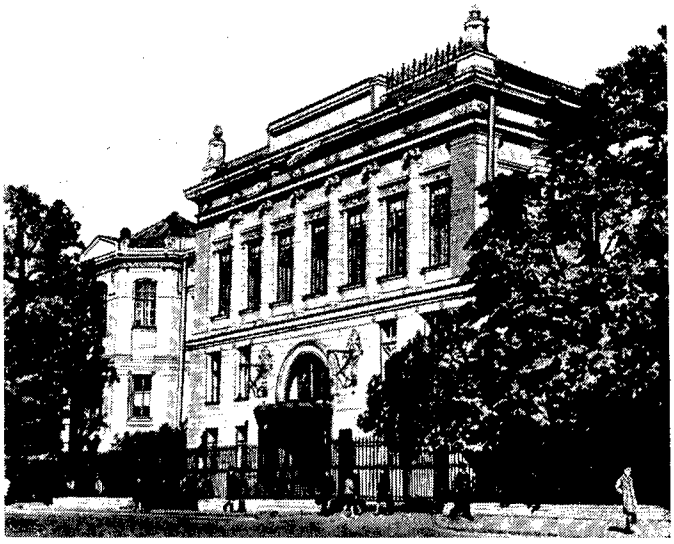
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Institute of Obstetrics and Gynecology (3 Mendeleyev Line, Leningrad, 199164; director: Professor Yu. I. NOVIKOV)

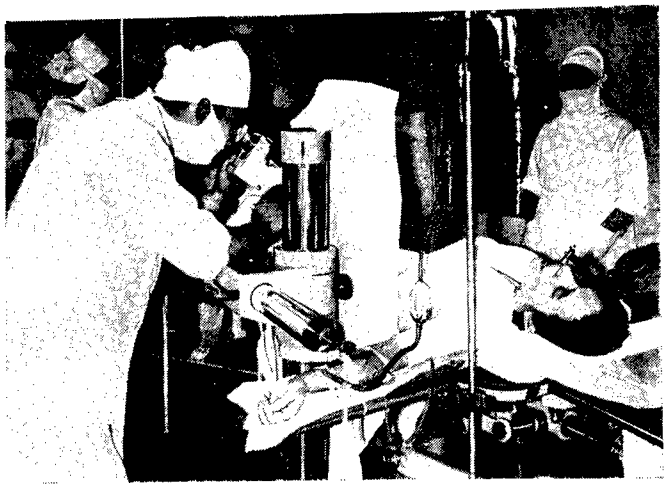
This institute was founded in 1797 under the name of Midwife Institute at the Imperial Maternity Home, at the initiative of N. M. Ambodik-Maksimovich, the founder of obstetrics in Russia. Before the Great October Socialist Revolution, this institute trained obstetricians and gynecologists, and it played an important role in development of scientific obstetrics in Russia. After 1917, the institute was headed by the following: D. O. Ott; V. V. Preobrazhenskiy; D. A. Glebov; S. A. Yagunov, corresponding member of USSR AMS; A. P. Nikolayev, academician of USSR AMS; P. A. Beloshapko, corresponding member of USSR AMS; and M. A. Petrov-Maslakov, academician of USSR AMS. The Institute of Obstetrics and Gynecology was transferred to the Academy system in 1948.

There are three clinical departments at the institute with a total of 405 beds [or places] (230 obstetrical, 120 gynecological and 55 endocrinological), as well as an experimental laboratory department and polyclinic. Two academicians of USSR AMS, 5 professors, 26 doctors of sciences, 64 candidates of medical sciences work at this institute.

The institute's scientific activities are directed primarily toward work on problems of prenatal prevention of fetal pathology and perinatal mortality. Research deals chiefly with physiology and pathology of female reproductive functions and early stages of human development.



Building of the Institute of Obstetrics and Gynecology



Vital, contact microscopy during surgery

In their work on protection of female reproductive function in other than gestation periods, the institute scientists conduct in-depth research on physiology and pathology of the menstrual cycle and menopause. Much attention is given in the investigations to definition of the role of the hypothalamus and gonadotropic function of the pituitary in the genesis of climacteric, menopause, disturbances of the climacteric period and a number of diseases; investigation of mechanisms of action and trial [approval] of new contraceptive methods for the purpose of preventing miscarriages and sequelae thereof; definition of pathogenesis of chromosomal pathology, miscarriages and some forms of sterility.

In the area of prevention of prenatal fetal pathology, much attention is given to investigation of pathogenesis, diagnostics, therapy and prevention of disturbances in correlation between the maternal and fetal organisms during the periods of placentation, pregnancy and parturition, sequelae of such disturbances to the fetus and neonate; immunological investigation of correlation between the maternal and fetal organisms and development of methods of preventing immunological conflict; determination of conditions that alleviate the transition to extrauterine life; genetic research, with analysis of hereditary factors of prenatal and perinatal mortality.

In the years of existence of this institute, its scientists have done much to develop cardinal problems of obstetrics and gynecology.

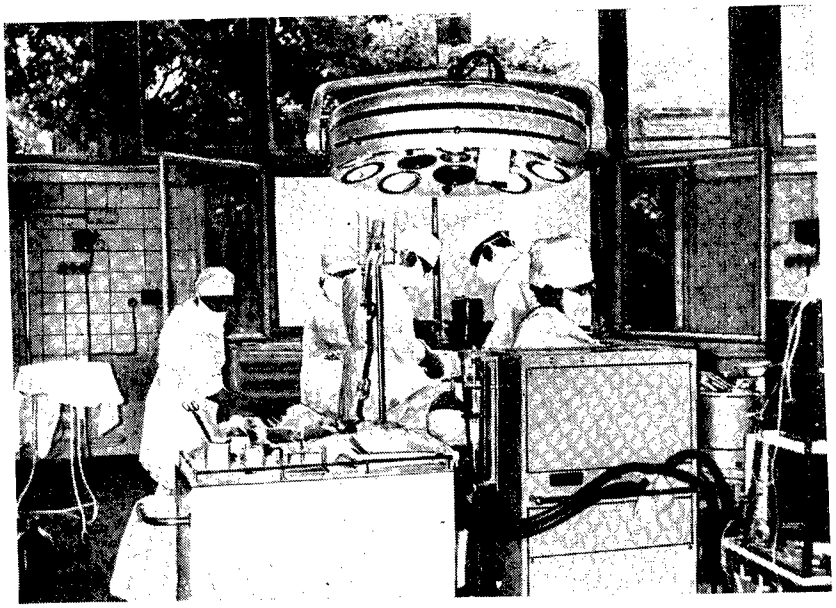
Basic contributions have been made in the areas of physiology of gestation period and parturition (N. F. Balandin and others), preventive method of treating eclampsia (V. V. Stroganov), late toxicosis of pregnancy (D. P. Brovkin, S. M. Bekker, M. A. Petrov-Maslakov and others), pathology and treatment of uterine malposition (D. O. Ott), functional diagnostics and therapy in gynecology (A. E. Mandel'shtam), operative gynecology (D. O. Ott, R. V. Kiparskiy, M. V. Yelkin, V. V. Preobrazhenskiy and others), teaching on periodicity of physiological functions of the female organism (D. O. Ott and S. S. Zhikharev), physiology and pathology of the female menopause (V. G. Baranov et al.), female sterility (A. E. Mandel'shtam, S. A. Yagunov and Ye. P. Mayzel'), occupational pathology and industrial hygiene for women workers (M. A. Petrov-Maslakov et al.), obstetrical and gynecological balneology, physiotherapy and therapeutic physical culture (D. O. Ott, M. V. Yelkin, S. A. Yagunov, L. N. Startseva and others) and others. Research on the pathogenesis of late toxicosis and premature births made it possible to offer some practical recommendations for the prevention and treatment of these conditions, and they served as the basis for the decisions adopted by the Second Congress of RSFSR Obstetricians and Gynecologists.

The original methods developed at the institute of differentiated psychophysioprophylactic preparation of pregnant women for childbirth are used in the Soviet Union and beyond its frontiers.

The institute investigates problems of physiology and pathology of the menstrual cycle, diagnostics and therapy of ectopic pregnancy, inflammatory pathology of female reproductive organs. With respect to congenital anomalies of sexual development, the clinicomorphological characteristics have been developed and a classification established. Diagnostics and indications for surgical management of congenital anomalies of sexual development have been refined. On the basis of studies of the effects of various contraceptives on the organism and definition of the mechanism of action of steroid contraceptives, new prescriptions for contraceptives to be taken by mouth have been recommended for clinical trial. An experimental model was developed for research on transport function of the placenta under close to physiological conditions.

The possibility of viral and mycoplasmal pathology of the fetus and neonate has been established. Recommendations have been developed for the prevention

of staphylococcal infections of neonates. Methods have been proposed and adopted in practice for obtaining specific immunoglobulin for the prevention of hemolytic disease of neonates.



Operating room at the Institute of Obstetrics and Gynecology

Some new possibilities have been discovered for the prevention of perinatal morbidity and mortality related to endocrine pathology of pregnancy. It was established that compensation of diabetes mellitus at the early stages of pregnancy lowers perineatal mortality to 3%.

The leading role of impaired uteroplacental and umbilicoplacental circulation in genesis of asphyxia was confirmed. A new, highly effective pathogenetic method of treating intrauterinefetal asphyxia was proposed and underwent extensive trial in different medical institutions of our country.

Problems of physiology and pathology of uterine contractility have been researched; methods have been proposed for prevention of inadequate labor, differentiated treatment of various forms of such inadequacy, as well as premature childbirth.

A system of resuscitation measures was developed for cases of massive hemorrhage in the third stage of labor and early postpartum period.

A technique was developed for culturing human ova in an artificial nutrient medium.

Research has begun at the institute on the effects of industrial factors on specific functions of the female body. These studies, which have priority and great social importance, are being pursued in collaboration with the

Leningrad Institute of Sanitation and Hygiene, institutes of industrial hygiene and occupational pathology, and other institutions.

The clinical scientists of the institute have produced some original Soviet textbooks of obstetrics and gynecology. The works of institute scientists have earned high praise. The USSR State Prize was conferred upon L. I. Bublichenko (1950) for his three-volume monograph, "Postpartum Infection"; A. P. Nikolayev (1952), academician of USSR AMS, for the book, "Prevention and Treatment of Intrauterine Fetal Asphyxia"; Professor N. L. Garmashova and P. G. Svetlov (1968) for a cycle of works dealing with prenatal prevention of fetal diseases and perinatal mortality. The academic prize imeni V. F. Snegirev was awarded to: Professor S. M. Bekker, for the monograph, "Pathology of Pregnancy" (1965); M. A. Petrov-Maslakov, academician of USSR AMS, and M. A. Repina for the book, "Pregnancy and the Blood-Clotting System" (1969).

The following work at the institute: V. G. Baranov and M. A. Petrov-Maslakov, academicians of USSR AMS; professors S. M. Bekker, N. L. Garmashova, V. I. Yelkin, Ye. P. Mayzel', Yu. I. Novikov and others.

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Institute of Pediatrics (2/62 Lomonosov Avenue, Moscow, 117296; director: Professor M. Ya. STUDENIKIN, academician of USSR AMS)

This institute was founded in 1922, at the site of the Moscow Orphanage, in accordance with Lenin's decree, "On Mother and Child Health Care," and it was called the Central Scientific Institute of Mother and Infant Care up to 1940. In 1940, it was renamed the Institute of Pediatrics and in 1945 it was made part of the Academy system. Professor G. N. Speranskiy, academician of USSR AMS and corresponding member of USSR AS, was its first director and scientific administrator.

This institute is the nation's largest research and clinical center of pediatrics. Since 1958, it has performed the duties of the chief institution in working on the problem of national significance, "Age-Related Distinctions of the Child Organism Under Normal and Pathological Conditions."

There are 12 clinical departments with 465 beds, 12 scientific laboratories and a polyclinic in the institute structure. All-Union scientific research and clinical centers for allergology and pulmonology have been opened there. One academician of the USSR AMS, one corresponding member of USSR AMS, 13 professors, 25 doctors of sciences and 100 candidates of medical and biological sciences work at this institute.

The activities of the staff are oriented toward solving the following problems: scientific bases of organization of therapeutic and preventive care of children; physiological distinctions of children's growth and development; physiology and pathology of the neonate period; chronic respiratory diseases in children; allergic pathology in children; cardiovascular pathology in children and adolescents; pathology of the blood in children; pressing



Building of Institute of Pediatrics



Premature babies in incubators

problems of infectious pathology in childhood; pathology of the kidneys and digestive organs in children. Investigation of specific and nonspecific reactivity and metabolism of the growing organism constitutes the theoretical aspect of research done at this institute.

From the very first days of its existence, this institute supervised work dealing with development of a state system of mother and child care in all of the republics. The institute did much work to create a network of pediatric and women's therapeutic and preventive institutions; for the first time, prototypes of pediatric institutions were developed, as well as the principles involved in organization, ways and means of operation thereof (creches, nursery schools, pediatric and women's consultation centers, dairy kitchen, small parks [to take walks], centers for collection of breast milk, etc.), which served as the basis of the present system of mother and child care in the entire country and later copied by a number of countries and international organizations (WHO and UNICEF).

To solve the problem of lowering child mortality, the institute staff, headed by G. N. Speranskiy, academician of USSR AMS, developed and adopted in practice methods of treating pathology of neonates and premature babies; they organized control of acute bronchopulmonary and gastrointestinal diseases which were the chief cause of infant mortality. All this resulted in a sharp decline of mortality referable to toxic forms of these diseases.

Clinico-epidemiological and social investigations of rheumatism and bronchopulmonary pathology in children resulted in development and practical use of effective measures for the treatment and prevention of these diseases, and this resulted in lower mortality and disability rates.

Several of the distinctions of intrauterine development, correlation between maternal and fetal organisms, effects on the fetus of various factors of the internal and external environment have been investigated at the institute; the causes of development of some malformations have been identified, and measures have been outlined for prenatal protection of the fetus.

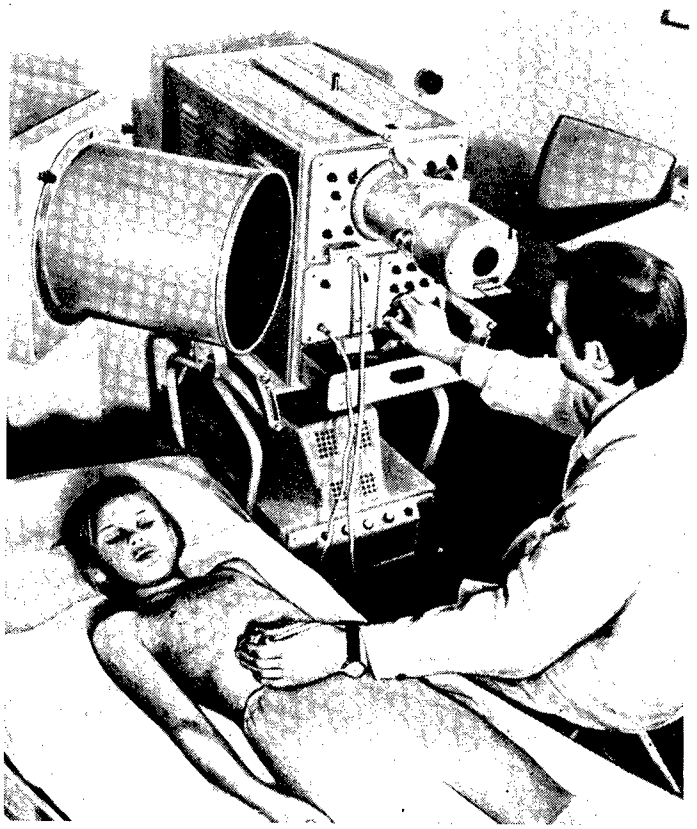
Some new patterns were established with regard to functions of different systems, metabolism and immunological reactivity of premature babies; studies were pursued of symptomatology of intracranial birth trauma and hypoxic states in neonates; methods of diagnosing and treating it have been refined.

Methods have been worked out for making skin and intracutaneous tests on children using various allergens; the basic principles have been substantiated for desensitizing therapy of allergic diseases in children, and a system has been devised for administration of hormones and vitamins in such cases.

Some of the mechanisms of pathogenesis of arterial hypertension and vascular dystonia in school children have been studied; principles have been developed for combined therapy thereof.

The principles have been developed for detection and treatment of leukemia, reticulosis, hemolytic and hypoplastic anemia, hemorrhagic diatheses in children, and they are being applied with success in several of the nation's clinics. Systems of stage-by-stage treatment have been developed for children with cirrhosis of the liver, inflammatory processes of the biliary tract and dyskinesia.

A new classification has been proposed of nonspecific pathology of respiratory organs in infants; methods have been developed for detection and treatment thereof; the conditions under which chronic bronchopulmonary diseases develop in children have been studied. For the first time, indices have been worked out of mucoviscidosis in children, as well as criteria for diagnosing this disease.



Echography of the liver using an UZD-5 ultrasound diagnostic machine

An age-related study has been made of the symptomatology of viral pathology in children; methods have been developed for the detection and combined treatment thereof, in the presence of diverse clinical variants and complications; the first Soviet live measles and other vaccines have been tested; the symptomatology and pathogenesis of the vaccinal process in smallpox and measles vaccination have been investigated; methods have been developed for

sparing immunization of children with altered reactivity, and a change in the inoculation schedule was substantiated.

Studies are in progress of pathogenesis and symptomatology of glomerulonephritis; modern methods are being developed for the treatment of glomerulonephritis and pyelonephritis, including dietetic regimen, indications for sanatorium and resort therapy.

Under development are the most physiological methods of operative management of pathology of respiratory organs, liver, kidneys, blood, brain, etc., directed toward enhancing compensatory mechanisms in the operated organ and entire body.

While constantly expanding international scientific ties in the field of pediatrics, for several years the institute has been conducting joint scientific research with scientists of Bulgaria, GDR, Finland, Czechoslovakia and Yugoslavia.

The results of all this research have been reflected in numerous articles, monographs, textbooks, manuals and guides produced by the institute's scientists. In the last 10 years alone, they published 42 monographs, 15 manuals, 9 textbooks and 3 guides for physicians. A textbook of infectious childhood diseases (S. D. Nosov) was published in English in 1971. The monograph, "Premature Babies" (Ye. Ch. Novikova together with Bulgarian scientists) was published in Bulgaria, in 1971.

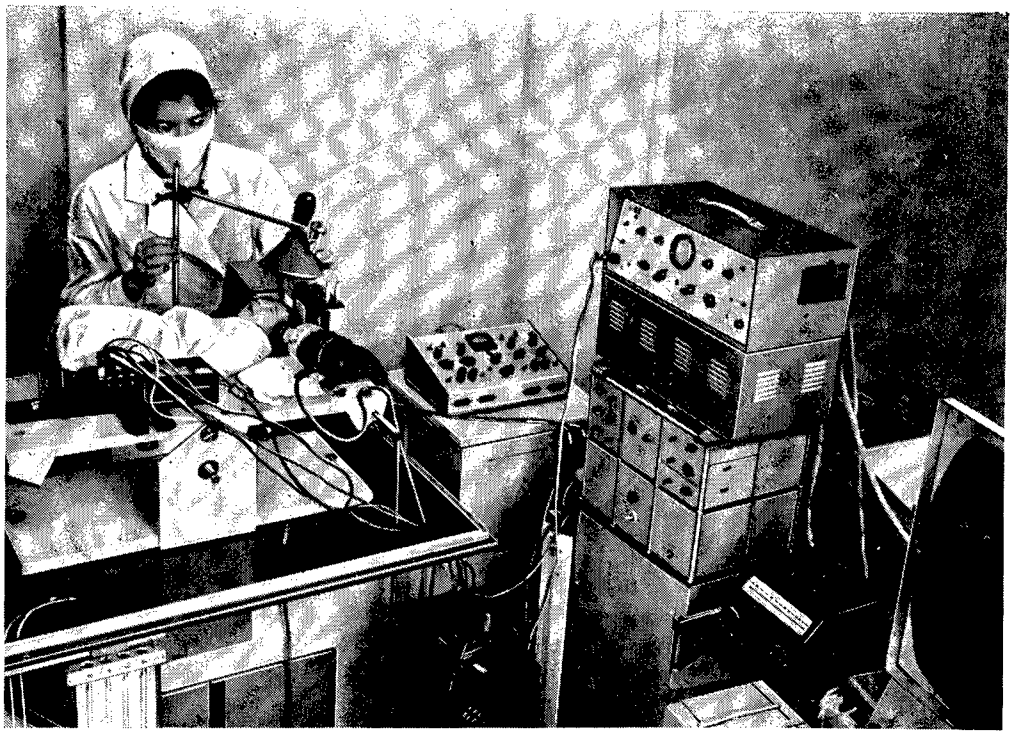
The Red Banner of Labor (1947) and Order of Lenin (1973) have been awarded for the institute's activities.

The USSR State Prize was awarded to B. N. Klossovskiy, academician of USSR AMS, for his monograph, "Blood Circulation in the Brain," in 1952. In 1970, the Lenin Prize was given to G. N. Speranskiy (posthumously), academician of USSR AMS, for a cycle of works resulting in a sharp decline of child morbidity and mortality. The M. S. Maslov prize was awarded to young scientists at the institute in 1967, 1969, 1971 and 1973.

Outstanding Soviet pediatricians have worked at the institute; they were the founders of the Soviet scientific pediatric school: G. N. Speranskiy, B. N. Klossovskiy and O. D. Sokolova-Ponomareva, academicians of USSR AMS; A. I. Dobrokhotova and N. M. Shchelovanov, corresponding members of USSR AMS; professors I. V. Tsimbler, N. M. Nikolayev, I. S. Dergachev, K. A. Moskachev, T. P. Borisova.

Scientific personnel are trained at the institute. Each year, over 150 scientists and physicians from all republics are taught new methods of scientific research and treatment of children. In the last 5 years alone, 136 people completed their graduate studies and residencies at the institute, 71 of whom were from Union republics. In these years, the institute staff and graduate students defended 89 dissertations, of which 15 were for doctorates. More than 100 dissertations, including 30 doctoral ones, were prepared in the Union republics under the guidance of the institute's

scientists. About 100 of the institute's graduates now head major pediatric institutions in the nation: institutes, VUZ chairs, etc.



Examination of cerebrovascular reactions of premature babies using photoplethysmography and rheography

The following work at the institute: M. Ya. Studenikin, academician of USSR AMS; Professor S. D. Nosov, corresponding member of USSR AMS; professors A. A. Yefimova, Kh. M. Markov, Ye. N. Mosyagina, Ye. Ch. Novikova, M. K. Oskolkova, A. G. Pugachev, S. V. Rachinskiy, T. S. Sokolova, Yu. A. Yurkov and others.

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Institute of Cardiology imeni A. L. Myasnikov (10 Petroverigskiy Lane, Moscow, 101882; director: Professor I. K. SHKHVATSABAYA, corresponding member of USSR AMS)

In 1945, the Institute of Experimental and Clinical Therapy was founded in the system of the Academy; it was renamed the Institute of Therapeutics in 1948, and in 1967 it was reorganized into the Institute of Cardiology. Its directors included the following: professors V. F. Zelenin (1945-1948) and A. L. Myasnikov (1948), both academicians of USSR AMS; in 1966, the latter name was given to the institute.

The institute is comprised of 7 clinical departments with 400 beds (including departments of cardiac surgery and rehabilitation of patients with cardiovascular pathology); laboratories of pathophysiology of myocardial infarction, myocardial metabolism, physiology and pathophysiology of circulation, epidemiology of cardiovascular disease; departments of roentgenology and radiology, scientific consultation with dispensary, and others. Since 1962, the Center for the Study of Epidemiology and Pathology of Atherosclerosis has been based at the pathoanatomical laboratory of the institute; the work done at this center follows the WHO program.

The Institute of Cardiology is the chief institution for work on two problems of All-Union importance: "Arterial Hypertension, Atherosclerosis, Cardiac (Coronary) Ischemia" and "Rhythm Disturbances and Circulatory Insufficiency." The scientific council for cardiovascular pathology, of the USSR AMS Presidium, is based at this institute; it coordinates scientific research on effective methods and means of preventing, detecting and treating cardiovascular pathology.

The scientific activities of the institute are concentrated on the most pressing problems of cardiology: investigation of pathogenesis, symptomatology, improved diagnostics, including early detection; prevention and treatment of arterial hypertension, atherosclerosis, cardiac ischemia, and in particular myocardial infarction; cardiac defects and circulatory insufficiency. Much attention is given to experimental and clinical investigation of the substance of the pathological process, humoral and hemodynamic aspects of regulatory disturbances of the circulatory system and morphological changes, particularly at the early stages of these diseases. In recent years, there has been extensive development of problems of epidemiology, scientific basis of organization of therapeutic care and rehabilitation therapy of patients with pathology of the cardiovascular system.

Joint scientific research is being conducted by this institute and scientists, as well as scientific teams of several foreign countries (United States, GDR, Hungary, Poland and others).

Investigation, in the last few years, of epidemiology of cardiovascular diseases, and first of all of cardiac ischemia, essential hypertension and atherosclerosis, demonstrated differences in distribution and rate of development of these diseases in different geographic zones of our country, and made it possible to outline the approaches to research on primary and secondary prophylaxis of cardiac ischemia.

The essence and role of changes in pressor-depressor and other humoral factors, as well as hemodynamics in the presence of various forms of arterial hypertension, have been disclosed. Two stages (onset and stabilization) have been distinguished in the course of essential hypertension, and three hemodynamic types at its early stages. Methods and criteria have been worked out for differential diagnosis of arterial hypertension of diverse genesis, as well as cardiac ischemia and cardialgia of noncoronary etiology.



Building of Institute of Cardiology



Monument to A. L. Myasnikov, Academician of USSR AMS, in front of institute



At a scientific session at the institute. Left to right: Ye. I. Chazov, deputy USSR minister of health, academician of USSR AMS; I. K. Shkhvatsabaya, corresponding member of USSR AMS; and A. G. Safonov, deputy USSR minister of health.

Determination was made of the distinctions and role of disturbaces of lipid, carbohydrate and protein metabolism, endocrine and enzymatic system that control it, and the liver in development of atherosclerosis. The role of atherogenic lipoproteins has been defined with regard to development of the atherosclerotic process. It was established experimentally that development of cholesterol atherosclerosis can be inhibited by immunizing animals with beta lipoproteins having antigenic properties.

Studies have been made of some pathogenetic elements of myocardial infarction and complications thereof; on this basis more refined diagnostic (using electrophysiological and other examination methods, assay of enzyme activity) and therapeutic methods. A system has been worked out for stage by stage treatment of patients with acute myocardial infarction, including an intensive care unit with resuscitation service, and department of rehabilitation therapy. This system has lowered significantly mortality due to myocardial infarction and disability of patients.

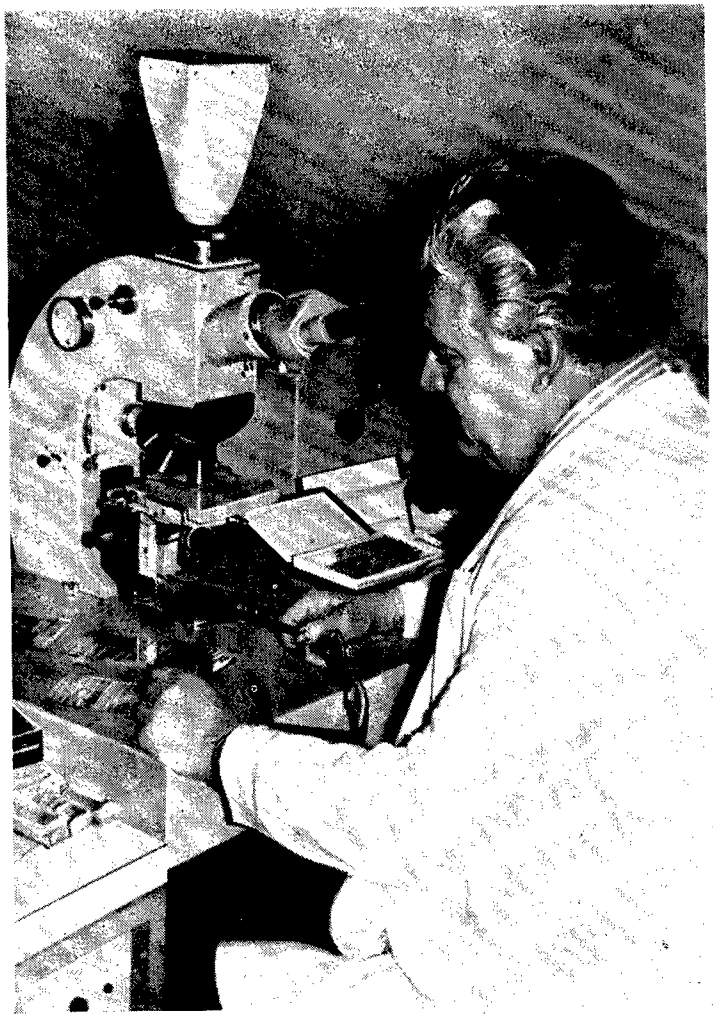
The institute has worked out the principles of differentiated drug therapy of patients with chronic coronary insufficiency, depending on the distinctions of clinical course and severity of the pathological process.

A comprehensive study has been made of the role of disturbances of water and electrolyte metabolism, distinctions of hemodynamic disturbances in circulatory insufficiency due to a number of diseases; principles have been worked out for early detection of circulatory insufficiency and prompt treatment thereof. In the last few years, intensive studies have been pursued of myocardial metabolism under normal and pathological conditions.

The scientific achievements of the institute are being adopted widely in medical practice: in the hospitals of many cities of our country, specialized cardiological departments with intensive monitoring units have been opened; rehabilitation therapy is being practiced more and more extensively at all stages of treatment of acute myocardial infarction and in the postinfarction period; programs worked out by the institute for treatment of patients with myocardial infarction, arterial hypertension and other diseases of the cardiovascular system are now being used; suggestions dealing with the structure and equipment of cardiological buildings are being followed in large cities, where they are being constructed on funds obtained from an All-Union unpaid work day (1971).

Training of scientific personnel is one of the important aspects of the institute's activities. Within its walls, 53 doctors of sciences and 199 candidates of medical scientists have been trained. One of the country's leading scientific schools of clinical ["therapeutist"] cardiologists was formed under the guidance of A. L. Myasnikov, academician of USSR AMS, the most prominent Soviet scientist and clinician. The traditions of this school are being successfully developed by Ye. I. Chazov, academician of USSR AMS, I. K. Shkhvatsabaya, corresponding member of USSR AMS, Professor N. M. Mukharlyamov and others. Representatives of this school head chairs at medical VUZ's, clinics and scientific research institutes in the Union

republics. They include the following: Z. I. Yanushkevichus, academician of USSR AMS, USSR State Prize winner; Professor Kh. Kh. Mansurov, corresponding member of the Uzbek AS; Professor N. R. Paleyev, recipient of the USSR State Prize, professors V. M. Bogolyubov, A. V. Vinogradov, N. N. Kipshidze and V. V. Kononyachenko.



Professor A. M. Vikhert, head of the pathological anatomy laboratory, examining a kidney puncture biopsy.

Each year, medical specialists from 40-55 cities of our country undergo on the job training at the institute to assimilate modern methods of scientific investigation, as well as diagnostic and therapeutic methods

referable to pathology of the cardiovascular system. In 1969-1973 alone, 990 physicians underwent such training. Annual courses for advancement in cardiology have been offered at the institute for many years, and they are attended by 250-400 physicians annually, from Moscow and Moscow Oblast. Visiting seminars or 10-day sessions are organized each year in various cities and republics of our country; lectures are also delivered for physicians in some therapeutic-prophylactic institutions of Moscow and other cities. Each year, in conjunction with the Exhibit of Achievements of the National Economy of the USSR, the institute holds scientific and clinical conference-seminars for specialists from republic, regional, oblast, municipal and central rayon hospitals. In 1973, at the instigation of the institute, the first All-Union school for cardiologists was organized in Sochi; almost 100 physicians, representing 53 cities and all of the Union republics, participated in this school.

The institute staff has written more than 45 monographs, as well as a considerable number of textbooks, manuals and scientific articles, In the last 5-6 years alone, 15 monographs and 770 scientific articles have been published, 48 of which in foreign journals.

In 1965, Professor A. L. Myasnikov, academician of USSR AMS, was awarded the international prize, the Golden Stethoscope, for his research on atherosclerosis. The S. P. Botkin prize was awarded to Ye. I. Chazov, academician of USSR AMS, for his monograph, "Thrombosis and Embolisms in the Practice of Internal Medicine" (1966); he is also the recipient of the USSR State Prize (1969) for work on the problem of myocardial infarction and principles of organization of medical care of this illness. The A. L. Myasnikov prize was awarded to Professor L. A. Myasnikov for his monograph, "Neuro-endocrine Factors in Atherosclerosis" (1969).

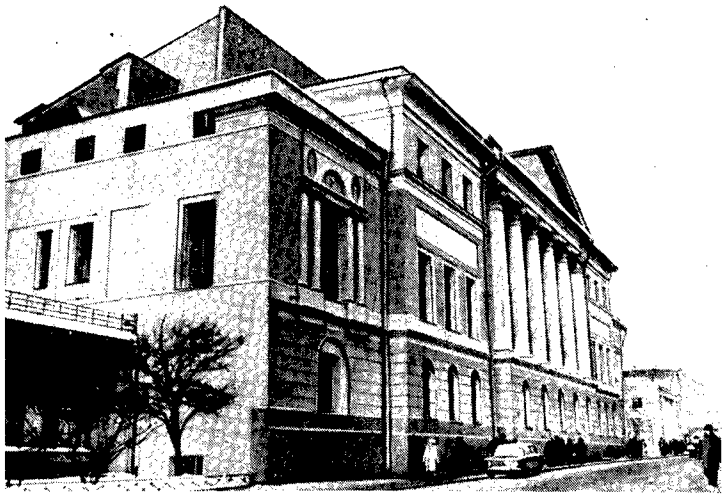
For many years, prominent scientists worked at the institute: V. F. Zelenin, A. L. Myasnikov, academicians of USSR AMS; I. I. Speranskiy, corresponding member of USSR AMS; professors R. M. Akhrem-Akhremovich, K. N. Zamyslova, M. G. Kritsman, L. A. Myasnikov and M. Ye. Udel'nov, who made a great contribution to development of Soviet cardiology.

The following guide scientific research at the institute: Professor Ye. I. Chazov, academician of USSR AMS; Professor I. K. Shkhvatsabaya, corresponding member of USSR AMS; professors A. M. Vikhert, Ye. N. Gerasimova, N. M. Mukharlyamov, M. Ye. Rayskina, N. A. Ratner and others.

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Institute of Rheumatism (25 Petrovka Street, Moscow, 103031; director: Professor V. A. NASONOVA, corresponding member of USSR AMS)

This institute was founded in 1958 under the RSFSR Ministry of Health, and it was transferred to the system of the Academy in 1962. A. I. Nesterov, academician of USSR AMS and Hero of Socialist Labor, was the organizer of this institute and its director up to 1970.



Institute of Rheumatism



Monitoring function of isolated rabbit heart with an ELKAR-4 electrocardiograph and VEKS-1 oscillograph

This institute is comprised of eight departments, six laboratories and seven teams [groups]. There are 120 beds at the main base and 100 beds in two departments, children's, rheumatological and arthrological, to treat patients with collagen disease (rheumatism, infectious, nonspecific polyarthritis, systemic lupus erythematosus and systemic scleroderma).

The institute performs the duties of chief institution dealing with the problem of national importance, "Rheumatism and Joint Pathology." It has been the main coordinating center for scientific research in socialist countries in the field of rheumatology since 1964.

Scientific research is being pursued in the following principal directions: investigation of main factors of etiology and pathogenesis of rheumatism and other collagen diseases, chronic arthritis; development of pathogenetic bases for early detection and methods of treating collagen disease, as well as epidemiology and prevention of rheumatic diseases. For the past few years, in-depth studies have been in progress of a number of genetic and etiological factors (in particular, the role of viruses and chlamydia ["gal'proviya"]) in onset of systemic lupus erythematosus and rheumatoid arthritis, as well as development of epidemiological diagnostic criteria of rheumatism and rheumatoid arthritis for mass screening of the public and large organized groups, for the purpose of determining the incidence of these diseases.

The research done at this institute has made an appreciable contribution to Soviet rheumatology. A new classification and nomenclature of rheumatism and infectious, nonspecific polyarthritis, as well as working classifications of systemic lupus erythematosus and systemic scleroderma, have been developed in the last few years. Evidence has been obtained of the role of delayed type allergy to cardiac tissues in rheumatism. It was demonstrated that there is immunological resemblance between myocardial components and connective tissue of cardiac valves, and beta hemolytic streptococcus of group A: structural glycoproteins and C-polysaccharide. Determination has been made of the role of lysosomic enzymes, hyaluronidase and acid phosphatase in the pathogenesis of rheumatic disease.

Data have been obtained on the significance of viruses and autoimmune disturbances to development of systemic lupus erythematosus. The role of several genetic factors has been established in patients with systemic lupus erythematosus and rheumatism.

The most adequate combined methods have been developed for treatment and prevention of rheumatism and other collagen disease, and, according to the institute's data, this has lowered the incidence of cardiac lesions in the presence of primary rheumatism from 40-50% (in the 1940's) to 9-14% (at the present time), and the recurrence of rheumatism has shown a 5-8-fold decline. For the first time, quinoline products and cytostatic immunosuppressants have been used successfully in cases of continuously recurring forms of rheumatism.

Advances have been made in the treatment of patients with rheumatoid arthritis and major collagen diseases; remissions have grown more frequent, they last longer, and patients retain fitness for work. A therapeutic response has been obtained with the use of immunosuppressants; it has been observed in 50% of the cases of severe rheumatism, rheumatoid arthritis and systemic lupus previously treated with other agents without success; there has been a 4-fold decline in mortality due to systemic lupus erythematosus.

The institute has published several monographs on rheumatology. The works of the scientific school created by A. I. Nesterov, academician of USSR AMS, laid the foundation for Soviet rheumatology. They developed questions of classification and nomenclature of rheumatism and pathology of the joints, systemic lupus erythematosus and scleroderma, diagnostic criteria, variants of clinical course, methods of therapy, including the stage by stage principle, diverse modification of prophylaxis, as well as the dispensary method of observing patients with diverse collagen diseases.

A network of rheumatological institutions and rheumatological centers was created in our country, at the initiative and under the supervision of the Institute of Rheumatism, USSR AMS, and USSR Ministry of Health, and the institute provides scientific methodological guidance of their activities.

In 1973, academicians A. I. Nesterov, Ye. M. Tareyev and A. I. Strukov, of the USSR AMS, were awarded the Lenin Prize for a cycle of works dealing with pathomorphogenesis, symptomatology, diagnostics, treatment and prevention of rheumatic diseases. In 1961, the N. D. Strazhesko Prize was awarded to A. I. Nesterov, academician of USSR AMS, and Ya. I. Sigidin, doctor of medical sciences, for the monograph, "Symptomatology of Collagen Diseases," and in 1967, the same prize was bestowed upon Professor M. G. Astapenko and E. G. Pikhlak, candidate of medical sciences, for the monograph, "Pathology of the Joints."

A. I. Nesterov and Ye. M. Tareyev, academicians of USSR AMS, V. A. Nasonova, corresponding member of USSR AMS, professors M. G. Astapenko, I.V. Vorob'yev, A. V. Dolgopolova, A. A. Tustanovskiy and others work at this institute.

* * *



Institute of Neurology

Institute of Neurology (80 Volokolamskoye Road, Moscow, 123367; director: Professor Ye. V. SHMIDT, academician of USSR AMS)

This institute was founded in 1945, on the basis of the clinic of nervous diseases of the All-Union Institute of Experimental Medicine imeni A. M. Gor'kiy. The first directors were: N. I. Grashchenkov (1945-1948), corresponding member of USSR AS and academician of USSR AMS, and N. V. Konovalov (1948-1966), academician of USSR AMS.

The institute is the chief institution dealing with the problem of national importance, "Principal Diseases of the Nervous System."

The following are the main directions of scientific research pursued at this institute: investigation of cerebrovascular pathology, hereditary pathology of the nervous system and some serious, progressive diseases (lateral amyotrophic sclerosis, multiple sclerosis), as well as combined investigations of cerebrocirculatory disorders in the presence of pathology of great vessels of the head.

The research done at this institute made an appreciable contribution to theory of medicine and neurological science. A conception was developed on functional lability of physiological systems and the data obtained were applied in clinical practice. Conceptions on the physiological substance of aphasia, based on the theory of I. P. Pavlov on dynamic localization of functions, have been developed. The nature of tick-borne encephalitis has been identified, as well as the means of its distribution in humans; its symptomatology and pathomorphology have been studied, and methods have been defined for the prevention and treatment of this disease.

For the first time, a group of unique acutely febrile viral infections, the so-called hemorrhagic fevers, has been described.

The symptomatology and pathomorphology of hepatolenticular degeneration have been described; important factors have been identified in the pathogenesis of this disease; a definite response has been obtained in a large number of patients with administration of new Soviet thiol products.

Data, new to world science, have been obtained on the pathogenesis of acute poliomyelitis, early detection thereof and identification of atypical forms. The epidemiological patterns of this disease have been demonstrated, and this made it possible to work out a system of epidemic-control measures that have justified themselves in practice. Instructions have been prepared on symptomatology and treatment of respiratory disorders in the presence of acute poliomyelitis; respiratory centers have been opened in many cities of our country.

Basic theses have been expounded on the role of occlusive processes in the great vessels, compensatory mechanisms and collateral circulation in the brain, with regard to the genesis of cerebrovascular lesions.

Modern methods of diagnosing vascular lesions have been refined and adopted in clinical practice: angiography, rheoencephalography, echoencephalography, a quantitative method of examining cerebral blood flow and metabolism. For the first time in our country, a method of mathematical forecasing was developed for the sequelae of hemorrhagic cerebrovascular accidents, using electronic computers. Some new data were obtained on the role of autoimmune reactions in the presence of cerebrocirculatory disturbances. A system of therapeutic measures has been developed for acute cerebrovascular accidents. Angiographic evidence has been supplied of the possibility of lysis of a thrombus in the case of ischemic insultus, following administration of fibrinolysin anticoagulant therapy.

There has been refinement of methods of operative management of occlusive lesions to the great arteries of the head. Surgical management has begun to be practiced for the "steal syndrome," as well as stenosis and thrombosis of great arteries of the head. There has been experimental and clinical development of use in vascular neurosurgery of adhesives and microsurgical sutures. A set of resuscitation measures was developed for terminal states in cases of cerebrovascular accident, and a method devised for prolonged artificial ventilation using large ["volumetric"] respirators in the presence of diverse organic diseases of the nervous system associated with respiratory disturbances. Methods have been developed for postinsultus rehabilitation therapy of motor and speech disturbances, and in particular, there is a new "warning" method for aphasia, and vestibular exercises for vertebrobasilar insufficiency.

New data have been obtained on metabolic disturbances in the presence of extrapyramidal hereditary diseases. The signs have been determined of pathological gene carriers, early and discrete forms of disease, and this is very important to early detection and development of criteria in medicogenetic consultation work. The advances made in demonstrating some aspects of pathogenesis of hereditary diseases aided in development of effective pathogenetic therapy methods.

It was established that prolonged intake of thiol products in the presence of hepatocerebral dystrophy leads, in some cases, to virtually total disappearance of neurological symptoms and restoration of fitness for work.

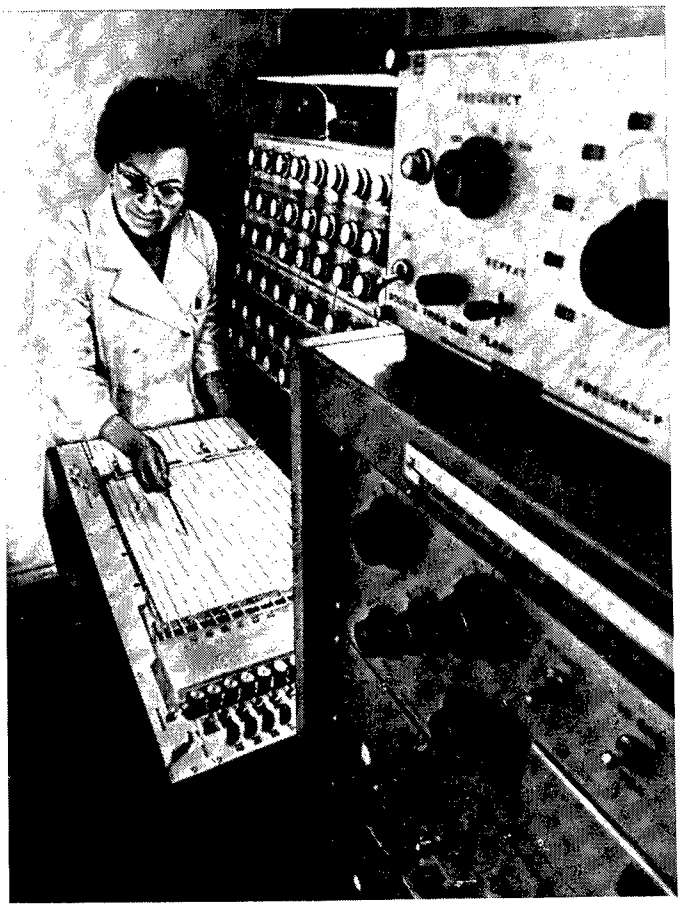
For the first time in our country, stereotactic interventions are being performed on the basal ganglia in the presence of extrapyramidal hereditary pathology, and this corrects rough compulsive movements and tonus disorders.

The viral origin of some forms of amyotrophic lateral sclerosis was demonstrated in experiments, conducted for many years, on simians.

The staff of the institute has published a considerable number of major textbooks and monographs, as well as many articles in journals and collections of scientific works.



EEG group of laboratory of clinical neurophysiology



In the laboratory of cerebral hemodynamics



Institute of Psychiatry



In the laboratory of neurophysiology of higher nervous activity

State and academic prizes have been awarded for the research of a number of members on the staff of the institute. The Lenin Prize was awarded to N. V. Konovalov, academician of USSR AMS, for his monograph, "Hepatocerebral Dystrophy" (1969). Ye. V. Shmidt, academician of USSR AMS, Professor A. N. Koltover, senior scientists L. K. Brazhnaya and N. V. Vereshchagin were awarded the USSR State Prize (1971) for a cycle of works dealing with cerebrocirculatory disturbances in the presence of pathology of great arteries of the head. The V. M. Bekhterev Prize was awarded to Ye. V. Shmidt, academician of USSR AMS, for his monograph, "Stenosis and Thrombosis of the Carotid, and Cerebrocirculatory Disturbances" (1963).

Clinical neurologists work at this institute: Ye. V. Shmidt, academician of USSR AMS; professors K. F. Kanareykin, D. K. Lunev, L. M. Popova, R. A. Tkachev, O. A. Khondkarian and others: Professor A. N. Koltover, a pathomorphologist; professors F. V. Bassin, I. V. Gannushkina and Ye. A. Zhirmunskaya, who are neurophysiologists, and others.

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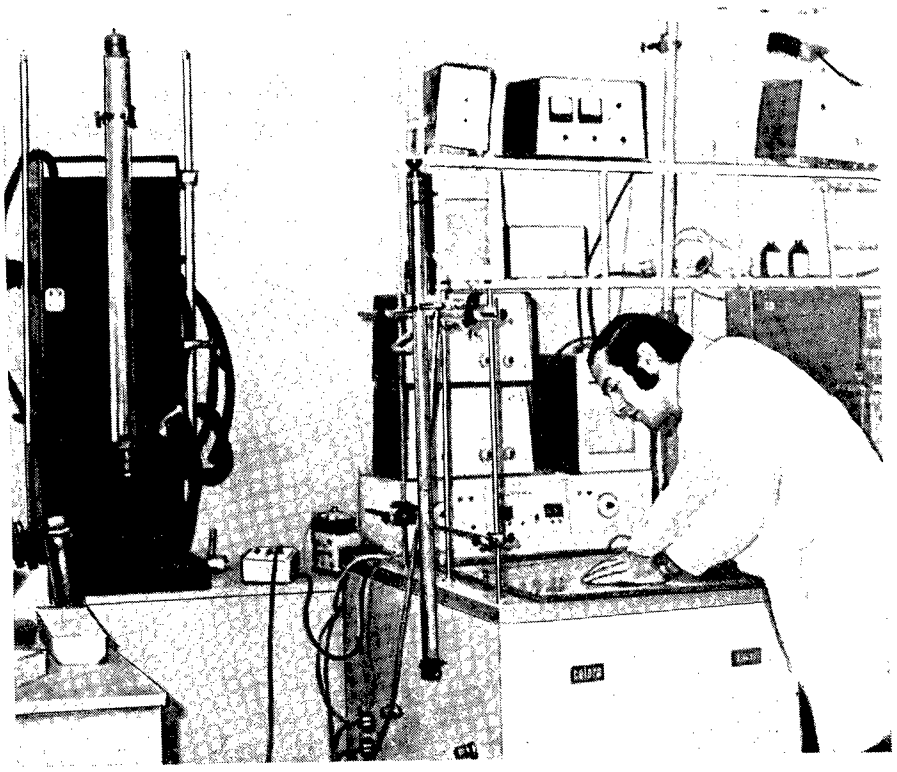
Institute of Psychiatry (2 Zagorodnoye Road, Moscow, 113152; director: Prof A. V. SNEZHNEVSKIY, Hero of Socialist Labor, academician of USSR AMS)

This institute was founded in the system of the Academy in 1944. The well-known Soviet psychiatrist, V. A. Gilyarovskiy, academician of USSR AMS, was its first director, then its scientific administrator. Ye. A. Popov, academician of USSR AMS, directed the scientific activity of the institute up to 1961. At the present time, the institute is headed by Professor A. V. Snezhnevskiy, Hero of Socialist Labor and academician of USSR AMS.

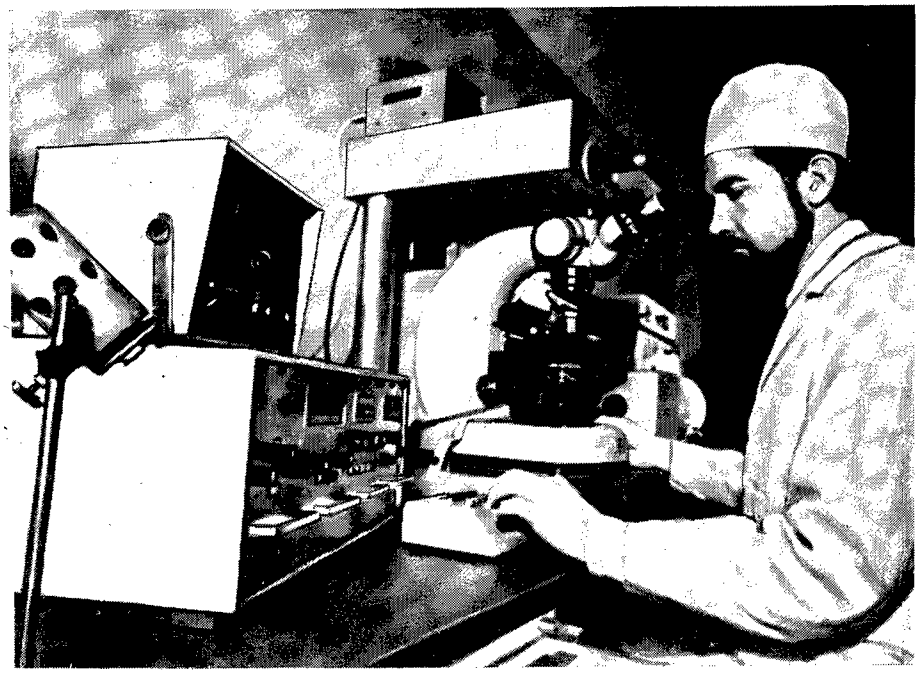
The institute is comprised of five departments (four of which are clinical, with an outpatient consultation team) and four laboratories consisting of six teams and scientific ancillary sections. It employs 100 scientists, one academician of USSR AMS, 22 doctors (including 8 professors) and 43 candidates of sciences.

This institute is the chief institution dealing with the problem of national importance, "Principal Mental Illnesses." Regional Scientific Center No 6 of WHO works at the institute, in accordance with the program for international research on schizophrenia (IPSS).

The scientific research activities of the institute are concentrated on multidiscipline studies of schizophrenia in the following directions: clinical and genealogical investigation of constitutional and genetic mechanisms of pathogenesis of schizophrenia, its course and sequelae, including the study of discrete and atypical variants; clinico-epidemiological investigation of the incidence, patterns of course, sequelae, role of hereditary factors and effects of exogenous deleterious factors on onset and developmental distinctions of this disease; clinical study of remissions of schizophrenia, manifestations thereof, duration, patterns involved in onset of recurrences, substantiation of prognosis; investigation of the effects of new methods of treating altered psychoses (pathomorphosis);



Separation of blood serum protein in the laboratory of general pathophysiology



In the laboratory of general pathophysiology

psychopathological investigation of constitutional-genetically determined distinctions of mental activity of schizophrenics and their relatives; investigation of links between impaired mental activity and biological parameters; study of patients suffering from different forms of schizophrenia, and their relatives, including twins; investigation of hereditary mechanisms of control of functions of the central nervous system; investigation of morphological substrate in the brain of schizophrenics, post mortem, using electron microscopy, electron cytochemistry and immunomorphological methods; development of morphogenetic investigation of schizophrenia; investigation of the distinctive features of effects of antibrain antibodies on different cellular elements of brain tissue and its structure.

As a result of multilevel investigation of pathogenesis of the schizophrenic process, some new and important data were obtained. A common pattern of impairment of cognitive processes has been demonstrated in schizophrenics; it is related to change in a specific factor in the structure of these processes; data were obtained that indicate this pathology is constitutionally determined. Disturbances referable to time and space relations were demonstrated in schizophrenics, which were correlated with severity of positive or negative symptoms, and the hypothesis was expounded of impaired systemic relations between neurophysiological processes in the presence of schizophrenia. On this basis, a method of defining EEG syndromes was developed: a system of interrelated features of bioelectrical activity, with which it became possible to differentiate between different groups of schizophrenics, using computer processing of EEG data. On the basis of present advances in noninfectious immunology, genetics and biochemistry, some substantial results were achieved in the field of biological bases of endogenous psychoses, including schizophrenia, and this has opened up avenues for the study of biological mechanisms of mental illness and development, on this basis, of scientifically substantiated methods of prevention thereof and treatment of patients.

Several biological mechanisms have been discovered, which determine the inherited predisposition for development of schizophrenia (impaired permeability of cell membranes in the patient's body, appearance of autoimmune processes, etc.). Biophysical studies of cells and tissues of schizophrenics established the physiological activity of the nuclear system of cells, indicative of anomalous functions in it.

Several important patterns of clinical manifestations and course of schizophrenia have been established. A classification has been developed which permits, not only early identification of forms of course of this illness, but highly probably prediction of its outcome. The taxonomy of forms of schizophrenia developed at the institute has found broad application in clinical practice and is helpful in resolving important diagnostic, prognostic and therapeutic-preventive problems. Some new data have been obtained on symptomatology of schizophrenia in elderly people; the typology of schizophrenic attacks at an advanced age has been defined; alterations of the clinical signs, particularly the course of schizophrenia as related to age, have been investigated. As a result of clinico-epidemiological studies, statistical characteristics have been obtained with respect to incidence of different forms of schizophrenia, symptomatology and course thereof, as well as the dynamics of social and vocational adaptation of patients. The

institute's methodological letter, "Standardized Identification Syndromes for Clinical Evaluation of Schizophrenics," presently adopted in practice, has enabled scientific and clinical institutions of our country to use modern methods of statistical processing of epidemiological, clinical and laboratory data with the use of computers.

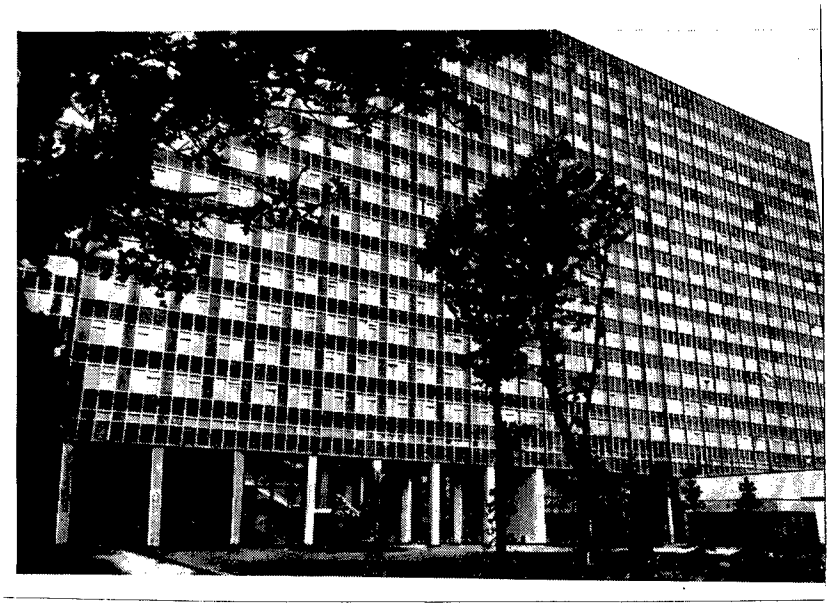
The staff of the institute has produced several major monographs on schizophrenia, as well as textbooks and reference books of psychiatry; many of their articles have been published in scientific journals.

Training of scientific personnel in the field of psychiatry takes up a considerable space in the activities of the institute. Each year, physicians and scientists from many Union republics and several foreign countries undergo specialized training, on the job, at the institute.

The institute regularly holds scientific symposiums on various theroetical and clinical problems of psychiatry. Several members of the institute's staff have been awarded the medal of the Exhibit of Achievements of the National Economy of the USSR.

The following work at this institute: A. V. Snezhnevskiy, academician of USSR AMS, professors M. Ye. Vartanyan, R. A. Nadzharov, E. Ya. Sternberg, K. K. Monakhov and others, all of whom are scientist-psychiatrists; Professor Yu. F. Polyakov and other psychologists.

* * *



Institute of Surgery

Institute of Surgery imeni A. V. Vishnevsiy (27 Bol'shaya Serpukhovskaya Street, Moscow, 113093; director: Professor A. A. VISHNEVSKIY [deceased], academician of USSR AMS)

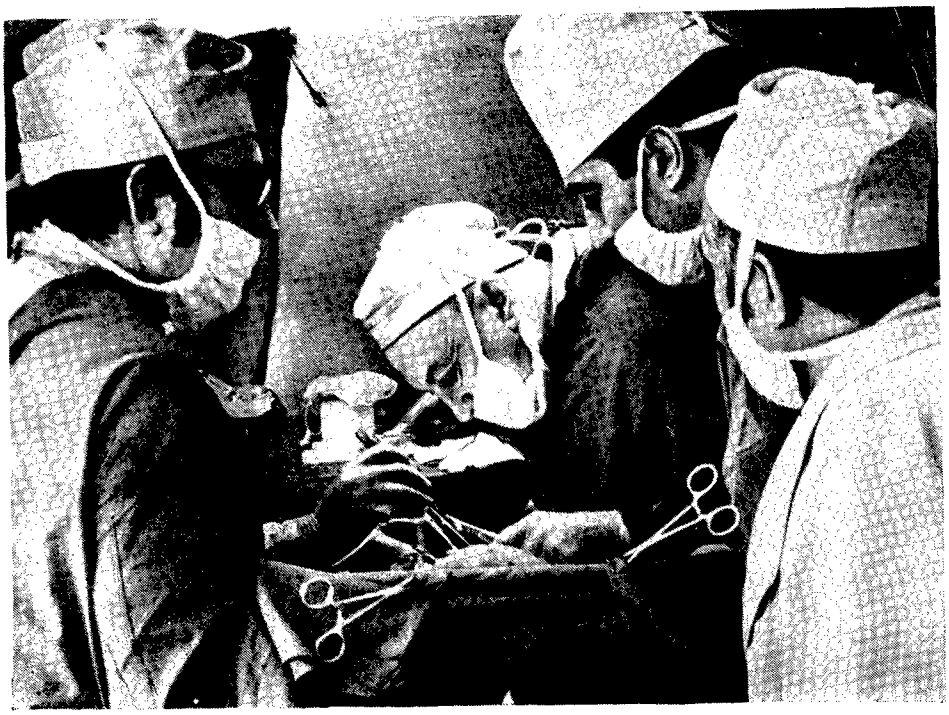
The Institute of Experimental and Clinical Surgery of the USSR AMS was founded in 1945 on the basis of the Clinical Hospital imeni S. P. Botkin. Up to 1947, it was headed by professors M. N. Akhutin, S. S. Yudin and B. V. Petrovskiy. The institute was reorganized in late 1947, and the clinic of the All-Union Institute of Experimental Medicine became its base, with A. V. Vishnevskiy, academician of the USSR AMS, at its head. A. A. Vishnevskiy, Hero of Socialist Labor and academician of USSR AMS, headed the institute from 1948 to 1975.

The institute has 8 clinical departments with a total of 550 beds (cardiac surgery, vascular surgery, abdominal surgery, lung surgery, burn department--All-Union Burn Center, department of wounds and wound infection, and cerebrospinal trauma), 4 divisions (anesthesiology and resuscitation, clinical and experimental physiology, roentgenoradiology, pathological anatomy) and 9 laboratories (extracorporeal circulation, clinical diagnostics, biochemistry, blood transfusion, bacteriology and immunology, testing of new antibiotics, use of polymers, cybernetics and biocybernetics, experimental surgery).

This institute is the head institution dealing with the problem of national importance, "Treatment of Burns, Wounds and Wound Infections," and one of the leading facilities dealing with scientific bases for application of cybernetics in surgery.

Research is conducted at this institute in the field of anesthesiology and resuscitation, cardiac and vascular surgery; studies are in progress of problems of clinical medicine, compensatory functions of the organism; problems of restoration of organic functions deprived of normal nervous regulation, use of polymers, antibiotics and laser beams in surgery are being developed. Work is being pursued in several special areas of abdominal and thoracic surgery, organ and tissue transplantation; studies are being continued on problems of neural trophics in surgery, making use of the advances in chemistry, physics, electronics and cybernetics.

A new method of combined anesthetization was developed at the institute: local novocain anesthesia according to A. V. Vishnevskiy with simultaneous administration of general anesthetics (droperidol, fentanyl, pentran). A new method has been developed for induction anesthesia using neuroleptanalgesics and nonbarbiturate anesthetic (sombrevin). Work has been completed on development of a method of pentran autoanalgesia using a special device, the "anelgezer" [analgesia device]. Polynarkon-2, a machine for administration of all forms of inhalation anesthesia, and a device for recording the sonic oscillations of the chest have been adopted in clinical practice; the latter makes it possible to develop a respiratory regimen in patients following thoracic surgery.



A. A. Vishnevskiy, academician of USSR AMS and Hero of Socialist Labor, performing an operation



In the laboratory of medical cybernetics

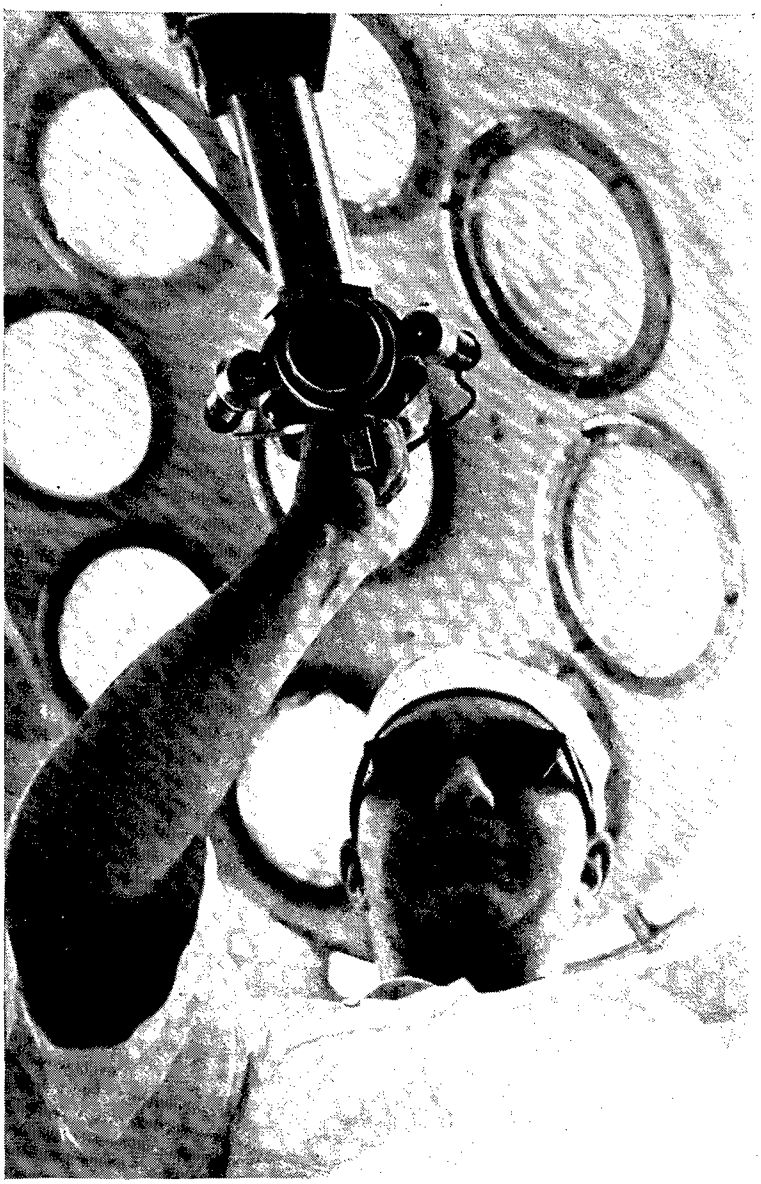
The first successful heart surgery, with exclusion of circulation, under hypothermic conditions and with the use of a domestic extracorporeal circulation machine, was performed in the USSR at this institute. Methods have been developed for isolated extracorporeal circulation (regional perfusion) of the brain and heart under hypothermal conditions. Some original operations have been proposed for congenital heart defects: subclavian-pulmonary anastomosis according to Vishnevskiy and Donetskiy; cavopulmonary anastomosis according to Galankin; transplantation of veins from the right lung in the right atrium to correct vascular transpositions. A tabulated method has been developed for differential diagnostics of thrombosis of the left auricle in the presence of mitral stenosis; this method can be used in any hospital; a method was also developed for thrombectomy from the left atrium, using an original device for recirculation of arterial blood; electric pulse therapy has been devised for cardiac arrhythmias.

Some important theoretical aspects of chronic venous insufficiency and elephantiasis of the extremities have been established. An operation has been proposed for multistage skeletization of arteries in the presence of arteriovenous fistulae of the lower extremities. A method of lyophilization of arterial homotransplants and storage thereof in vacuum test tubes, and a method of sutureless union of vessels using the Donetskiy ring have been developed and adopted in practice.

There has been development and adoption in clinical practice of operations on the biliary ducts using optical quantum generators (lasers). Morphological and bacteriological techniques have proven the absence of any marked inflammatory reaction of tissues at the laser beam target site, good hemostasis, sterility of the beam and minimal coagulation of margins of the wound the laser beam inflicts. A laser scalpel has also been used in heart surgery, to dissect isolated valvular stenosis of the aorta and pulmonary artery.

A method has been developed for dynamic scanning of the kidneys and liver using single-detector scanners, which permits not only demonstration of the structure of changes in these organs, but determination of the severity of functional impairment. A new method was developed and adopted in practice for estimating the rate of portal blood flow, using the radioactive tracer, xenon-133; there is an original method of radio-frequency stimulation of urinary bladder and intestinal function in cases of traumatically severed spinal cord and functional impairment of pelvic organs. A new model has been created of a miniature stimulating device for the bladder. There has been expansion of the scope of surgery on the spinal cord, and cryosurgical techniques have been adopted in clinical practice.

A method of combined treatment of burns has been refined. Artificial skin has been proposed for burn treatment (KOMBUTEK). Several countries (Italy, France, FRG, United States, Belgium, England and Switzerland) have purchased patents for an original electronic device for automatic determination of area of burn injury, which was developed at the institute.



Lasers in action

Our country's first original experimental research on organ and tissue transplantation was conducted at this institute: autotransplantation of dog limbs (1940-1960), kidney homotransplantation (1952-1960), heart and lung together, transplanted in dogs (1949-1951). Methods of homotransplantation of lyophilized vessels (1957-1958) and skin (1952-1969), perfusion method of preserving the heart extracorporeally and surgical techniques for heart homotransplantation were developed, first experimentally then clinically; original equipment has been created for hypothermal perfusion of the donor and perfusion of the heart extracorporeally.

In 1960, our country's first laboratory of medical cybernetics was opened at this institute; theory and principles of construction of diagnostic and information medical systems were developed there, involving the use of computers, with reference to a number of diseases (congenital and acquired heart disease, pathology of the liver and biliary tract, differential diagnosis of cancer). A method was developed for remote identification of some diseases requiring immediate surgery, involving the use of computers and teletype communication with different cities in our country.

In the period of 1968-1972, about 60 new medical achievements and discoveries were developed and adopted in public health practice; 21 author certificates were received, and 7 scientific documentary films were produced (2 of which won awards at international festivals).

The scientific research conducted by the staff of the institute has been rated highly. In 1960, the Lenin Prize was awarded to A. A. Vishnevskiy, academician of USSR AMS, for his work on heart surgery, and in 1971 he and B. M. Tsukerman were awarded the USSR State Prize for developing and adopting in clinical practice a method of electric pulse therapy of cardiac dysrhythmias. In 1975, the USSR State Prize was awarded to Professor N. I. Krakovskiy, corresponding member of the USSR AMS. The International Association of Surgeons bestowed the international Leriche Prize to A. A. Vishnevskiy, academician of USSR AMS, in 1955. Many of the staff members were the recipients of the N. N. Burdenko and S. I. Spasokukotskiy prizes, as well as honorary certificates and medals of domestic and international exhibitions.

In 25 years, scientists at this institute produced 84 monographs and about 3,000 articles.

The institute is the school of surgery for the training of scientific personnel for institutions of the Academy and scientific institutions in the Soviet Union and foreign countries. It has graduated 82 doctors and 254 candidates of sciences. Representatives of the surgical school of A. V. and A. A. Vishnevskiy now head chairs, departments and laboratories of medical research and educational institutes.

The following are now working at the institute: professors N. I. Krakovskiy and P. N. Mazayev, corresponding members of USSR AMS; professors G. D. Vilyavin, T. M. Darbinyan, S. P. Protopopov, D. S. Sarkisov, S. Sh. Kharnas, L. L. Shik, M. I. Shrayber and others.

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Institute of Neurosurgery imeni Academician N. N. Burdenko (5 Fadeyeva Street, Moscow, 125047; acting director: A. N. KONOVALOV, corresponding member of USSR AMS)

This institute was founded in 1932, on the basis of the neurosurgical clinic of the Institute of Roentgenology. It became part of the Academy system in 1944. The great surgeon and scientist, N. N. Burdenko, academician of USSR AS, was its first director; in 1946, his name was given to the institute.

Institute of
Neurosurgery





Monument to Academician
N. N. Burdenko, Hero
of Socialist Labor

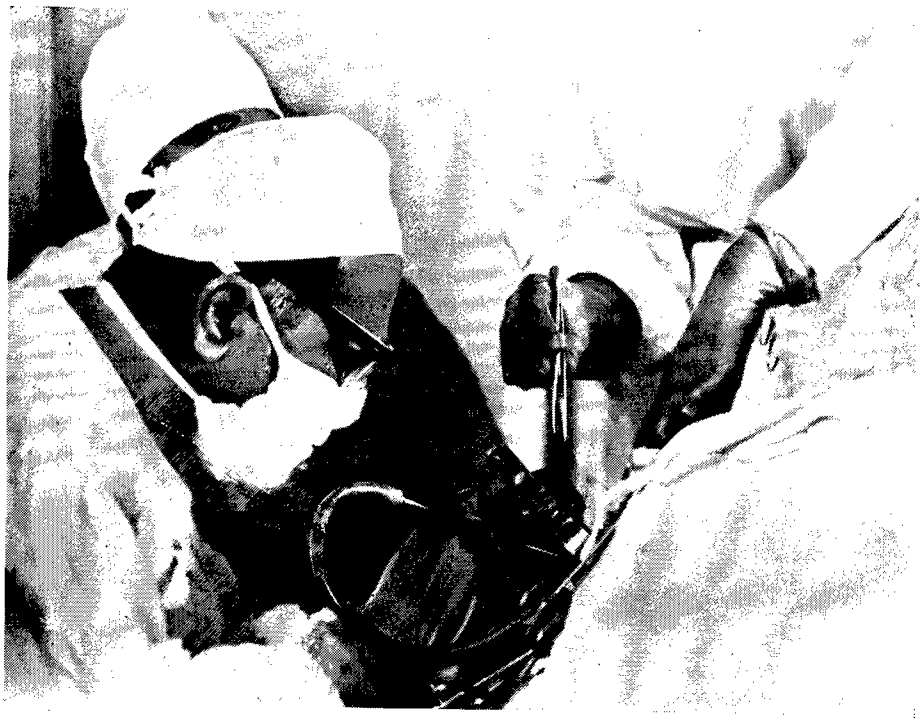
The institute was headed by Professor B. G. Yegorov, academician of USSR AMS, in 1947-1964, and by Professor A. I. Arutyunov, academician of USSR AMS, in 1965-1975.

This institute is the largest complex institution in which neurologists, morphologists, physiologists, roentgenologists, ophthalmologists, otoneurologists and representatives of other allied disciplines work together with neurosurgeons. The institute is comprised of 7 clinical departments with 300 beds (3 oncological, 1 for cerebrocranial trauma, neurosurgical pathology of vessels of the brain, childhood pathology, anesthesiology and resuscitation), laboratories of neurohistology, neurosurgical anatomy of the brain, radiology, and for the study of cerebral blood flow and metabolism.

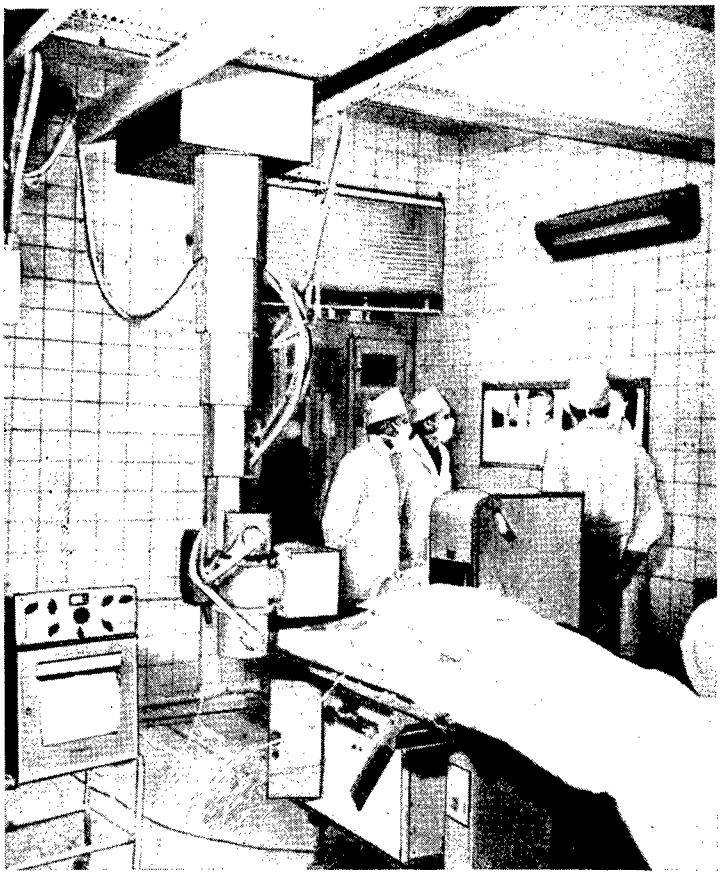
The institute is the chief institution dealing with the problem of national importance, "Surgical Management of Pathology of the Central Nervous System."

The scientific work of the institute is concentrated on three pressing problems of neurosurgery: treatment of pathology of cerebral vessels (primarily arterial and arteriovenous aneurysms and arteriosinus anastomoses, flexing ["looping"] of vessels); pathogenesis, symptomatology and treatment of severe cerebrocranial trauma; combined therapy of brain tumors. Research is being pursued on the patterns of clinical pathophysiology of cerebral circulation, metabolism and functions of the brain in the presence of diverse forms of neurosurgical pathology; pathogenesis of arterial spasm of the brain and subarachnoid hemorrhages, definition of mechanisms of regulation of cerebral circulation and functional state of the nervous system, as well as investigation of functional organization of the brain in the presence of focal lesions of diverse localization. Work is in progress on development of methods of stereotactic treatment of diverse brain lesions: compulsive hyperkinesia, pain syndromes and others. During stereotactic operations, wide use is being made of the opportunity to examine physiology and pathophysiology of deep structures of the brain: bioelectrical activity of individual neurons and cell populations is recorded; the effects of stimulation of subcortical structures of the brain are studied; cerebral blood flow and metabolism are examined.

A special surgical unit has been established at the institute; it consists of an angiographic office, physiological laboratory and surgery. This made it possible to refine methods of angiographic examination of the brain, and to make clinical use of new methods of examining cerebral circulation and metabolism (in particular, with implanted electrodes, nonsoluble isotopes, polygraphic recording of several bioelectrical indices of the condition of the brain and circulation thereof); new data have been obtained on physiology and pathophysiology of circulation of blood in the human brain. An analogous unit was used to obtain data on mechanisms of regulation of cerebral circulation, link between cerebral circulation and functional state of the nervous system, effects of drugs on cerebral circulation, as well as valuable information about brain death, which was obtained in the course of dynamic studies.



A. I. Arutyunov, academician of USSR AMS and Hero of Socialist Labor, operating.



In the operating room

Appreciable advances have been made in the treatment of vascular lesions in the brain. Methods have been refined for surgical interventions and microsurgical techniques that enhance the effectiveness of surgery on arterial and arteriovenous aneurysms (postoperative mortality has shown a 3-4-fold decline).

A new and promising direction was created at the institute for treatment of vascular brain lesions: endovascular neurosurgery, which offers the possibility of radical cure of patients with dangerous vascular pathology, without resorting to complicate operations on the brain and its vessels. The problem of treating carotid-cavernal anastomoses has been resolved, and it has become possible to exclude inoperable arteriovenous aneurysms from the circulation, thanks to the clinical use of a basically new method of catheterization and internal occlusion of stricken vessels of the brain, using balloon catheters. Beneficial results have been obtained from the first trials of tamponade of arterial aneurysm cavities using a balloon.

The criteria have been established, referable to several indices, for prognostication of the course and sequelae of trauma with vital disturbances and, on this basis, principles have been developed for rational pathogenetic therapy. Some valuable data have been obtained on the role of contusion of the brain in the pathogenesis of trauma; methods have been developed for diagnosis and treatment thereof. New methods of early and deferred plastic surgery for cranial defects, involving the use of homotransplants stored at low temperature, are being used with success.

Refinement of diagnostics, anesthesiological back-up of operations and the use of updated surgical techniques, including microsurgery, resulted in major advances in the combined management of a number of brain tumors. Craniopharyngioma, basal meningioma and neurinoma of the acoustic nerve, previously considered radically inoperable, are now being totally removed at the institute in most cases; following considerably more radical resection of such tumors (3-5 times more), the postoperative mortality did not increase, and for some tumors it showed a 1.5-2-fold decline.

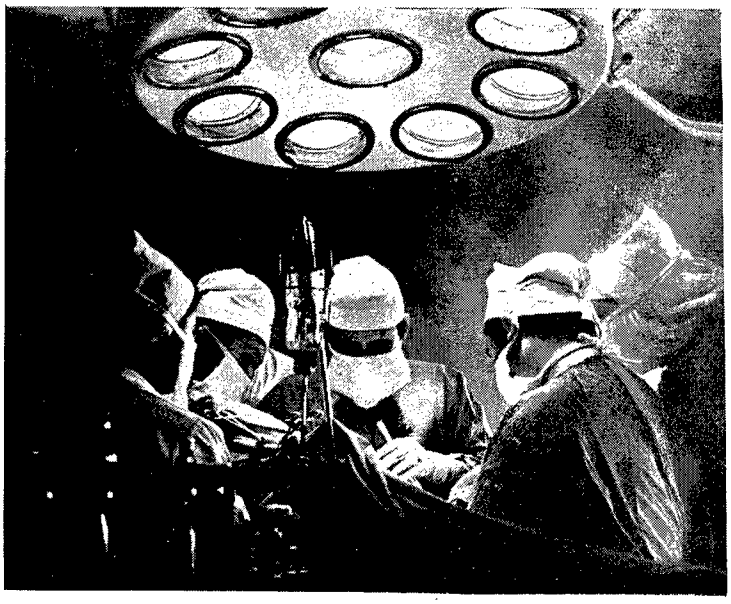
New methods of treating pituitary tumors were developed and are now being used with success: stereotactic breakdown thereof using radioactive isotopes, and the method of transnasal resection of tumors, which have broadened the indications for surgery and improved the results thereof.

For the last few years the institute elected a new direction of research: investigation of biology of glioma. Some new data have been obtained on biology of neuroglial brain tumors, characterizing the distinctive features of their genetic structure, ultramicroscopic structure, biochemistry, which are important to demonstration of the mechanisms of progression of tumor growth and development of methods of treating such tumors.

Four members on the staff of the institute were awarded the N. N. Burdenko prize by the Presidium of USSR AMS for their scientific work.



Therapeutic building of the Institute of Cardiovascular Surgery



Operating room at this institute

A significant part of the institute's activities is referable to training scientific personnel and advanced training of neurosurgeons. The chair of neurosurgery of the Central "Order of Lenin" Institute for Advanced Training of Physicians (TsOLIUV) is based at the institute. In 1972, a docent course of children's neurosurgery, also held at the institute, was established by the chair of hospital surgery of TsOLIUV. In 1968-1975 alone, more than 700 physicians underwent on the job training at the institute; 69 individuals completed their residencies and graduate studies; 865 people attended the course series on the chair of neurosurgery, 110 doctoral and candidatorial dissertations were defended.

In the last 6 years, staff members published 700 scientific papers and major monographs dealing with pressing problems of neurosurgery.

In the years of its existence, the institute organized 16 All-Union conferences, the First All-Union Congress of Neurosurgeons (1971), as well as 10 All-Union conferences of young neurosurgeons.

Various soviet scientists have worked here in different years: P. K. Anokhin, academician of USSR AS and AMS; V. N. Shamov, academician of USSR AMS; M. A. Baron, corresponding member of USSR AMS; professors A. A. Arendt, S. S. Bryusova, M. B. Kopylov, L. A. Koreysha, V. V. Kramer, M. Yu. Rapoport, L. I. Smirnov, K. G. Terian and others.

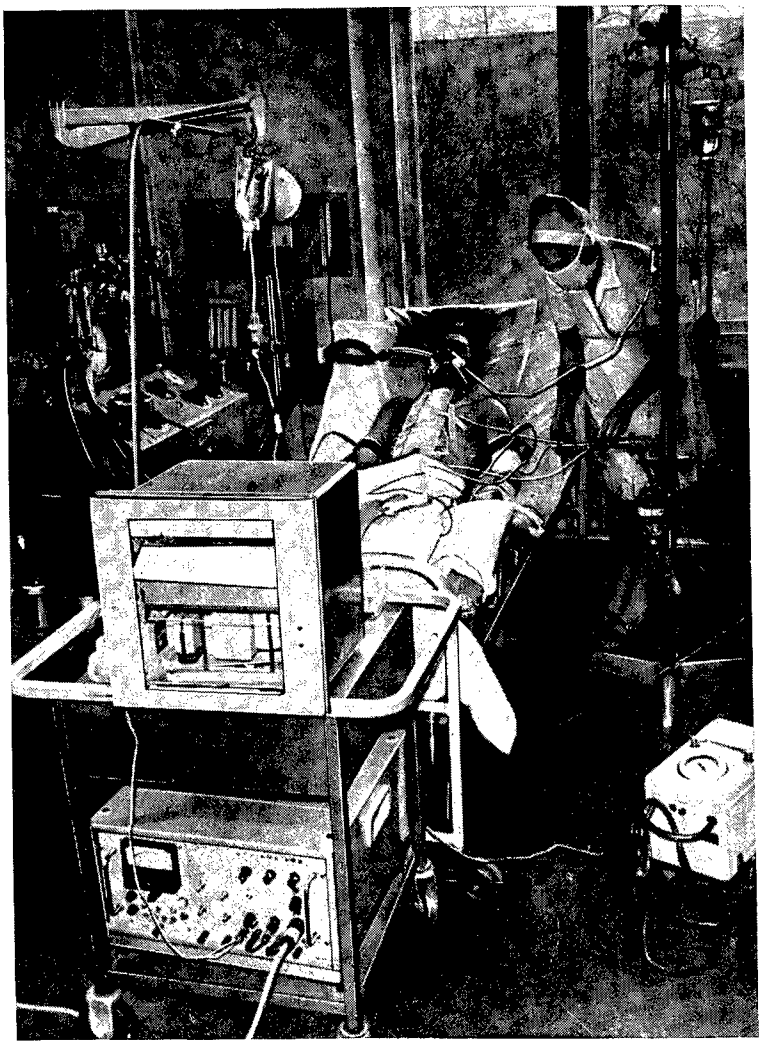
At the present time there are 11 professors, 27 doctors and 55 candidates of medical sciences working at the institute; research is supervised by the following: professors A. N. Konovalov and Ye. S. Rusinov, corresponding members of USSR AMS; Professor A. R. Luriya, academician of the USSR Academy of Pedagogic Sciences; professors S. M. Blinkov, V. Ye. Mayorchik, A. Z. Manevich, M. Sh. Promyslov and others.

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Institute of Cardiovascular Surgery imeni A. N. Bakulev (8 Lenin Avenue, Moscow, 117049; director: Professor V. I. BURAKOVSKIY, corresponding member of USSR AMS)

In 1955, the Institute of Thoracic Surgery was founded in the system of the Academy; in 1971 it was converted into the Institute of Cardiovascular Surgery. One of our country's pioneers in the field of thoracic surgery, Professor A. N. Bakulev, Hero of Socialist Labor, academician of the USSR AS and AMS, was its founder and first director (1955-1958), and then a tireless scientific consultant. In 1958, the institute was headed by Professor A. A. Busalov; in 1959-1966 Professor A. S. Kolesnikov was director of the institute. Professor V. I. Burakovskiy, corresponding member of USSR AMS, has been the director since 1969.

The institute is the largest specialized cardiosurgical institution, where research is conducted on surgical management of diseases of the heart and vessels. It performs the duties of the chief institution dealing with the problem of national importance, "Surgical Management of Diseases of the Heart and Vessels."



In the department of resuscitation and intensive care

The clinical department of the institute consists of the following divisions (275 beds): acquired heart disease; congenital heart disease; premature babies and infants with congenital heart defects; pathology of great vessels, with a team for surgical management of chronic coronary insufficiency, and therapeutic. There are also several departments and laboratories to back up the therapeutic and scientific research work done at the institute: scientific consultation, blood transfusion, resuscitation with intensive care team, roentgenological, experimental departments, the latter including an animal clinic and vivarium; laboratories of anesthesiology, radioactive tracers, biochemistry with a bacteriology team, hematology, mathematical modeling of physiological systems, medical information systems, functional diagnostics, roentgenosurgical examination methods, for the use of polymers

in cardiovascular surgery, hyperbaric oxygenation, pathomorphology including dissection room and electron microscopy team.

At this institute, scientific research is conducted on four problems: 1) general problems of cardiovascular surgery--postoperative period in patients who have undergone open heart surgery; myocardial insufficiency; extracorporeal circulation, hyperbaric oxygenation; heart transplantation; development of polymers; rehabilitation of patients following heart and vascular surgery; electrical stimulation of the heart; use of mathematical methods and electron computer technology in cardiac surgery; mathematical modeling of physiological systems; 2) surgical management of acquired heart disease, including valvular prosthetics; 3) surgical management of congenital heart disease (first of all, complex, congenital defects, as well as in neonates and infants); 4) surgical management of vascular pathology (coronary disease, pathology of the aorta, great arteries and veins).

On the basis of experimental and clinical investigations, an optimum method was developed for extracorporeal circulation. The principles of adequacy of perfusion have been determined, and an updated method of extracorporeal circulation has been furnished to clinical practice; studies have been made of the effects of perfusion media on the body; fresh frozen erythrocytes have been used after prolonged storage (5 or more years). A method has been worked out at the institute of extracorporeal circulation without using donor blood. It is very economical, and it has lowered the number of complications observed in the postoperative period with the use of extracorporeal circulation.

For the first time in our country, the institute developed a method, especially designed for clinical use, of counterpulsation in the presence of cardiogenic shock. Much knowhow has been gained in the use of counterpulsation on patients with severe forms of cardiogenic shock, and good results have been obtained.

Methods have been developed for detecting the early forms of acute cardiac insufficiency; a classification has been proposed and, in accordance with this classification, treatment has been developed. Thanks to the use of prolonged pulmonary ventilation in the treatment of cardiac insufficiency, the death rate has dropped in the group of serious patients suffering from postoperative, acute cardiac insufficiency.

A surgical pressure chamber, specialized extracorporeal circulation machine for use under high barometric pressure have been developed. The country's first open heart surgery was performed in this specialized chamber, with the combined use of extracorporeal circulation and hyperbaric oxygenation; in all, as of the start of 1975, 100 surgical interventions were performed in the pressurized surgery. An experimental study has been made of all the successively developing signs of acute and chronic rejection following heart transplants.

Ganglionic transmission, as related to various anesthetization methods, has been investigated comprehensively.



In the department of infant surgery

Problems pertaining to diagnostics and development of methods of surgical management of complex congenital heart defects occupy a large place in the scientific activities of the institute. Operations have been performed to correct transposition of great vessels; defects have been corrected in the case of anomalous position of the heart; Fallot's tetralogy has been corrected, with simultaneous plastic surgery of the efferent part of the pulmonary artery valves; hypertrophic subaortic stenosis has been corrected; radical corrective surgery has been performed for complete [full] atrioventricular canal; different variants of corrective surgery have been performed for anomalous drainage of pulmonary veins, aneurysms of Valsalva sinuses with penetration [rupture] into the cavity of the heart; prosthetic cardiac valves have been provided in cases of congenital heart disease, and a number of other very new types of operations has been performed.

The institute is successfully working on problems of surgical management of congenital heart disease in infants. Radical surgery is performed for congenital heart defects with extracorporeal circulation and deep hypothermia, as well as emergency surgery in the presence of critical states.

The scientists of the institute have made a considerable contribution to research on diagnostic problems and surgical management of acquired valvular lesions, particularly when two or three cardiac valves are involved. Here, much knowhow has been gained in cardiac valve prosthetics, and several operations have been performed, such as implantation of lobate valvular

prosthesis, simultaneous mitral and aortic valve prostheses, three cardiac valves, aortic valve and ascending aorta in the presence of Marfan's syndrome and others. Work is being done on problems related to transplantation of cardiac valves using homologous and heterologous valves.

Original research has been done on surgical managements of all types of pathology of the aorta and its branches, including ischemia of the brain with lesions to brachiocephalic vessels, treatment of coarctation, aneurysms and other lesions to the thoracic and abdominal aorta, and to the vessels of the lower extremities.

Methods have been developed for diagnosing and surgical management of vasorenal hypertension; knowhow has been gained in selective coronarography; direct surgery on coronary vessels has been mastered, and this also applies to original plastic surgery in cases of obstruction of great veins and the postphlebitis syndrome.

The scientists of this institute have published 33 monographs on pressing problems of cardiovascular surgery, including complications following open heart surgery.

The institute devotes much time to the training of scientific personnel and advanced training of specialists in the field of cardiovascular surgery. It is the base for the chair of cardiovascular surgery of the Central "Order of Lenin" Institute for Advanced Training of Physicians. The practice has been established of simultaneous comprehensive training of teams of specialists, consisting of a surgeon, anesthesiologist, roentgenologist and perfusion specialist, which enables these specialists to immediately undertake team work when they return to their jobs. Each year, about 150 specialists undergo on the job training to advance their qualifications and learn various methods at the institute.

The activities of scientists at this institute have been rated highly. In 1957, A. N. Bakulev, academician of the USSR AS and AMS, was awarded the Lenin Prize for developing and introducing to clinical practice operations on the heart. The USSR State Prize has been awarded to V. I. Burakovskiy, corresponding member of USSR AMS, and B. A. Konstantinov, doctor of medical sciences, for their research on symptomatology and diagnostics of heart defects in infants, development of new methods of surgical management and adoption thereof in practice (1973); they also received the S. I. Spasokukotskiy prize for the monograph, "Heart Disease in Infants" (1971).

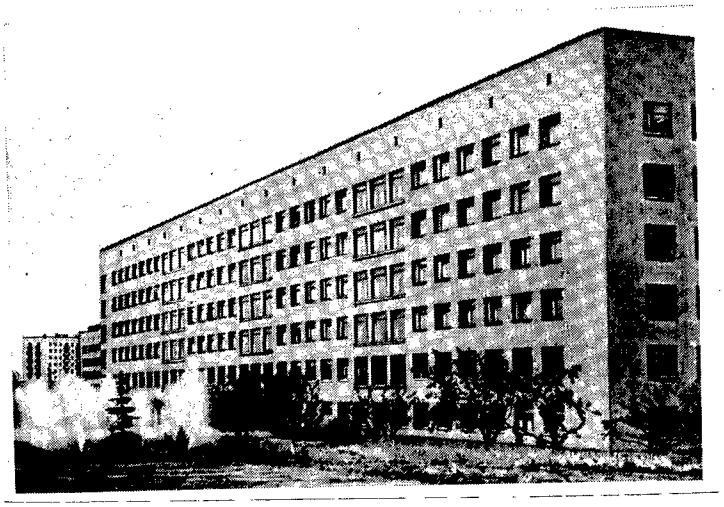
Twice the institute was awarded certificates of honor and first class certificates; more than 20 people have received gold, silver and bronze medals of the Exhibition of Achievements of the National Economy of the USSR.

At the present time, the following are working at the institute: Professor V. I. Burakovskiy, corresponding member of USSR AMS; professors V. A. Bukharin, G. G. Gel'shteyn, N. B. Dobrova and M. A. Ivanitskaya; M. N. Lyude, Yu. S. Petrosyan, A. V. Pokrovskiy, Ya. L. Rapoport, A. S. Rovnov and Ye. p. Stepanyan, who are doctors of medical sciences, and others.

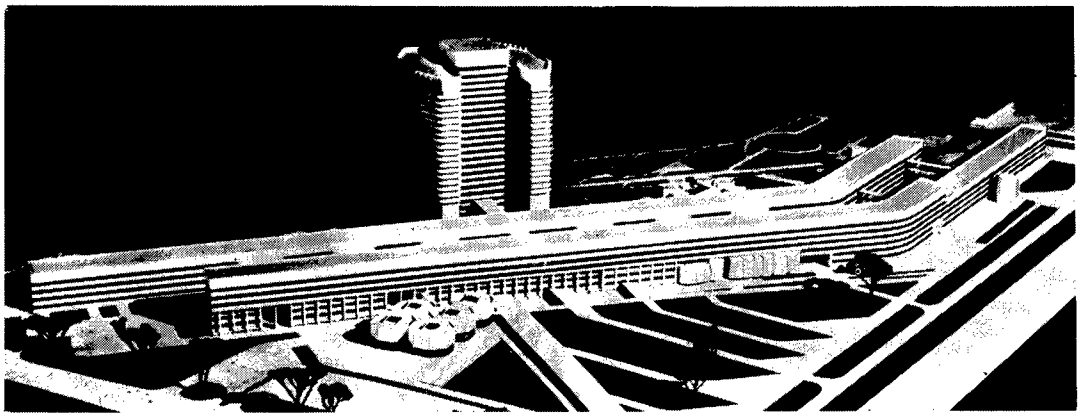
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Institute of Experimental and Clinical Oncology (6 Kashirskoye Road, Moscow, 115479; director: Professor N. N. BLOKHIN, Hero of Socialist Labor, academician of USSR AMS)

This institute was organized in the system of the Academy in 1951, and up to 1959 it was called the Institute of Experimental Pathology and Therapy of Cancer.



Clinical building of the institute



All-Union Oncological Center (model)

The institute is comprised of two sectors, clinical and experimental. In the clinical sector there are 8 clinical departments with 400 beds, a surgery unit, polyclinic, laboratories and services. The scientific subdivisions of the institute include the following: All-Union chemotherapeutic antineoplastic center, department of epidemiology of tumors, section of

scientific and technical information, and the group for international scientific contacts. The experimental sector of the institute consists of 14 laboratories and 2 sections; the laboratory of medical cybernetics is also the Computer Center of the USSR AMS. The institute staff consists of more than 1,600 people, 5 academicians of USSR AMS, 3 corresponding members of USSR AMS, 62 doctors of sciences (including 24 professors) and 307 candidates of sciences.

The institute is the largest multispecialty experimental and clinical, scientific research institution of our country; it is the base for the scientific council of the Presidium of USSR AMS working on the complex problem of national importance, "Malignant Neoplasms." The institute is the chief institution dealing with seven special problems: "Carcinogenesis," Virology and Immunology of Tumors," Biochemistry and Biology of Tumor Cells," Drug Therapy of Malignant Tumors," "Radiation Therapy of Malignant Tumors," Epidemiology of Malignant Tumors" and "Morphology of Tumors."

Pressing problems of experimental and clinical oncology are worked on at the institute; cooperative research is organized on a number of problems of oncology. The main directions of research are: investigation of etiology and pathogenesis of tumors, development of antineoplastic drugs, refinement of existing methods and development of new ones for diagnosis and treatment of malignant neoplasms.

Some important data were obtained in the field of oncology. It was demonstrated that oncogenic viruses have a broad spectrum of action (oncogenic viruses of one class of animals can induce malignant tumors in another class). It was shown that biochemical prophylaxis of tumors is possible with the use of agents that block carcinogens that have penetrated in the organism. For the first time, it was established on animals that specific preventive immunization can be administered against tumors of viral origin.

A previously unknown property of malignant tumors was discovered and studied: its capacity to induce a severe hypoglycemic reaction.

A correlation was established between the organism's capacity to maintain normal blood sugar level and to stimulate glucose synthesis from noncarbohydrate compounds. It was shown that, in the organism, the tumor induces biochemical changes leading to impaired homeostasis. An isozyme theory was expounded, which explains the metabolic distinctions of the cancer cell.

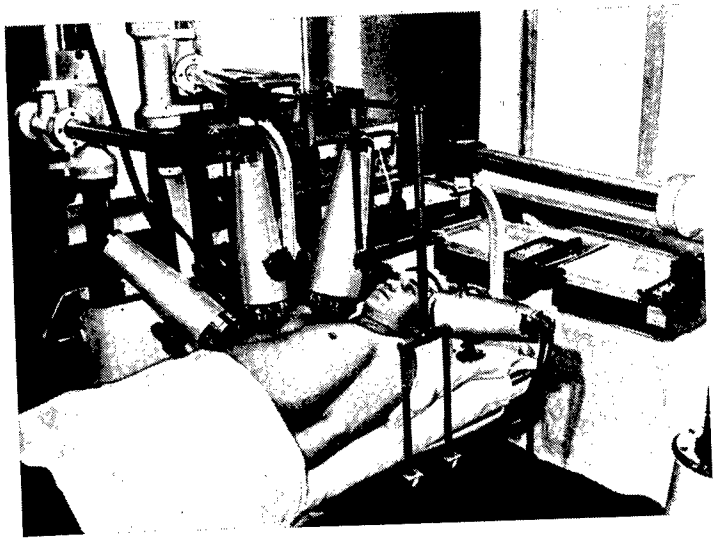
The main processes have been demonstrated that determine the spatial organization of fibroblasts in tissue culture; factors have also been defined that determine the stability of the cell surface, movement of which, as well as attachment to underlying substrate, are important to invasive growth, metastases and recurrence of tumors.

Cytogenetic analysis of primary neoplasm cells in laboratory animals is indicative of the secondary nature of karyotype changes in tumors. It was shown that chromosome analysis of human tumors and leukemia is of supplementary

diagnostic value in clinical practice. In experiments on animals and cell cultures, data were obtained on a parallel between carcinogenesis and mutagenesis, which is of basic importance in understanding the mechanisms of malignification.



N. N. Blokhin, Hero of Socialist Labor and Academician of USSR AMS, performing an an operation



In the department of radiation therapy

The conception was created of circulation of carcinogens in the environment. New sources of air pollution by carcinogens have been found. Preventive measures have been proposed to lower the amount of carcinogenic hydrocarbons in the environment; there has been substantiation of maximum permissible concentrations and levels of benzpyrene in atmospheric air of populated areas

and work areas. In a number of instances, it was found possible to intervene in the actual process of blastomogenesis.

Studies have been concluded of an endogenous carcinogen, carcinomycin, isolated from animals with tumors; it was shown that it is mildly carcinogenic, particularly when transplanted. For the first time, the method of organic cultures was developed and used to study transplantation blastomogenesis; quantitative demonstration was made of the passage of carcinogens through placenta into fetal tissues. In such cultures, adenoma of the lungs and cystadenoma of the kidneys, as well as preneoplastic changes, were obtained.

A medicocybernetic table was prepared, using electronic computers, for differential diagnosis of carcinoma of the stomach. Methods have been refined for diagnosis and treatment of uterine chorionepithelioma and Wilms' tumor.

Survival of patients with acute lymphatic leukemia, particularly among children, has been extended as a result of administration of combined chemotherapy. For the first time in the USSR, high-energy proton beams were isolated and formed for biomedical purposes; patients with malignant tumors have begun to be treated by exposure to such beams. Atlases and charts of isodoses have been published for Soviet equipment.

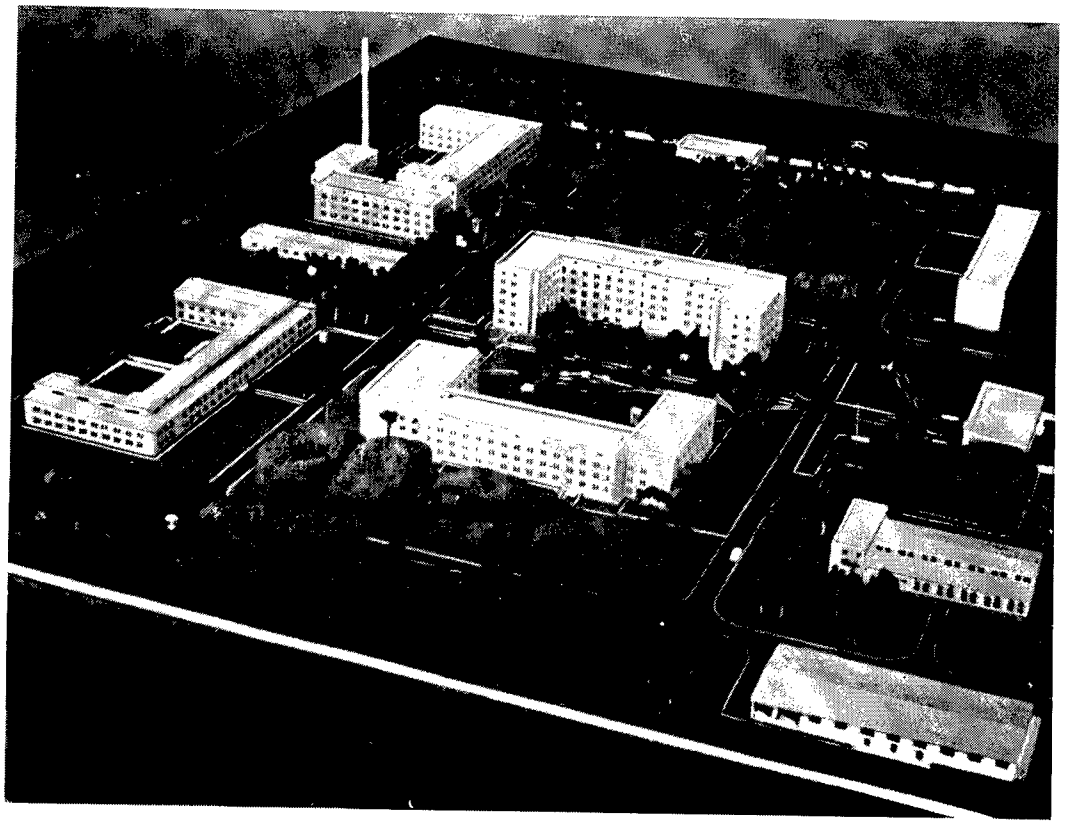
Over 1,000 antineoplastic compounds have undergone primary testing, and 29 of these have been transmitted for clinical trials; regulations and recommendations have been worked out for commercial production of such agents as asalin, sarcolysin and dactinomycin; a joint study was pursued of other antineoplastic agents (fluorafur, natulan, and the antibiotics, rubomycin and bruneomycin).

A set of instruments was developed and transmitted to production for surgery of the larynx, as well as an instrument for recording fluorescence spectra of living biological objects.

Methods have been developed for investigation of the distinctions of distribution of cancer in different regions and in different ethnic and occupational groups. Computers have been used for retrospective studies, with assessment of high risk groups. As a result of expeditionary and population studies, data have been obtained on the role of several environmental factors in the etiology of cancer of the skin, mouth, esophagus, stomach, breast, liver and female reproductive organs.

The research of many of the institute's scientists has been rated highly. The Lenin Prize was awarded to N. A. Krayevskiy, academician of USSR AMS, for his research in the field of pathological anatomy. The USSR State Prize was conferred upon L. F. Larionov, academician of USSR AMS (for development of chemotherapy of lymphogranulomatosis), A. D. Timofeyevskiy, academician of USSR AMS (for the study of human tumors in tissue cultures); Professor M. M. Mayevskiy, corresponding member of USSR AMS (research in the field of infections) and Professor G. Ya. Svet-Moldavskiy (demonstration of pathogenicity of oncogenic viruses of animals of one class in animals of another class). The UN prize in the field of public health was given to L. M.

Shabad for a set of works dealing with endogenous and exogenous blastomogenic substances. The N. N. Petrov Prize was awarded to Professor B. Ye. Peterson for his work, "Carcinoma of the Proximal End of the Stomach"; the V. F. Snegirev Prize was bestowed for the work of Professor L. A. Novikova, corresponding member of USSR AMS, T. M. Grigorova, candidate of medical sciences, and V. G. Savinova, doctor of medical sciences; the D. I. Ivanovskiy Prize was awarded to Professor N. P. Mazurenko. G. I. Bannikov, candidate of medical sciences, was awarded the Lenin Komsomol Prize for his work, "Immunochemical Investigation of Carcinogen-Binding Liver Protein (Ligandin)." Many members of the institute staff have been awarded the medal of the All-Union Exhibition of Achievements of the National Economy of the USSR and prizes of international oncological congresses.



Complex of buildings of Institute of Medical Radiology (model)

The research work of scientists at the institute is reflected in 150 monographs, textbooks and manuals dealing with various problems of experimental and clinical oncology.

Training of scientific personnel is an important part of the institute's activities. Many physicians and biologists are sent here to advance their qualifications.

The institute maintains extensive international ties along the CEMA lines, with the International Agency for the Study of Cancer in Lyons and International Cancer Control Center. A CEMA coordination center was created at the institute to deal with the complex problem of "Malignant Neoplasms." For several years, N. N. Blokhin, academician of USSR AMS, has been the president of the International Cancer Control Alliance.

In different years, outstanding scientists have worked at the institute: L. A. Zil'ber, L. F. Larionov, A. G. Savinykh and I. L. Tager, academicians of USSR AMS; professors B. Ye. Peterson, A. V. Chaklin and others.

In the near future, the institute will serve as the base for an All-Union oncological center with a 1,000-bed clinic; this will be the world's largest scientific research and therapeutic oncological institution. It is being constructed on funds derived from the All-Union mass unpaid labor day on 12 April 1969.

The following are now working at the institute: N. N. Blokhin, N. A. Krayevskiy and L. M. Shabad, academicians of USSR AMS; professors L. A. Novikova, N. N. Trapeznikov and V. S. Shapot, corresponding members of USSR AMS, and others.

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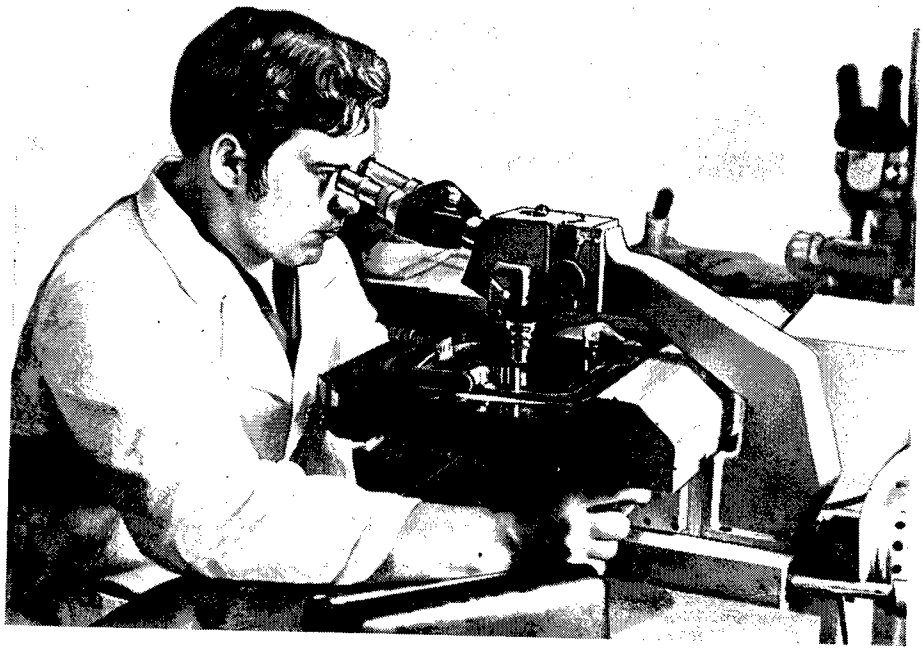
Institute of Medical Radiology (2 Koroleva Street, Obnins, Kaluzhskaya Oblast, 249020; director: Professor Ye. A. ZHERBIN)

This institute was founded in 1958. Professor G. A. Zedgenidze, academician of USSR AMS, was its first director (1958-1973).

The institute is comprised of 14 sections referable to 27 laboratories, 14 clinical departments with 400 beds, 5 independent laboratories and 3 departments. It is manned by a staff of 250 scientists, including 22 doctors and 150 candidates of sciences.

This institute is the chief institution dealing with the problem of national importance, "Scientific Bases of Medical Radiology and Roentgenology."

The following are the main directions of research done at the institute: development of new methods and refinement of existing ones for diagnosis and treatment of various diseases, using radioactive isotopes and nuclear radiation; development of the theoretical bases of biological effects of radiation on the molecular and tissular levels, and on the organism as a whole, including problems of pathogenesis, symptomatology, therapy and prevention of radiation lesions from external and internal radiation; experimental investigation of remote and genetic sequelae of lesions induced by ionizing radiation; investigation of natural radioactivity in the organism; development of physical and technical aspects of radiobiology, diagnostics and radiation therapy of different diseases.



In the department of radiation pathophysiology



Betatron in use for treatment

The research has yielded important data for science and Soviet public health. It was shown that animal cells have the capacity to recover from lethal injuries induced by ionizing radiation. This recovery effect was recognized in 1972 as the discovery of Professor V. I. Korogodin (registered by the State Committee for Inventions and Discoveries).

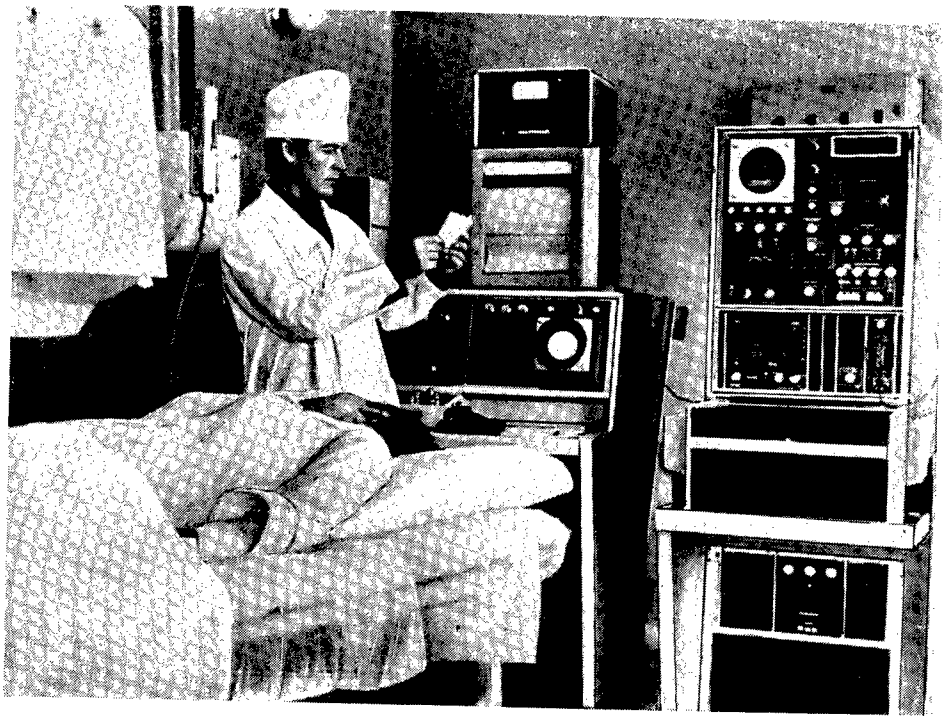
An original hypothesis was expounded for the chromosome cycle of DNA. On its basis, it has become possible to pinpoint the recovery time in the cell cycle. Multi-aspect studies of the effect of cellular and tissular recovery established that radiation lesions are expressed in the time interval between the first and second postradiation cell division. The invalidity of applying endotoxin theory to interpret the mechanism of development of radiation hemorrhages was demonstrated. It was established that, in the presence of radiation sickness, there are no genuine disturbances of vascular permeability, and the important role of functional properties of formed blood elements was proven in development of sickness.

New methods have been developed of radioisotope and roentgenological diagnostics of pathology of the lungs, gastrointestinal tract, genitourinary system, locomotor system and other organs and systems. They include methods of determining blood flow rate, circulating blood volume, cerebral and muscular circulation and scanning of cavities of the heart with the use of radioactive isotopes in the presence of diverse pathology. A method of examining ventilation function of the lungs, roentgenopolygraphy, was developed and has found broad use in Soviet medicine and abroad. It is used to diagnose pneumonia, early radiation changes in the lungs, to detect early forms of lung cancer and disturbances of respiratory function of lung tissue.

A unique automatic device (low-background steel room) was developed and designed for the first time in the USSR, to measure total radioactivity of the human body. It can also be used to study the distribution and behavior of tracer doses of radioisotopes in the human body. Several instruments and devices have been developed that are now used in clinical practice. They include the TUPS-2Ts color television "reskoner" [?], which simplifies and improves interpretation of diagnostic radioisotope tests; the TUPS-3K television unit to transform images of biomedical objects; a black and white television measuring device for optic density of images, the Kontur-3, and others.

Several drugs (dimekarbin and others) have been synthesized and are now used in medical practice. A new method has been developed for biosynthesis of carbon-labeled actinomycin, olivomycin, tetracycline and other organic compounds. The method of synthesizing filaments, granules and film with radioactive isotopes, which resorb in the organism, has been developed and is undergoing extensive clinical trial in radiation therapy.

Therapeutic and diagnostic work occupies a large place in the activities of the institute. About 12,000 patients underwent hospital care there between 1965 and 1974. The polyclinic department has seen more than 100,000 patients. Since 1971, the institute has been the base for the All-Union center for diagnosis and treatment of lymphogranulomatosis.



Gamma scintillation chamber in use for examination

The results of research done by the staff of the institute have been reflected in 3,500 scientific works, published in the Soviet and foreign periodic press, and 50 monographs. The institute has published over 30 methodological recommendations dealing with modern diagnostic and therapeutic methods. In the last 5 years, 79 author certificates have been obtained; 24 inventions have been adopted in public health practice.

The institute does much work in the area of training and upgrading the qualifications of personnel in the field of medical radiology. Each year, more than 70 physicians, scientists and other specialist undergo specialized training here. The members of the institute's staff have prepared and defended more than 230 dissertations, 40 of which were for doctorates. About 10,000 specialists have participated in seminars, symposiums and conferences (about 30 of which have been convened) organized by the institute. A symposium and course ["school"] on modern methods of radioisotope diagnostics of various diseases was held for practicing physicians at the All-Union Exhibition of Achievements of the National Economy of the USSR: there have been symposiums on information retrieval systems in medical radiology and roentgenology, on the use of tritiated water in pulmonology, and others. In the last 5 years, there have been 7 scientific and clinical conferences for roentgenoradiologists. The exhibition committee of the All-Union Exhibition of Achievements of the National Economy of the USSR has awarded first and second class certificates to the institute for disseminating information about the progressive

achievements of medical science; more than 60 gold, silver and bronze medals of the All-Union Exhibition of Achivements of the National Economy of the USSR have been awarded to members of the institute staff.

The institute has close scientific ties with 29 scientific institutions in 11 countries, as well as specialists working in the field of peaceful use of atomic energy. Scientific collaboration with scientists of socialist countries is pursued within the framework of the complex CEMA program.

For many years, the following individuals worked at the institute: G. A. Zedgenidze, academician of USSR AMS; A. A. Voytkevich, corresponding member of USSR AMS; professors K. P. Kashkin, V. I. Korogodin, I. A. Oyvin, N. V. Timofeyev-Risovskiy and others.

At the present time, outstanding specialists in medical radiology and roentgenology are working at the institute: professors I. S. Amosov, G. D. Gaysogolov, V. P. Baluda, F. I. Gabuniya, Ye. A. Zherbin, N. V. Luchnik, A. M. Poverennyy, M. N. Fateyeva, P. P. Filativ, P. P. Firsova, K. S. Shadurskiy and others.

* * *

Institute of Gerontology (67 Vishgorodskaya Street, Kiev, 252115; director: Professor D. F. CHEBOTAREV, academician of USSR AMS)

This instituted was founded in 1952 (up to 1962 it was called the Scientific Research Institute of Gerontology and Experimental Pathology). Professor N. N. Gorev, academician of USSR AMS, was its first director (1958-1961).

The institute is comprised of three sections (experimental and clinical gerontology and geriatrics, geriatric hygiene) consisting of 13 laboratories, 3 clinical departments with 245 beds and a polyclinic department.

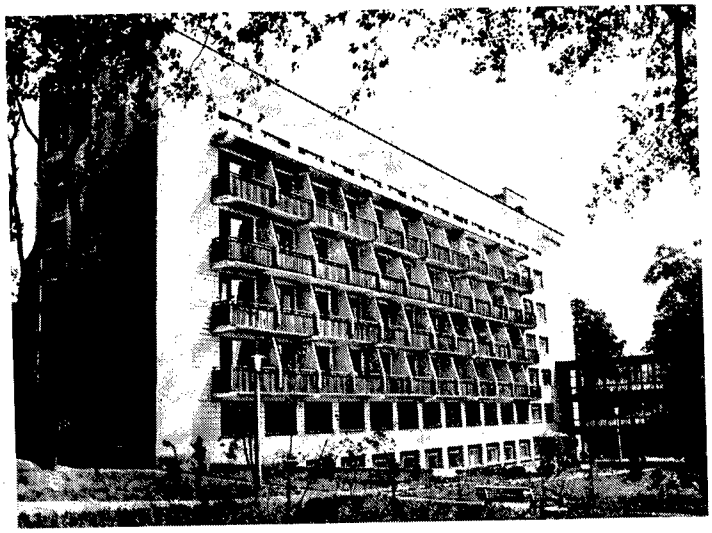
The institute is the principal institution dealing with the problem of national importance, "Gerontology and Geriatrics."

The research activities of the institute are concentrated on the main problems related to aging and active, creative longevity of man. Studies are in progress on the mechanisms of aging and adaptation of the organism to physiological and premature aging; distinctions of pathogenesis, symptomatology, treatment and prevention of disease in the elderly and aged; the role of sociohygienic factors in aging and longevity of man.

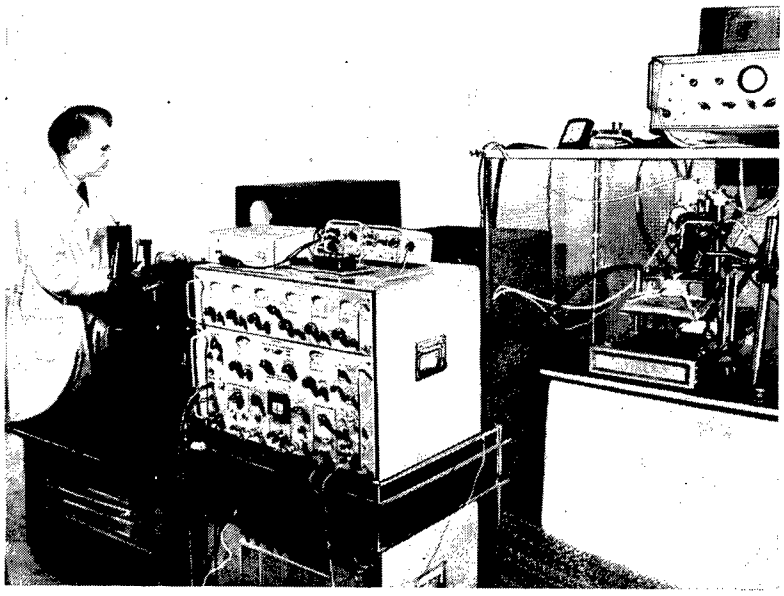
As a result of many years of research, the adaptation-regulatory theory of aging was expounded; it made it possible to identify the principal mechanisms of this process on different levels of vital activity of the organism, and to delineate the possible means of prolonging life expectancy.

Studies have been made of the distinctions of pathogenesis, symptomatology and treatment of diseases most often encountered in the elderly and aged (atherosclerosis, arterial hypertension, degenerative and dystrophic processes

referable to the locomotor system and others). Several clinicodiagnostic criteria have been developed for so-called physiological aging of the human body, which are important for determination of biological age and its relation to chronological age, as well as for differential diagnostics of strictly age-related and pathological changes in elderly and aged people.



Clinical building of the institute



In the laboratory of physiology

The principles and methodological bases have been worked out of pharmacology and pharmacotherapy of diseases of the elderly and aged. Multiple vitamin products (decamevit, ampevit) and other products have been developed and are now being produced for the prevention and treatment of signs of premature aging.

The typical distinctions of age-related professional fitness for work have been demonstrated for different types of work, as well as age- and tenure-related range thereof; studies have been made of the possibility of extending the period of employment and making broader use of the labor of senior citizens.

New characteristics have been obtained concerning the physical condition and requirements of senior citizen groups with regard to medical and social aid; indices have been worked out for planning geriatric care, and suggestions offered with regard to organization thereof.

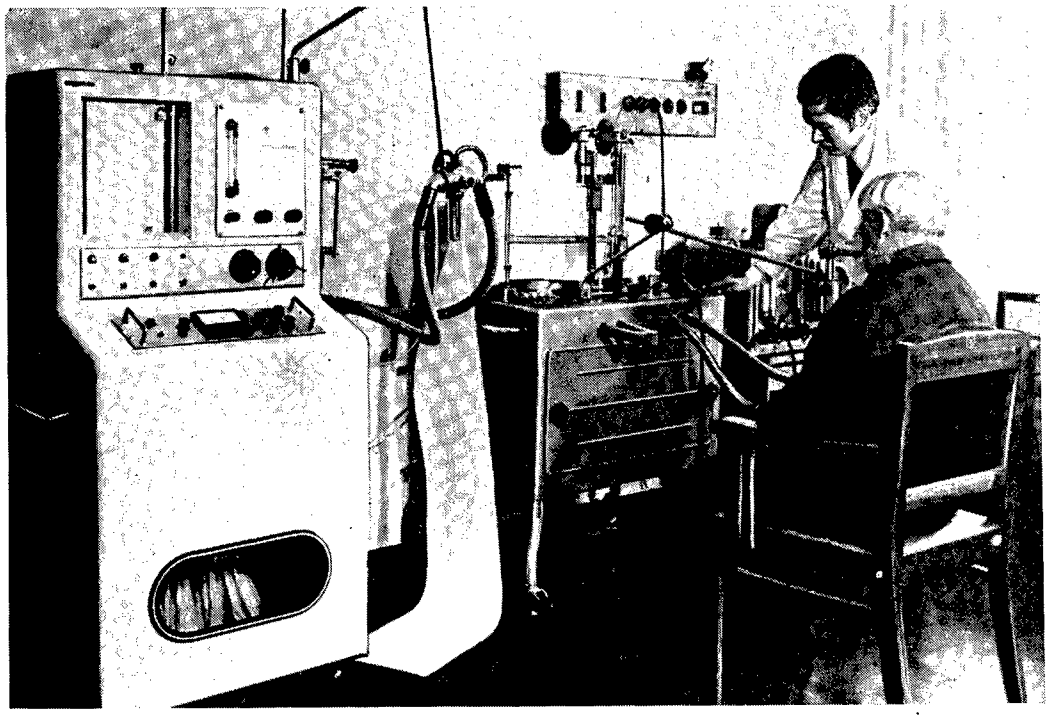
The results of research done at the institute have found broad applications in public health practice. In the last 10 years, more than 30 collections of scientific papers, monographs, textbooks and manuals have been published. The Ukrainian Academy of Sciences awarded the A. A. Bogomolets prize to Professor V. V. Frol'kis, for his monograph, "Regulation, Adaptation and Aging" (1971). V. I. Zapadnyuk, doctor of medical sciences, and G. M. Lushchevskaya, candidate of medical sciences, have received bronze medals and prizes of the Exhibition of Achievements of the National Economy of the USSR.

Much of the institute's activity is referable to training of scientific personnel in the field of gerontology. Jointly with the All-Union Problem Commission for "Gerontology and Geriatrics" and the All-Union Scientific Scoiety of Gerontologists and Geriatricians, the institute holds regular All-Union seminars for advanced training of physicians in this branch of medicine. Specialists and gerontologists from many cities of our country upgrade their qualifications and learn new methods of investigation in the field of gerontology through on-the-job training at the institute. Since 1969, the institute has been the base for the country's first chair of gerontology and geriatrics of the Kiev State Institute for Advanced Training of Physicians, headed by D. F. Chebotarev, academician of USSR AMS.

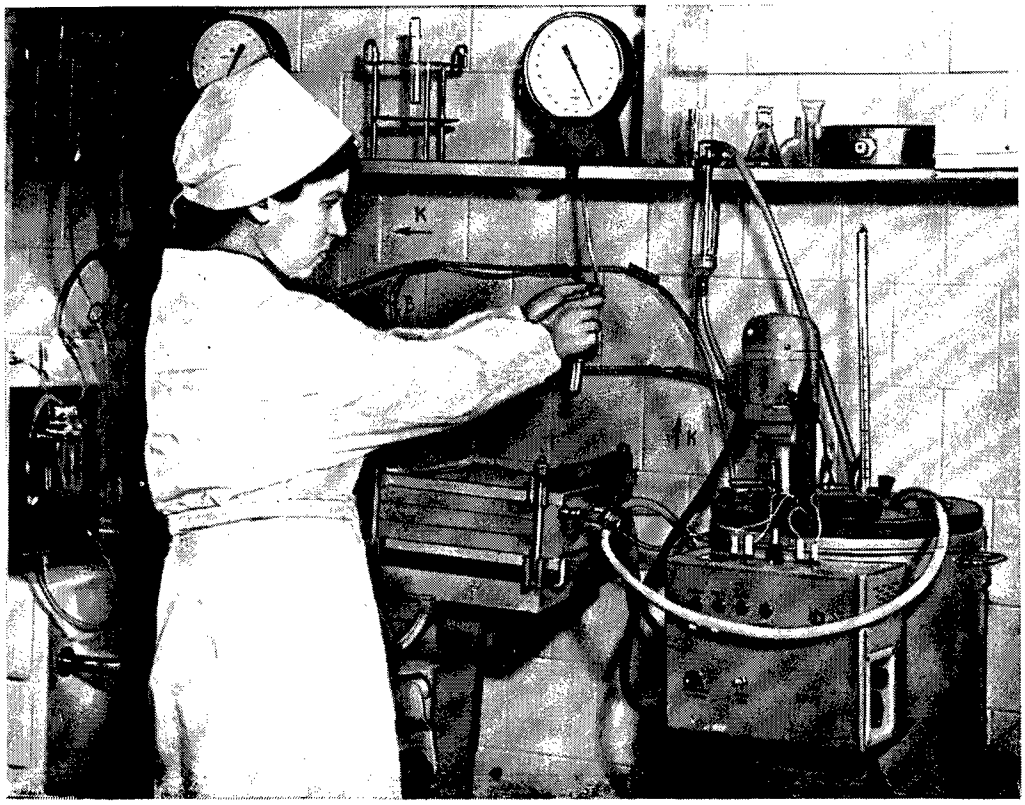
The institute is also the base for the International Association of Gerontologists, the president of which is D. F. Chebotarev, academician of USSR AMS. It convokes international symposiums, seminars and WHO courses on gerontology. The 9th International Congress of Gerontologists convened at the institute in 1972.

The following are now working at the institute: professors N. N. Gorev and D. F. Chebotarev, research gerontologists and academicians of USSR AMS; professors N. B. Man'kovskiy, V. V. Frol'kis and others.

* * *



External respiration examination in the laboratory of functional diagnostics



Separation of perfusate on Anafrak (fraction analyzer) instrument

Laboratory for Organ and Tissue Transplantation (7 Nikolo-Vorob'inskiy Lane, Moscow, 109028; supervisor: Professor V. V. KOVANOV, academician of USSR AMS)

This laboratory was organized in the Academy system in 1967. This is our country's first scientific research institution which pursues comprehensive [complex] work on transplantation problems.

The main directions of scientific research activity of this laboratory are: morphological, biochemical, immunological and physiological aspects of specific factors of manifestation of tissular incompatibility, as well as the effects on the condition of the transplanted organ of such nonspecific factors as ischemia, denervation and impaired efflux of lymph; development of the most physiological models of organ transplantation and methods of preserving organs and tissues.

Within a relatively short period of time several theoretically and practically important results were obtained. It was shown that ischemia is one of the prime nonspecific factors in organ transplantation. A method has been developed for isolating from the ischemic organ the toxic agent responsible for subsequent development of hemodynamic disturbances (so-called ischemia toxin); its properties have been investigated, and one of them (capacity to pass through semipermeable membranes) was used to develop a method of treating an ischemic organ before linking it to the systemic circulation. It was established that ischemia toxin obtained from different organs (heart, intestine) and in various models of acute ischemia of the extremity (amputation, ligation, compression) has a similar deleterious effect; the pattern of appearance of this toxin was demonstrated, in the presence of acute ischemia of the limb due to thrombosis of great vessels. The fact that this toxin has been isolated from different organs of different animal species warrants the belief that its appearance is part of the biological pattern of the ischemic process. Studies were made of the characteristics of energy metabolism in the presence of acute ischemia, prior to transplantation of various organs. A critical metabolic level has been determined for each tissue, and it correlates with functional capabilities (with respect to the function checked).

The reaction of lymphoid elements was found to be basically the same, as a result of studying the cellular factor of immunity in the case of allogenic transplantation and other factors that impair homeostasis of the organism considerably.

Methods have been developed and recommended for clinical practice, with reference to preservation of kidneys with hypothermia and hypothermia at high oxygen pressure. Perfusion techniques have been worked out for prolonged cold storage of kidneys. For the first time, new methods of immunosuppressive therapy have been developed and recommended to clinical practice in kidney transplantation; domestic purine antimetabolites (azothioprine and its analogues) have been developed, and systems have been worked out for obtaining and administering antilymphocyte serum.



Dialysis stand used to determine optimum conditions for isolating ischemia toxin from a perfusate

A method was developed for preserving bone in weak concentrations of formalin, which diminishes the antigenic properties of homografts and, after a clinical trial, it was recommended for broad use. Over 500 operations for reconstructive and plastic surgery have been performed using homologous bone grafts preserved by this method.

A new model of orthotopical testicular transplant, on an arteriovenous pedicle, has been developed. It has been used in clinical practice since 1969 for treatment of patients with primary hypogonadism.

In 1969-1975, the laboratory staff published five monographs dealing with organ and tissue transplantation.

An author's certificate was issued by the Committee for Discoveries and Inventions of the USSR Council of Ministers, to T. M. Oksman and M. V. Dalin, doctors of medical sciences, for their technique for isolating ischemia toxin. The First Class Certificate of the USSR VDNKh [Exhibition of Achievements of the National Economy of USSR] was awarded to the laboratory for experimental work on organ transplantation and use of results thereof in clinical practice; a Certificate of Honor was given to M. V. Bilenko, doctor of medical sciences, (et al.), for a series of works on "Cadaver Kidney Preservation and Transplantation," and laboratory staff members were awarded the gold and other medals of USSR VDNKh.

DEPARTMENT OF BIOMEDICAL SCIENCES

The Department of Biomedical Sciences (DBMS) is comprised of scientists working in such branches of medicine as pathology, pathophysiology, biochemistry, genetics, endocrinology, morphology, embryology, pharmacology and others. The staff includes 34 academicians and 44 corresponding members of USSR AMS, including 5 academicians and 3 corresponding members of USSR AS [Academy of Sciences], 4 Heroes of Socialist Labor, 4 Lenin Prize winners and 11 USSR State Prize recipients.

The department consists of 14 scientific research institutions: 10 institutes and 4 laboratories with the standing of independent administrative entities. The department's institutes and laboratories employ 1,242 scientists, including 181 doctors and 743 candidates of sciences.

The department supervises scientific research dealing with 14 problems of national importance, 9 of which are independent and 5, under the jurisdiction of scientific councils of the Presidium of USSR AMS.

The independent problems are: "Biology and Pathology of Laboratory Animals," Biochemistry and Pathological Chemistry of Metabolism, Mechanisms of Regulation Thereof, and Problems of Medical Enzymology," "Physiology, Biochemistry and Pathology of the Endocrine System," "General Patterns of Morphogenesis in Normal, Pathological and Individual Development," "General Pathology," "Research and Investigation of New Pharmacological Products," "Bases for Development of Pharmaceutics and Search for New Methods of Manufacturing Drugs, and Methods of Analysis Thereof," "General and Medical Genetics" and "Organ and Tissue Transplantation."

The scientific council for physiology and pathology of the nervous system, under the Presidium of USSR AMS, deals with three biomedical problems, and five problems under the jurisdiction of the Department of Clinical Medicine, USSR AMS: "General Neurophysiology and Experimental Pathology of the Nervous System," "Functional and Structural Bases of Systemic Activity and Mechanisms of Flexibility of the Brain," "Higher Nervous Activity and Neurophysiological Bases Thereof," "Principal Mental Illnesses," "Surgical Management of Pathology of the Central Nervous System," "Medical Psychology," "Principal Diseases of the Nervous System" and "Epilepsy."

The problem of "Allergy" is under the jurisdiction of the Scientific Council for Epidemiology, Microbiology, Immunity, Allergy and Specific Prophylaxis, under the Department of Hygiene, Microbiology and Epidemiology, USSR AMS; the problem of "Physiology and Pathology of the Cardiovascular System" is administered by the Scientific Council for Cardiovascular Disease under the Department of Clinical Medicine, USSR AMS.

The major scientists of scientific research institutes of USSR AMS, USSR and Union republic ministries of health, as well as medical VUZ's of our country are involved in scientific research that is planned by the problem commissions. The problem commissions and Departmental Office are developing the practice of cooperative research with institutions under other agencies, institutes of USSR AS, VASKhNIL, academies of sciences of Union republics, and others.



N. A. FEDOROV,
academician USSR AMS



S. S. DEBOV,
academician USSR AMS
Departmental Office



N. A. YUDAYEV,
academician USSR AMS

In different years, the following have been academician secretaries of this department: I. P. Razenkov (1944-1948), S. Ye. Severin (1948-1957), V. N. Orekhovich (1957-1960), N. A. Krayevskiy (1960-1962), S. R. Mardashev (1962-1963), V. V. Zakusov (1964-1966) and A. I. Strukov (1966-1968).

DBMS Departmental Office Staff (as of 1 January 1976)

Departmental academician secretary: N. A. FEDOROV, academician of USSR AMS (since 1968).

Deputy academician secretaries: S. S. DEBOV (since 1968) and N. A. YUDAYEV (since 1968); academicians of USSR AMS.

Office members: S. YE. SEVERIN, academician of USSR AS and USSR AMS; A. P. AVTSYN, A. D. ADO, P. D. TORIZONTOV, V. V. ZAKUSOV, A. N. KLIMOV and A. I. STRUKOV, academicians of USSR AMS; N. P. BOCHKOV, G. N. KRYZHANOVSKIY, M. D. MASHKOVSKIY, G. N. PERSHIN, R. V. PETROV, V. V. PORTUGALOV, A. A. PROKOF'YEVA-BEL'GOVSKAYA, V. S. RUSINOV and A. V. SMOLYANNIKOV, corresponding members of USSR AMS.

DBMS Personnel [Academic] (as of 1 January 1976):

Full Members (Academicians) of USSR AMS:

ADO, Andrey Dmitriyevich (born 1909); pathological physiology, allergology.

ANICHKOV, Sergey Viktorovich (born 1892); Hero of Socialist Labor, USSR State Prize winner; pharmacology.

AVTSYN, Aleksandr Pavlovich (born 1908); pathological anatomy.

BEKHTEREVA, Natal'ya Petrovna (born 1924); corresponding member of USSR AS; physiology.

BRAUNSHTEYN, Aleksandr Yevseyevich (born 1902); academician of USSR AS, Hero of Socialist Labor, USSR State Prize winner; biochemistry.

CHERNIGOVSKIY, Vladimir Nikolayevich (born 1907); academician of USSR AS; physiology.

CHERNUKH, Aleksey Mihaylovich (born 1916); pathological physiology.

DEBOV, Sergey Sergeyevich (born 1919); biochemistry.

ENGEL'GARDT, Vladimir Aleksandrovich (born 1894); academician of USSR AS, Hero of Socialist Labor, USSR State Prize winner; biochemistry.

FEDOROV, Nikolay Aleksandrovich (born 1904); pathological physiology.

GOLIKOV, Sergey Nikolayevich (born 1919); USSR State Prize winner; pharmacology and toxicology.

GOREV, Nikolay Nikolayevich (born 1900); pathological physiology.

GORIZONTOV, Petr Dmitriyevich (born 1902); Lenin Prize winner; pathological physiology, radiobiology.

IL'IN, Vitaliy Sergeyevich (born 1904); biochemistry.

IVANOV, Il'ya Il'ich (born 1904); biochemistry.

IVANOV-SMOLENSKIY, Anatoliy Georgiyevich (born 1895); USSR State Prize winner; pathological physiology.

KLIMOV, Anatoliy Nikolayevich (born 1920); biochemistry.

KLOSOVSKIY, Boris Nikodimovich (born 1898); USSR State Prize winner; morphology and pathophysiology of the brain.

KRAYEVSKIY, Nikolay Aleksandrovich (born 1905); Lenin Prize winner; pathological anatomy.

KUPRIYANOV, Vasiliy Vasil'yevich (born 1912); anatomy.

LAPIN, Boris Arkad'yevich (born 1921); comparative pathology.

NEGOVSKIY, Vladimir Aleksandrovich (born 1909); twice winner of USSR State Prize; pathological physiology.

OREKHOVICH, Vasiliy Nikolayevich (born 1905); biochemistry.

SEVERIN, Sergey Yevgen'yevich (born 1901); academician of USSR AS, Hero of Socialist Labor; biochemistry.

SHABAD, Leon Manusovich (born 1902); experimental oncology, pathological anatomy.

SIROTININ, Nikolay Nikolayevich (born 1896); corresponding member of Ukrainian AS; pathological physiology.

SMOL'YANNIKOV, Anatoliy Vladimirovich (born 1913); pathological anatomy.

STRUKOV, Anatoliy Ivanovich (born 1901); Lenin Prize winner; pathological anatomy.

TERNOVSKIY, Vasiliy Nikolayevich (born 1888); anatomy, history of medicine.

TIMOFEYEVSKIY, Aleksandr Dmitriyevich (born 1887); corresponding member of Uk AS, USSR State Prize winner; pathological physiology, experimental oncology.

TOROPTSEV, Innokentiy Vasil'yevich (born 1907); pathological anatomy.

VESELKIN, Petr Nikolayevich (born 1904); pathological physiology.

YUDAYEV, Nikolay Alekseyevich (born 1913); biochemistry.

Corresponding Members of USSR AMS:

ADRIANOV, Oleg Sergeyevich (born 1923); physiology.

AVDEYEV, Mikhail Ivanovich (born 1901); forensic medicine.

BELENKOV, Nikita Yur'yevich (born 1917); physiology.

BOCHKOV, Nikolay Pavlovich (born 1931); medical genetics.

BOGOVSKIY, Pavel Aleksandrovich (born 1919); experimental oncology.

BORODIN, Yuriy Ivanovich (born 1929); anatomy; Siberian Branch USSR AMS.

FRANK, Gleb Mikhaylovich (born 1904); academician of USSR AS, twice winner of USSR State Prize; biophysics.

KASATKIN, Nikolay Ivanovich (born 1903); physiology.

KHANANASHVILI, Mikhail Mikhaylovich (born 1928); physiology.

KHARKEVICH, Dmitriy Aleksandrovich (born 1927); pharmacology and toxicology.

KHROMOV-BORISOV, Nikolay Vasil'yevich (born 1905); chemistry of drugs.

KIBYAKOV, Aleksey Vasil'yevich (born 1899); physiology.

KNORRE, Aleksey Georgiyevich (born 1914); embryology.

KOCHETKOV, Nikolay Konstantinovich (born 1915); corresponding member of USSR AS; chemistry of natural and biologically active compounds.

KOLOSOV, Nikolay Grigor'yevich (born 1897); corresponding member of USSR AS; neurohistology.

KRYZHANOVSKIY, Georgiy Nikolayevich (born 1922); pathological physiology.

KULAGIN, Viktor Konstantinovich (born 1923); pathological physiology.

MARSHAK, Moisey Yefimovich (born 1894); physiology.

MASHKOVSKIY, Mikhail Davydovich (born 1908); pharmacology.

NAPALKOV, Nikolay Petrovich (born 1932); experimental oncology.

NEYFAKH, Solomon Abramovich (born 1909); biochemistry, biochemical genetics.

PANKOV, Yuriy Aleksandrovich (born 1930); experimental endocrinology.

PERSHIN, Grigoriy Nikolayevich (born 1908); USSR State Prize winner; pharmacology, chemotherapy.

PETROV, Rem Viktorovich (born 1930); immunogenetics.

PORTUGALOV, Viktor Valentinovich (born 1909); USSR State Prize winner; histochemistry.

PROKOF'YEVA-BEL'GOVSKAYA, Aleksandra Alekseyevna (born 1903); experimental genetics.

RUSINOV, Vladimir Sergeyevich (born 1924); pathological anatomy.

SERGIYEVSKIY, Mikhail Vasil'yevich (born 1898); physiology.

SEROV, Viktor Viktorovich (born 1924); pathological anatomy.

SHAPOT, Vladimir Sergeyevich (born 1909); biochemistry.

SHCHELKUNOV, Serafim Ivanovich (born 1904); histology.

SHMIDT, Aleksandr Aleksandrovich (born 1892); academician of Latvian AS; biochemistry.

SMIRNOV, Aleksandr Ivanovich (born 1887); physiology.

SOBAKIN, Mikhail Alekseyevich (born 1917); physiology; deputy director of Siberian Branch of USSR AMS.

SPERANSKAYA, Yekaterina Nikolayevna (born 1899); endocrinology.

STRELIN, Gavriil Sergeyevich (born 1905); embryology and histology.

SUDAKOV, Konstantin Viktorovich (born 1932); physiology.

TENTSOVA, Antonina Ivanovna (born 1922); biopharmacology.

VAL'DMAN, Artur Viktorovich (born 1924); pharmacology.

VOLKOVA, Ol'ga Vasil'yevna (born 1927); embryology.

ZAVODSKAYA, Irina Sergeyevna (born 1924); pharmacology.

ZAYKO, Nikolay Nikiforovich (born 1908); pathological physiology.

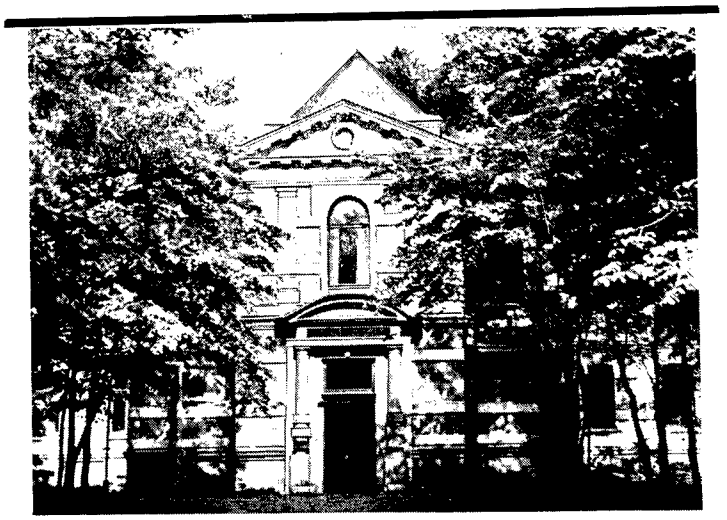
ZAZYBIN, Nikolay Ivanovich (born 1903); histology, embryology.

ZBARSKIY, Il'ya Borisovich (born 1913); biochemistry.

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Institute of Experimental Medicine (69/71 Kirovskiy Avenue, Leningrad, 197022; director: Professor N. P. BEKHTEREVA, academician of USSR AMS and corresponding member of USSR AS)

This institute was founded in 1890 as the first experimental medical research institution of Russia that worked comprehensively on basic biomedical problems. In 1932, it was converted into the All-Union Institute of Experimental Medicine imeni A. M. Gor'kiy (VIEM). In 1944, this institute was the base for foundation of the USSR Academy of Medical Sciences, while the Leningrad branch of VIEM was converted into the Institute of Experimental Medicine in the Academy system.



Biochemistry building of the institute



Monument to a dog

Several generations of scientists have worked at this institute, many of whom have made a major contribution to development of Russian and worldwide science. Academician I. P. Pavlov received the Nobel Prize in 1904 for his work in the field of digestion; his research on higher nervous activity, using the method he developed of conditioned reflexes, laid the foundation for one of the principal directions in modern physiology and medicine. D. K. Zabolotnyy, academician of USSR and Ukrainian academies of sciences, who was one of the founders of Russian epidemiology, was among the first in the world to obtain successful results in the control of pneumonic plague; S.N. Vinogradskiy, honorary member of USSR AS, and V. L. Omelyanskiy, academician of USSR AMS, laid the foundation for general microbiology. Professor M. V. Nentskiy conducted classical research on biochemistry of pigments of plants and animals; Professor Ye. S. London was among the first (starting in 1897) to work successfully in the field of radiobiology. The institute was made famous by the following individuals who worked there at different times: N. N. Anichkov, K. M. Bykov, A. A. Zavarzin, A. D. Speranskiy and V. A. Engel'gardt, academicians of USSR AS and AMS; D. A. Biryukov, P. S. Kupalov, A. A. Smorodintsev and N. G. Khlopin, academicians of USSR AMS; D. N. Nasonov, corresponding member of USSR AS; B. I. Lavrent'yev and I. G. Svetlov, corresponding members of USSR AMS, and others.

Scientific schools were established and successfully developed at the institute, and their founders were: I. P. Pavlov, recognized universally as the dean ["elder"] of physiologists; N. N. Anichkov, who conceived the infiltration theory of atherosclerosis; A. A. Zavarzin and N. G. Khlopin, founders of evolutionary histology; and D. A. Biryukov, founder of ecological physiology. Also well-known are the scientific schools of the following academicians of USSR AMS: S. V. Anichkov (pharmacology of the nervous system), V. I. Ioffe (clinical and epidemiological immunology, clinical immunopathology), P. N. Veselkin (central and peripheral regulation of heat production and heat exchange in the organism) and N. P. Bekhtereva (clinical neurophysiology of man). The scientific directions and schools generated at the institute subsequently evolved into independent scientific research and applied scientific institutions: Institute of Cytology, USSR AS; Institute of Influenza, Institute of Vaccines and Sera, and others.

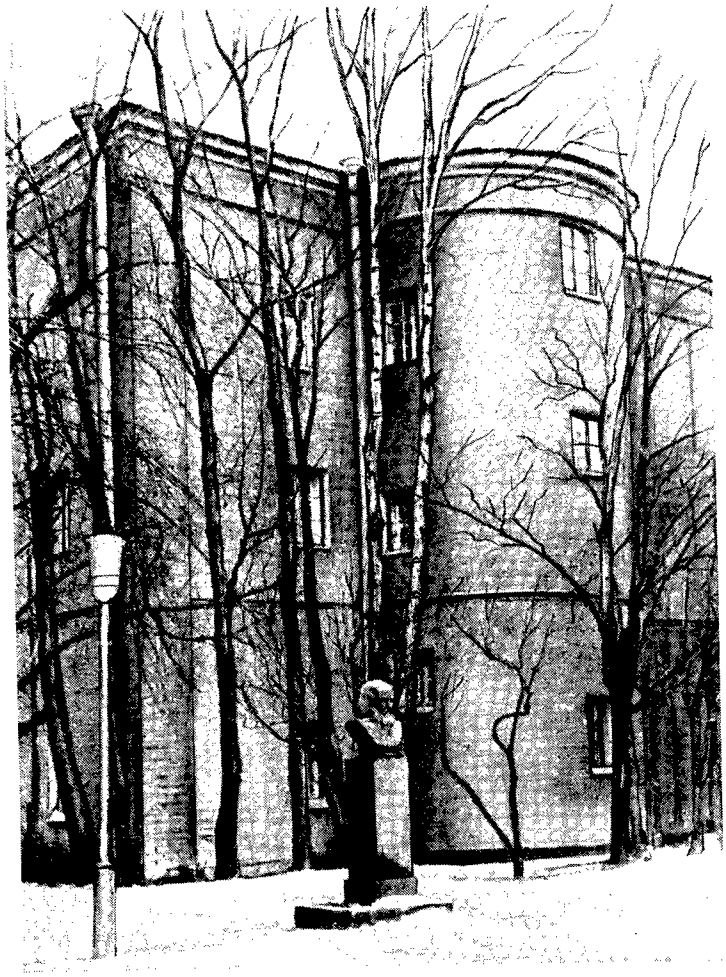
This institute is the chief institution dealing with the problem of national importance, "Higher Nervous Activity and Its Neurophysiological Bases," and it is one of the leading scientific institutions of the USSR AMS scientific council for problems of human physiology.

The institute consists of 11 main sections and 30 scientific laboratories.

The two most important and comprehensive directions are: investigation of the role of individually formed and congenital memory in mechanisms of normal and pathological reactions, investigation of mechanisms of development of atherosclerosis. Much of the research pursued at this institute deals with the following 10 problems: neurophysiological mechanisms of human mental activity and conditioned reflex activity of animals; adaptive self-regulation and neurocybernetics; physiology of circulation; search for and study of new neurotropic agents; central regulation of metabolism and pathogenesis of fever; congenital and inherited pathology, including cytoplasmic heredity of bacterial and animal cells; immunogenesis, as well as experimental and



S. V. Anichkov, academician of USSR AMS and Hero of Socialist Labor (left) and coworkers testing a new drug



"Tower of Silence"

clinical immunopathology; problems of physiology of digestion; pathomorphology of the nervous system, investigation of general patterns of infectious pathology and histoblastic capabilities of different tissues in the regeneration process.

Some of the research is pursued in collaboration with institutions of GDR, Hungary, Czechoslovakia, the United States, France, FRG and other countries, on the basis of intergovernmental and interinstitute agreements.

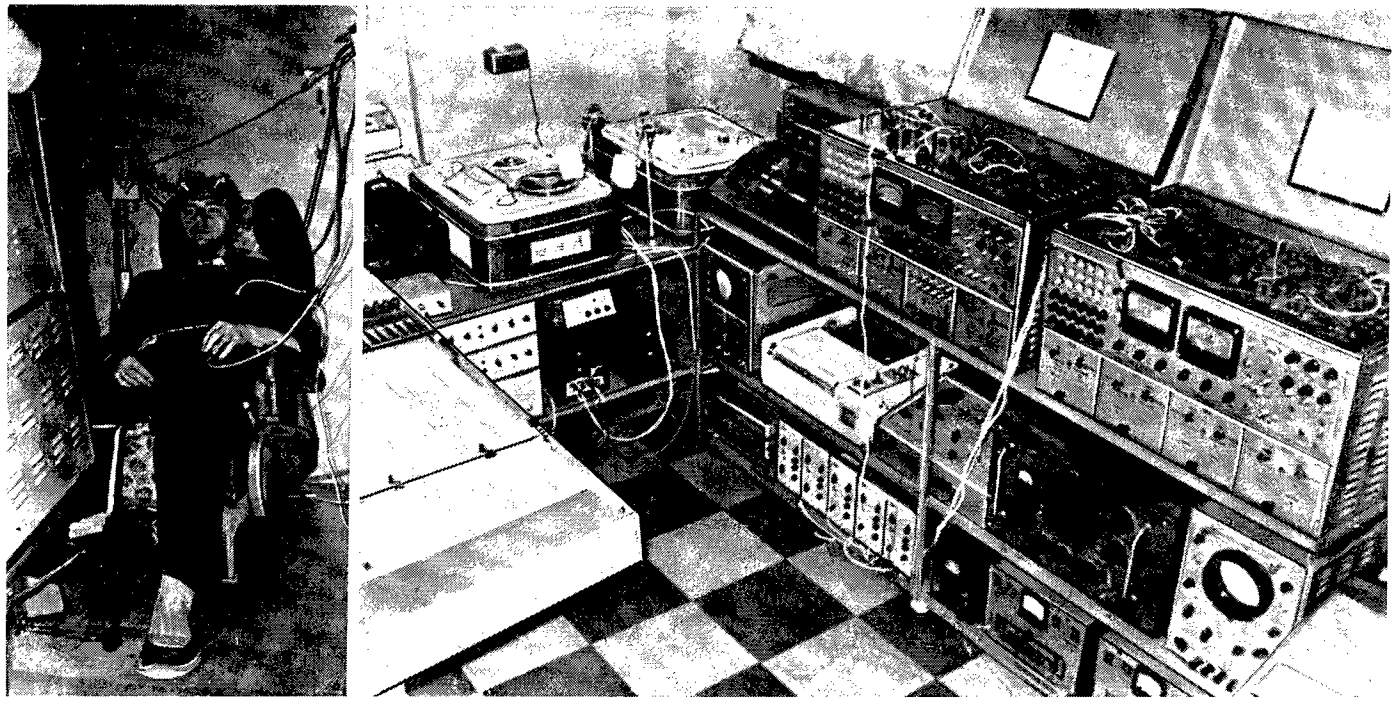
In the last 3-4 years alone, some notable data have been obtained at the institute which have both theoretical and practical importance. A conception was formulated on integrated conditioned reflex--principal entities of behavior systems and cortex--principal structural and functional entity microsystems of formation of temporary associations. A series of basic studies has been completed on comparative physiological analysis of formation of systemic regulatory and defense-adaptational reactions. The phenomenon of effects of feedback on accuracy of human operator work has been established. A method has been developed for the study of control processes in following [driving] response systems in the presence of direct, deferred and triggered feedback.

Studies on identification of the neurophysiological code of mental processes established that, in the human brain, verbal signals are coded in a time-frequency and composition, time-space code. The structural and functional bases and principles of cerebral implementation of mental, emotional, motor and autonomic functions of man, and mechanisms of reliability of systems of the brain have been demonstrated.

Optimum regimens have been developed for therapeutic electric stimulation which helps overcome stable pathological states. New mechanisms have been discovered with reference to regulation of capacitive vessels; and it was shown that they differ from resistive ones, with regard to regulation.

The presence of M and H, cholino, alpha and beta adrenoreactive systems and their involvement in regulation of short term memory have been demonstrated. The influence of reflexes from carotid glomera and effects of central neurotropic agents on endocrine gland function have been investigated. It was proven that impairment of norepinephrine balance is important in onset of neurogenic dystrophies, and agents have been found for pharmacoprophylaxis and treatment thereof.

Original products have been synthesized, several of which are widely used in practice (dibazol, benzohexonium, sigetin, methyldiazil [metamysil], ethymizol). New evidence has been obtained of allosteric interaction of insulin with enzymatic protein, on the basis of which a conception was formulated of the allosteric mechanisms of stimulating effect of insulin on transport of glucose and other sugars in cells of different tissues of the organism.



In the electrophysiology laboratory at the Molodezhnaya Antarctic Station

It was shown that there is an intimate link between evolution of the febrile reaction and level of development of the thermoregulatory system in higher vertebrates and man. Data have been obtained that broaden the opportunity for experimental control of fever, and on neuronal mechanisms of immunological reorganization of the organism. It was established that centrally determined decline of immunological reactions can be corrected pharmacologically.

As a result of research on atherosclerosis, it was concluded that lipolytic enzymes are important to the process of regression of atherosclerotic plaques. Studies were made of atherogenic properties of beta-lipoproteins, and it was shown they are capable of penetrating into the arterial wall as whole particles; it was immunologically proven that lipoproteins of the vascular wall and lipoproteins of blood plasma are identical.

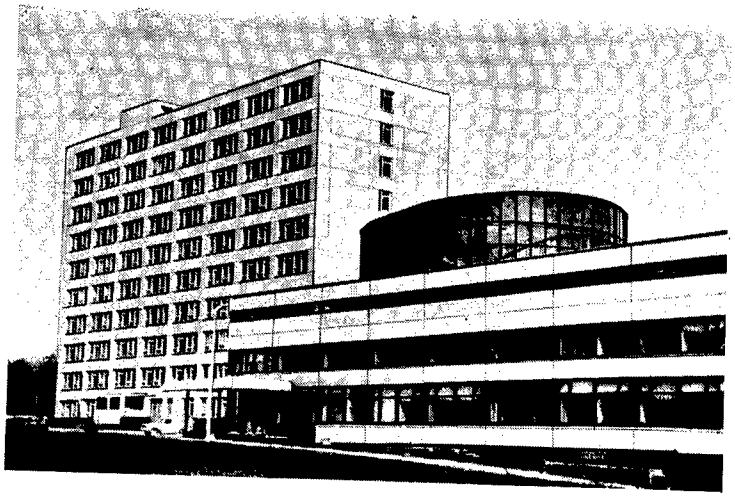
Considerable advances have been made in analysis of the function of mitochondrial genetic systems. It was established that infectious phage RNA has a stimulating effect on synthesis of protein and RNA in mitochondria. It was shown that membrane proteins affect the genetic activity of DNA in membrane structures of mitochondria. A model has been developed for the study of correlations between transcription and translation in mitochondria, with artificial change of these processes from mitochondrion-specific to virus-specific templates. The role of transmissive factors of bacterial heredity in biology of hemolytic streptococcus that is pathogenic to man and in formation of virulence thereof are being studied with success.

New data have been obtained on characteristics of immunocompetent systems of effects of antilymphocyte serum and tolerogens. Studies are in progress of factors and mechanisms of development of three different types of immunopathological processes: genuine autoimmune diseases; processes related to an immune response to autologous altered proteins; processes determined by sensitization to cross-reactive bacterial antigen. New data have been obtained on the role and significance of humoral and cellular factors in onset and development of experimental allergic, demyelinizing lesions to the nervous system (polyneuritis and encephalitis); a working hypothesis has been expounded on immunopathogenesis of these diseases.

It was shown that the teratogenic activity of pharmacological agents depends on the distinctions of chemical structure of their molecules. The molecular application of the deleterious effects of several pharmacological agents on embryogenesis has been identified. Scientific prerequisites have been established for development of new drugs known to have no deleterious effects on embryo development.

A method of deliberate production of trisomy of specific chromosomes in embryogenesis has been developed; it makes possible the study of the effect on morphological processes of excessive or deficient amounts of specific autosomes with known [or certain] gene groups.

An information and diagnosistic system was created and is now operating at the institute, for current computer analysis in cases of cerebrocranial trauma, in order to apply the results of research in public health practice; the specifications have been prepared for several newly synthesized neurotropic agents, and they have been submitted to the Pharmacological Committee



Institute of Human Morphology



A. P. Avtsyn, academician of USSR AMS,
director of Institute of Human Morphology

for clinical trial; studies have been made among the inhabitants of Leningrad of genetic variants of ceruloplasmin, and they are being screened for atherosclerosis; several methodological letters have been issued: "Lipoproteinemia and Methods of Detection Thereof," "Methodological Instructions on Testing Teratogenic and Embryotoxic Activity of New Drugs" (published by the USSR Ministry of Health), and others.

Top state awards have been bestowed for the institute's achievements in developing medical science and public health: Order of Red Banner of Labor (1966) and Lenin Jubilee Honorary Certificate (1970).

The works of many of the institute's scientists have been rated highly. S. V. Anichkov, academician of USSR AMS and Hero of Socialist Labor received the USSR State Prize for development of a new product (1950); the N. P. Kravkov Prize was conferred upon him (1961) for scientific research dealing with pharmacology. In 1971 and 1973, S. V. Anichkov and his colleagues received certificates for two discoveries: "Significance of Catecholamines in Trophic Organic Disturbances" and "The Regulatory Role of Carotid Chemoreceptors in Encodrine Gland Function." The USSR State Prize was awarded to P. G. Svetlov, corresponding member of USSR AMS, and Professor N. L. Garmasheva for a cycle of studies dealing with prenatal prevention of fetal morbidity and perinatal mortality (1968); the A. A. Bogomolets Prize (1967) was awarded to P. N. Veselkin, academician of USSR AMS, for his monograph, "Fever." V. I. Ioffe, academician of USSR AMS, was awarded the N. D. Strazhesko Prize (1963) for his monograph, "Immunology of Rheumatism."

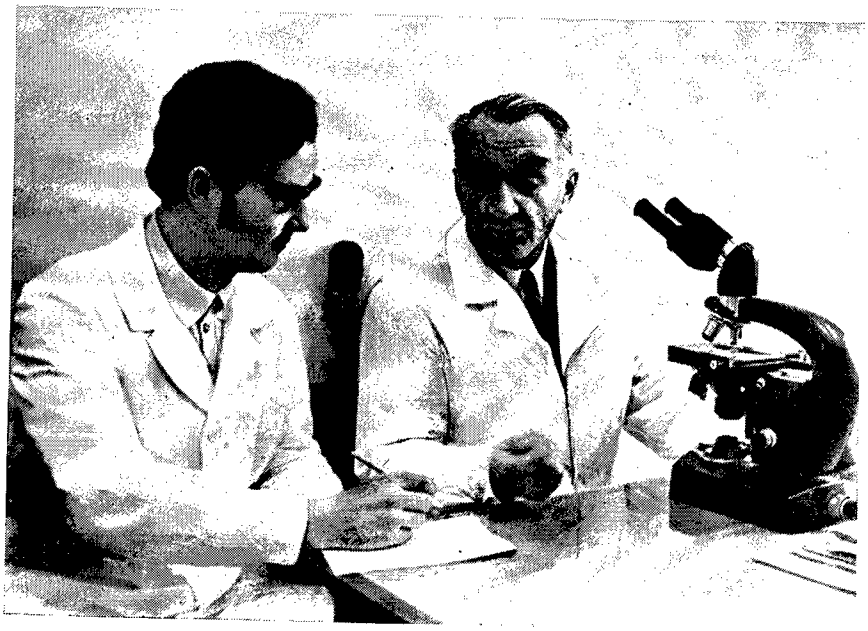
The following have been awarded certificates for discoveries: S. A. Neyfakh, corresponding member of USSR AMS, and V. S. Repin, candidate of medical sciences, for "Kinasin, a Protein of Cardiac Mitochondria" (1964); Ye. A. Kornev, doctor of medical sciences, and L. M. Khay, candidate of medical sciences, for "Properties of the Posterior Hypothalamic Nucleus in Affecting the Process of Antibody Production" (1970).

In the period of 1962 to 1973 alone, members of the institute staff have received 37 author certificates for inventions.

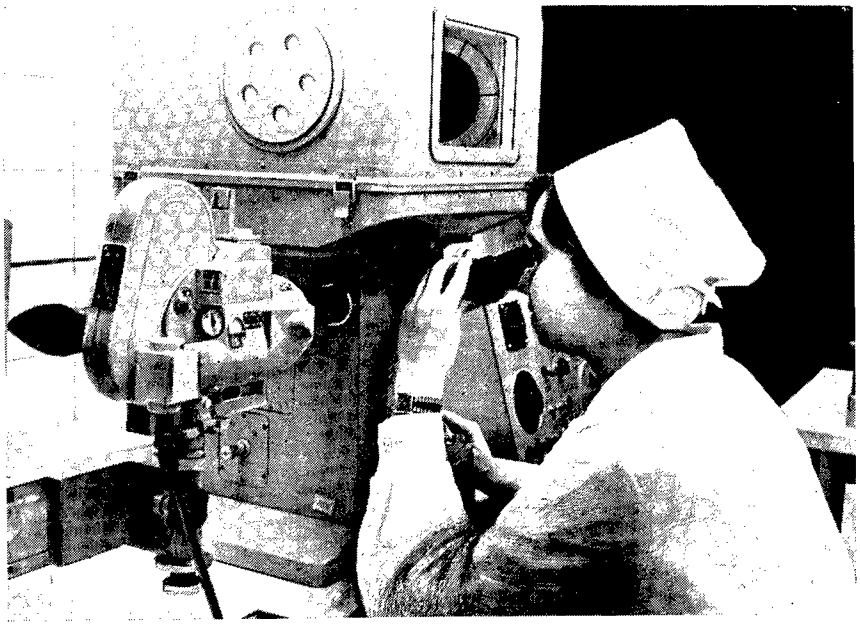
In 1960-1973, more than 25 monographs, textbooks and manuals were published. In the period from 1944 to 1974, the institute convoked more than 50 All-Union scientific forums, including the All-Union Conference on Immunopathology (1973), All-Union Seminar on "Methodology and Methods of Comprehensive Investigation of Infectious Diseases," etc.

The following are working at the institute at the present time: N. P. Bekhtereva, corresponding member of USSR AS and academician of USSR AMS; S. V. Anichkov, N. N. Veselkin, V. S. Il'in and V. I. Ioffe, academicians of USSR AMS; A. N. Klimov, S. A. Neyfakh, M. M. Khananashvili, N. F. Khromov-Borisov, corresponding members of USSR AMS; professors M. V. Voyno-Yasenetskiy, A. P. Dyban, Yu. M. Zhabotinskiy, A. A. Manina, V. M. Mikhaylov and B. I. Tkachenko; N. N. Vasilevskiy, doctor of medical sciences, and others.

* * *



A. I. Strukov, academician of USSR AMS and Hero of Socialist Labor (right), in the office of the laboratory of general pathoanatomy



Microcinematographic viewing, using an inverted MBI-13 microscope

Institute of Human Morphology (3 Tsyurupy Street, Moscow, 117469; director: Professor A. P. AVTSYN, academician of USSR AMS)

This institute was founded in 1961. It is comprised of three sections (pathology, functional morphology and biology of individual development), consisting of 16 laboratories and ancillary divisions (scientific organizational section with scientific medical information group, museum of human diseases and morphology of individual human development, experimental animal clinic).

The institute is the chief institution dealing with the problem of national importance, "Principal Patterns of Morphogenesis in Normal, Pathological and Individual Development."

Comprehensive research is being pursued at the institute in two main directions: pathological anatomy and pathogenesis of the most important diseases of man, and primarily cardiovascular and infectious pathology; investigation of biology of individual development.

In a short period of time, the institute obtained data of theoretical and practical importance. It has established the patterns of metabolic myocardial disturbances in the course of aging, in the presence of cardiovascular disease; morphometric characteristics and probability theory have been developed with regard to atherosclerosis in man.

The theoretical bases have been developed for Soviet geographic pathology, and new forms of local pathology have been demonstrated (Magadan pneumopathy, Kola encephalitis, northern variant of essential hypertension, etc.), as well as the hereditary nature of local forms of anemia in Tadzhikistan. It was proven that intracellular invasion of vibrions is possible in experimental cholera; data have been obtained that explain the syndrome of rapid ingestinal dehydration in cholera as a result of injury to membrane structures of enterocytes and endothelium of capillaries. A new model of cholera intoxication in some hydrobionts was obtained.

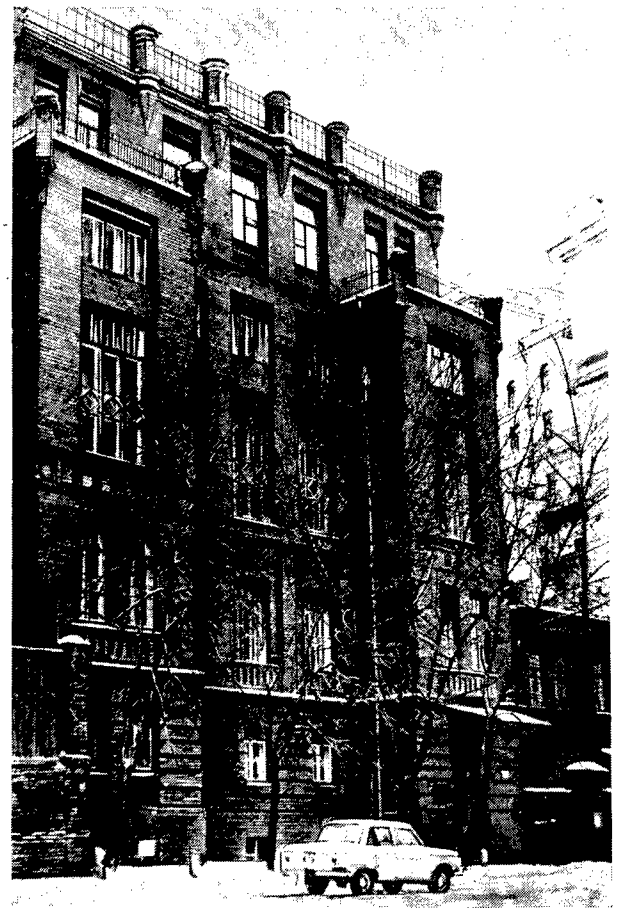
The distinctive structural features have been described of various elements of the mitotic system of cells, reorganization thereof in mitosis and with malignification, which can be used for early detection of cancer.

In the field of immunomorphology, the specific immunogenic effect of lymphoid cell RNA of immunized animals has been demonstrated; it was established that an active antibody center is formed in light fractions, polyribosomes, of lymphoid tissue of immunized animals; a new factor (TOF factor), which stimulates DNA synthesis in cortisone-sensitive thymocytes, was discovered in the thymus, spleen, lymph nodes and blood serum; long-lived, symmetrically localized nonribosomal RNA, resistant to ribonuclease, was demonstrated in metaphase chromosomes of human cells.

It was shown that, in man, the adenohypophysis-adrenal cortex system acquires typical signs of morphofunctional activity at the early stages of the fetal period and, at the same period, in addition to ACTH, somatotropic and luteinizing hormones are synthesized in the fetal adenohypophysis.

The results of basic morphofunctional research conducted at the institute served as the foundation for developing a number of biologically active agents for the prevention and treatment of some diseases. In 1973, the Pharmacological Committee of the USSR Ministry of Health approved the clinical use of enkad and dronuclide, for treatment of hereditary retinal dystrophy. Two products are now undergoing clinical trial: anti-Rh human immunoglobulin and erythrophosphatide, for the prevention and prenatal treatment of hemolytic disease of neonates.

In the years of its existence, the institute created new directions of morphology, geographic pathology, the bases of functional anatomy of the lymphatic system and intraorganic vascularization.



Brain Institute

The institute's scientists have published more than 2,500 scientific works, including 32 monographs and textbooks of normal and pathological morphology. Among them are the following monographs: "General Human Pathology," by I. V. Davydovskiy (1969); "Introduction to Geographic Pathology," by A. P. Avtsyn (1972); "Fundamentals of Functional Morphology of Cells," by I. A. Alov et al. (1969); "Fundamentals of Immunoembryology," by O. Ye. Vyazov (1973); "Principal Problems Referable to Doctrine on Regeneration," by L. D. Liozner (1974); "Pathological Anatomy," by A. I. Strukov (1971); "The Capillaries," by V. A. Shakhlamov (1971), and others.

The USSR Ministry of Health has approved and disseminated 10 methodological letters prepared by the institute; they deal with upgrading the organization of the pathoanatomical service in our country and pathoanatomical diagnostics of a number of diseases (particularly, dangerous infections, tuberculosis, pathology of neonates, blood diseases, precancer conditions, etc.). This work is being done by the Central Pathoanatomy Laboratory, which performs the duties of an All-Union scientific and methodological center of the pathoanatomical service.

Training of scientific personnel in the field of morphology for various scientific and educational institutions of our country takes up a large place in the institute's activities. Morphologists from many cities learn about modern investigative methods through on-the-job training at the institute.

The institute convokes regularly and participates in organization of All-Union congresses, conferences and symposiums.

High awards have been bestowed upon several of the institute's staff members for their research. The head of a major scientific school of Soviet pathoanatomists, I. V. Davydovskiy, academician of USSR AMS, was awarded the Lenin Prize for his work dealing with human pathological anatomy (1964). A. I. Strukov, academician of USSR AMS, was awarded the Lenin Prize for his research on the pathogenesis of rheumatic disease (1974) and the A. I. Abrikosov Prize for his monograph, "Chronic, Nonspecific Lung Disease" (1971).

The following are now working at the Institute of Human Morphology: A. P. Avtsyn and A. I. Strukov, academicians of USSR AMS; professors G. G. Avtandilov, I. A. Alov, O. Ye. Vyazov, K. M. Danilova, L. D. Liozner, B. B. Fuks, Z. S. Khlystova, V. A. Shakhlamov and others.

* * *

Brain Institute (5 Obukha Lane, Moscow, 107120; director: Professor O. S. ADRIANOV, corresponding member of USSR AMS)

This institute was founded in 1928 and transferred to the system of the Academy in 1954. For 40 years, it was headed by S. A. Sarkisov, academician of USSR AMS, and from 1969 to 1973, by Professor G. D. Smirnov.

The institute includes 11 laboratories: architectonics of the brain, neuronal structure of the brain, anatomy of the nervous system, electron microscopy, biohistochemistry, conditioned reflexes, electrophysiology, age-related

physiology of the central nervous system, neurocybernetics, functional synaptology, systemology of the motor act, as well as the Museum of Evolution of the Brain.



Making brain preparations

This institute is the principal institution dealing with the problem of national importance, "Functional and Structural Bases of Systemic Activity and Mechanisms of Flexibility of the Brain," research on which serves the purpose of comprehensive investigation of systemic organization of structure and activity of the brain and, on this basis, determination of mechanisms of changes arising with different types of adaptation, conditioning, learning, as well as compensation of impaired functions.

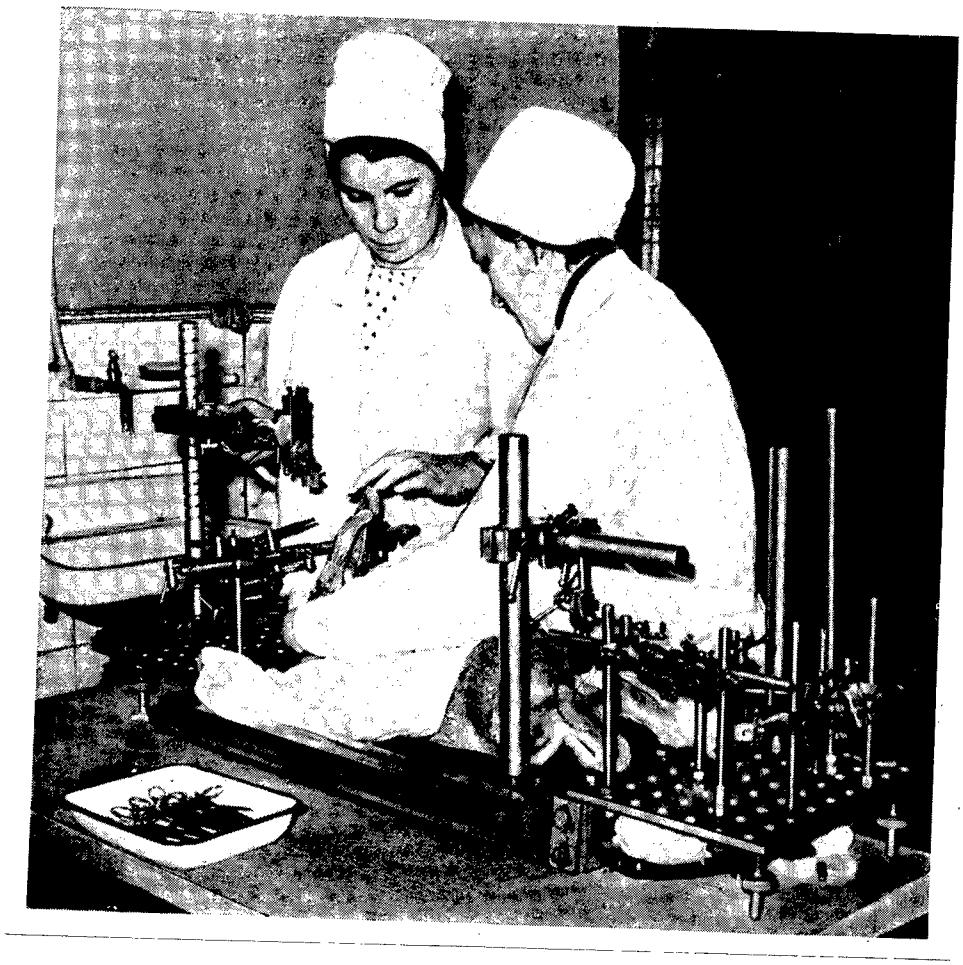
Scientific research is being pursued here in four main directions: investigation of structural and functional bases of intercentral correlations, and their role in systemic activity; investigation of neuronal organization of nerve centers, and mechanisms of their flexibility; investigation of the patterns of morphofunctional development of systems of the brain in ontogenesis and phylogenesis; development of investigative methods and equipment for the study of the brain.

The scientists of this institute have obtained significant facts concerning the general principles of brain structure and activity, as well as fine elements of structure and function of individual neurons and populations thereof. I. N. Filimonov and S. A. Sarkisov, academicians of USSR AMS, professors Ye. P. Kononova and G. I. Polyakov, and other prominent neurologists of this institute have formulated theses concerning the multifunctional nature of brain formations, the existence of so-called transitional zones from some formations to others, isolation of "ensembles" [groups] and structures of neurons organized in a specific way, distinctions of structural and functional evolution of neurons and conduction pathways of various systems of the animal and human brain, structural bases and neurophysiological mechanisms of the function of completion ["bridging"] of conditioned reflexes, etc.

In the years of its existence, a scientific school of Soviet theoretical neurologists, specialists in architectonics and evolunary morphology of the brain was created; an original morphophysiological direction emerged in the study of localization and organization of brain functions.

Successful work is being done here on problems of structural and functional organization of the brain and mechanisms of intercentral integrations; the "Atlas of the Canine Brain" was published; studies have been made of the patterns of corticosubcortical and intercortical correlations in the process of organization of the conditioned reflex, and the role in this process of associative and projection systems of the brain; a basically new methodological procedure was developed: destruction of deep structures of the brain with focused ultrasound. The question of direct brain connections in the system of analyzers is under investigation.

For the first time in the USSR, electrophysiological studies of the human and animal brain were developed at this institute. The fine neuronal and synaptic mechanisms of the conditioned reflexes, following processes and short-term memory were demonstrated. A study was made of the role of various pathways for conduction to the central nervous system of afferent information and mechanisms of interaction between various sensory systems in integration.



Performing a stereotactic operation

The patterns of functional maturation of various systems and levels of the brain in ontogenesis have been demonstrated. Data have been obtained concerning significant disturbances of brain structure in neonates, the intrauterine development of which was associated with chronic hypertrophy of the thyroid combined with oxygen deficiency.

Unique collections of human and animal brains are concentrated in the Museum of Evolution of the Brain.

The institute holds regular scientific conferences and symposiums dealing with pressing problems of localization of functions (1940), structure and activity of the cerebral cortex (1948), motor (1965), visual and auditory analyzers (1967), as well as structure and function of the reticular formation (1958). In 1969, a 10-day seminar on "Modern Methods of Morphological Studies of the Brain" was organized, and in 1971, a symposium on "Dendrites (Structure and Functional Properties)"; in 1973, there was one on "Convergence and Synapses (Structural and Functional Bases of Convergence and Synaptic Organization of Nerve Centers)."

The results of research dealing with the pressing questions of brain structure and function, conducted at this institute, have been reported in several major monographs, textbooks, as well as in the "Atlas of Cytoarchitectonics of the Human Cerebral Cortex" (1955). More than 50 monographs have been published by the staff of the institute, and some have been reprinted abroad. The works of I.N. Filimonov, academician of USSR AMS, have been translated into English as classical research on neuromorphology.

The K. D. Ushinskiy Prize was awarded to a team of scientists at this institute for a collective monograph, "Development of the Child's Brain," which was edited by S. A. Sarkisov, academician USSR (1966). The Gold Medal imeni I. P. Pavlov was conferred upon Professor A. A. Volokhov for his work in the field of comparative and age-related physiology of higher nervous activity reported in the monographs, "Patterns of Ontogenesis of Nervous Activity in the Light of Evolutionary Theory" and "Essays on Physiology of the Nervous System in Early Ontogenesis" (1970). The K. D. Ushinskiy Prize was awarded to Professor S. B. Dzugayev and O. A. Krylov, doctor of biological sciences, for chapters in the textbook, "Fundamentals of Morphology and Physiology of the Child and Adolescent Organism" (1970).

A total of 36 doctoral and 88 candidatorial dissertations have been prepared and defended at the institute.

The following are presently working at the Brain Institute: B. N. Klosovskiy, academician of USSR AMS; O. S. Adrianov, corresponding member of USSR AMS; professors N. N. Bogolepov, A. A. Volokhov, S. B. Dzugayev, Z. D. Pigarev, G. I. Polyakov, M. Ya. Rabinovich, V. P. Zvorykin, T. A. Leontovich, N. N. Lyubimov and E. N. Popova, doctors of sciences, and others.

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Institute of General Pathology and Pathological Physiology (8 Baltiyskaya Street, Moscow, 125315; director: Professor A. M. CHERNUKH, academician of USSR AMS)

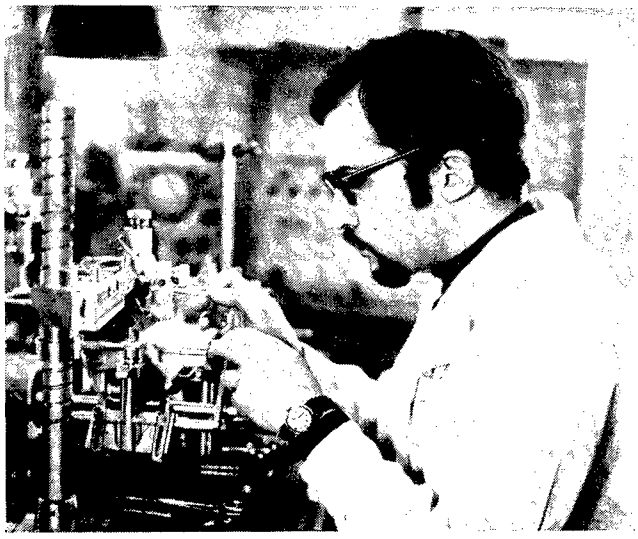
This institute was founded in 1974 at the site of the converted Institute of Normal and Pathological Physiology which emerged in 1954, as a result of merging two institutes of the USSR Academy of Medical Sciences founded in 1944: Institute of Physiology and Institute of General and Experimental Pathology.

For many years, basic problems of theoretical medicine were worked on by scientific teams at this institute, and they were guided by well-known Soviet researchers: A. D. Speranskiy, academician of USSR AMS, one of the founders of the All-Union Institute of Experimental Medicine imeni A. M. Gor'kiy and founding academicians of the USSR AMS, who heads a large Soviet scientific school of pathologists and developed an original conception on the role of neural trophics and disturbances thereof in mechanisms of disease and recovery; V. N. Chernigovskiy, academician of USSR AS and AMS, who developed theory of interoception and corticovisceral pathophysiology, as

well as V. V. Parin, academician of USSR AS and AMS, who made a large contribution to physiology and pathology of circulation, and laid the foundation for Soviet space physiology.



Investigation of microcirculatory processes using a television microscope and videorecording



In one of the laboratories of the institute

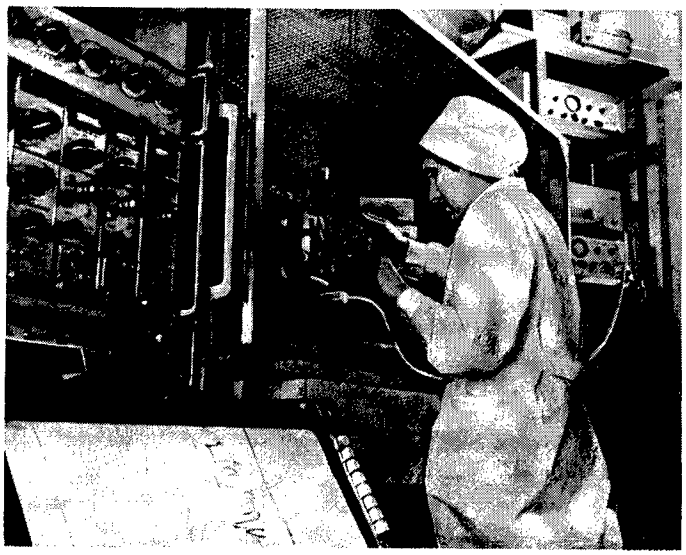
In the time of their scientific activities, these teams conducted some original research that aided in development of new directions. One of the most important aspects of their work was the study of basic processes underlying disease and recovery from the standpoint of the integral organism, with due consideration of the latest data in physics, chemistry, control theory, automation and computer processing of experimental data. Medical, general

theoretical and methodological aspects of general pathology were developed in the laboratories and clinical facilities of the institute. Much attention was devoted to the study of physiological and pathological distinctions of systems and organs, in particular, the cardiovascular system, respiration and digestion.

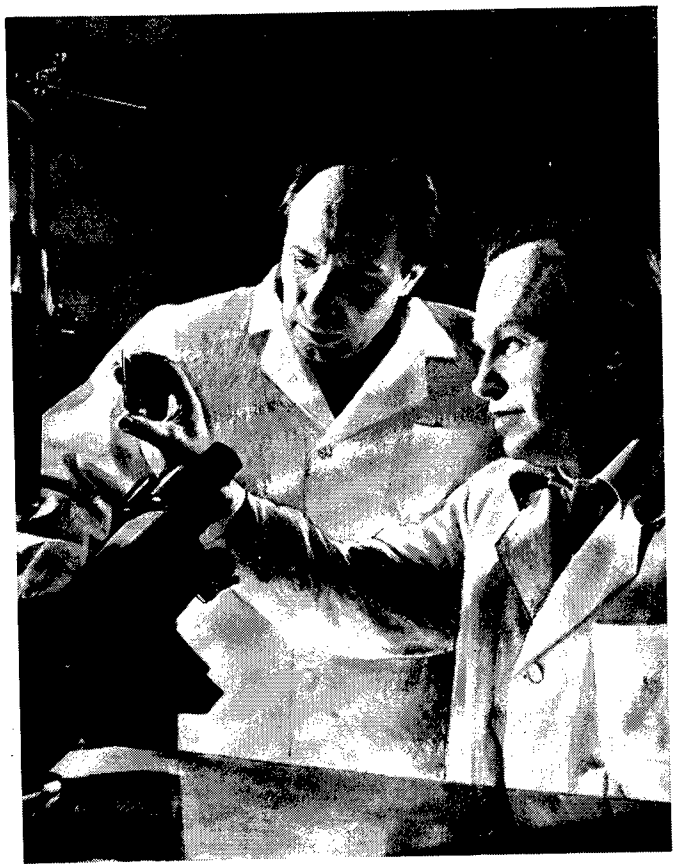
The Institute of General Pathology and Pathological Physiology is the only scientific research and scientific methodological center in our country that deals with general and special problems of pathological physiology. It performs the duties of the principal institution for work on two problems of national importance, "General Pathology" and "Physiology and Pathology of the Cardiovascular System."

The institute is comprised of three research sections with 16 laboratories. The section of general pathology consists of nine laboratories: general pathology and experimental therapy, molecular pathology and biochemistry, study of nonspecific resistance of the organism and immunity, general pathology of the nervous system, experimental pathomorphology and ultrastructural characteristics of pathological processes with laboratory animal dissection room, pathophysiology of extreme states, restoration and compensation of impaired functions, age-related and comparative pathophysiology. The section of experimental and clinical pathophysiology of vital organs and systems has five laboratories: pathophysiology of the heart, biophysics and pathophysiology of circulation, pathophysiology of respiration, pathophysiology of digestion with an operating room and clinic for animals, clinical pathophysiology with a team for the study of the cardiorespiratory system of athletes. The section of biophysical and mathematical methods of studying pathological processes has two laboratories: bioengineering and mathematical modeling and processing of experimental data. Clinicopathophysiological studies are conducted in the clinical facilities of the institute (Central Hospital of the Ministry of Railways and dispensary of the Institute of Physical Culture). The institute is manned by 134 scientists, one of whom is a full member and another a corresponding member of USSR AMS, including 21 doctors (8 of whom are professors) and 21 candidates of sciences.

The research activities of the institute's staff are concentrated on development of the pressing directions of modern general pathology and pathological physiology. There is comprehensive development of research on correlation between trophic processes, dystrophies and microcirculatory disorders, and it is the basis for expounding a conception on the general principles and physiological structure of functional elements of organs. The studies that are being pursued not only broaden present conceptions of mechanisms of capillary circulation, they also permit determination of the bases of a number of pathological forms (pathology of the liver, myocardial metabolic disturbances, etc.). Determination is made of the state of the microvascular system through the study of pathophysiology of extreme states, and particularly in different phases of traumatic shock.



Examination of functional state of microvessels



Electron microscopy of synaptic structures

Comprehensive research on the pathogenesis of experimental atherosclerosis is one of the directions pursued by the institute. Studies are in progress of the role of the hypothalamohypophyseal neurosecretory system, endocrine glands and digestive tract in development of atherosclerotic changes in the organism.

Development of clinico-pathophysiological investigations yielded new data characterizing the dynamics of neuromuscular transmission in patients suffering from myopathy. Clinical electrography and electron microscopy offer new opportunities in the study of genesis and mechanisms of impaired synaptic functions of man in the presence of myasthenic syndromes.

Research is being developed at the institute to work out the conception of determinant developmental ["starting"] stage which is an expression of one of the principles of central nervous system function under normal and pathological conditions. On the basis of this experimental research, models have been developed of several neurological syndromes, and possible mechanisms of onset thereof have been demonstrated.

The institute devotes substantial attention to the study of regulatory and compensatory mechanisms in the activity of systems and organs, particularly the cardiovascular system, respiration and digestion. Studies are in progress of function, metabolism and regulation of the heart in adaptation to environmental factors (hypoxia, physical loads, cold, etc.), and determination is being made of the possibility of using preadaptation to prevent the main diseases of the cardiovascular system.

Analysis of neurohumoral regulation of vascular tonus is one of the directions pursued in the study of the circulatory system. Investigations on the role of neural and humoral factors in onset of pathological type of respiration in the presence of hypoxia occupy a prominent place in the field of pathological physiology of respiration; they are directed toward finding the routes for increasing oxygen supply to the organism and improving pulmonary ventilation. Research is in progress on neurohumoral mechanisms of pathological and compensatory reactions of the gastrointestinal tract, as related to development of pathological models of importance to modern gastroenterological clinical practice (resection of part of the intestine, experimental pancreatitis, hypercholesterolemia).

Development of methodological and theoretical problems of biology and medicine occupies a large part in the work schedule of scientists at this institute. The research of A. M. Chernukh, academician of USSR AMS, has shed light on the most important aspects of the teaching on disease, with due consideration of the correlation between local and general effects on the organism, as well as current problems of modeling pathological processes; the work of G. N. Kryzhanovskiy, corresponding member of USSR AMS, summarized the methodological aspects of research on neural trophics and central nervous system function under pathological conditions.

The institute is developing international contacts and scientific collaboration in the most important directions of research. Joint studies are in

progress with scientific institutions of GDR, Hungary, Czechoslovakia and Bulgaria; scientific ties are being developed with research institutions of the United States, Italy, France and other countries to deal with problems of cardiovascular pathology. The institute's scientists are actively involved in several international scientific organizations.

Much work is being done at this institute in the area of training and advancement of scientific personnel specializing in pathophysiology for institutions of the Soviet Union and other socialist countries.

The following scientists are presently working here: A. M. Chernukh, academician of USSR AMS; G. N. Kryzhanovskiy, corresponding member of USSR AMS: professors I. A. Arshavskiy, N. N. Lebedev, F. Z. Meyerson, S. I. Frankshteyn and others; B. M. Gekht, A. M. Kulik, O. M. Pozdnyakov, A. N. Sovetov, G. V. Chernysheva, who are doctors of sciences, and others.

* * *

Institute of Normal Physiology imeni P. K. Anokhin (6 Gertsen Street, Moscow, 103009; director: Professor K. V. SUDAKOV, corresponding member of USSR AMS)

This institute was founded in 1974 in the facilities of the converted Institute of Normal and Pathological Physiology of the Academy. That same year, the new institute was made part of an integral scientific and pedagogic complex with the chair of normal physiology, First Moscow Medical Institute imeni I. M. Sechenov. This chair, as well as several laboratories that were made part of the newly founded institute, were headed for a long time by P. K. Anokhin, academician of the USSR AS and AMS, in whose honor the institute is named.



Institute of Normal Physiology

Academician P. K. Anokhin, the head of a major scientific school of physiologists, made a significant contribution to development of theoretical medicine. He authored an original theory of functional systems of the organisms which has found broad application in different branches of medicine, physiology, psychology, pedagogics, philosophy and technology. P. K. Anokhin made a large contribution to development of problems of higher nervous activity; he expounded the theory of selective maturation of functional systems in ontogenesis (systemogenesis), corticosubcortical theory of sleep and anesthesia, biological theory of emotions, neurogenic theory of essential hypertension and many others. The results of research in these directions are reflected in monographs written by P. K. Anokhin and his disciples.

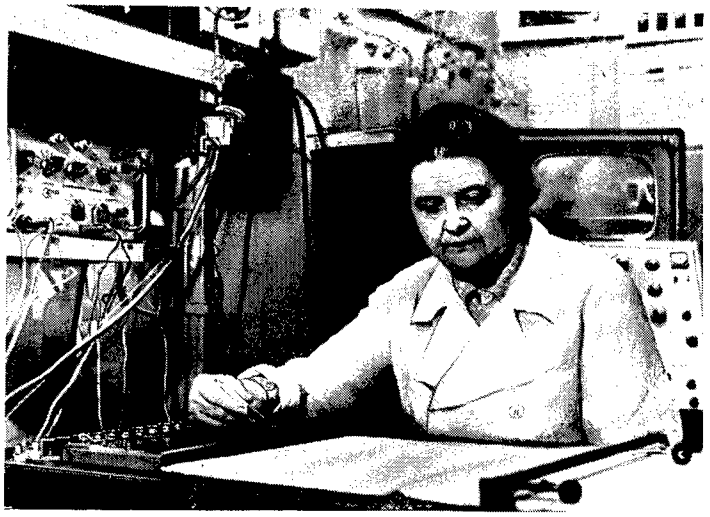
The institute is comprised of two scientific sections with 12 laboratories and two scientific groups. The section of physiology of systemic processes has six laboratories: general physiology of functional systems, systemology of motor acts, physiology of reception, physiology of somatosensory integrations, functional neurochemistry and theoretical anesthesiology, systemogenesis, and the scientific group dealing with investigation of human and animal fetuses. The section of physiology of autonomic regulations has six laboratories: physiology of emotions and emotional stress, neurohistology, neuroendocrine regulation, bioadaptation, experimental cardiology, artificial hypobiosis, and an academic group. The 105 scientific staff members include 2 corresponding members of USSR AMS, 15 doctors (3 of whom are professors) and 40 candidates of sciences.

This institute performs the duties of the principal institution dealing with the problem of national importance, "Systems Analysis of Physiological Functions," within the framework of two All-Union problems: "Emotional Stress and Its Role in the Genesis of Cerebrovisceral Disorders" and "Functional Systems and Principles of Dynamic Organization Thereof."

The scientific research and pedagogic activities of the institute are directed, on the one hand, toward continued development of the principal problems of physiology in close relationship to practical public health problems in the area of strengthening and safeguarding the somatic and mental health of the people of our country and, on the other hand, toward training highly qualified medical personnel.

The scientific research activities of the institute's staff are concentrated on comprehensive investigation of mechanisms of integrative activity of the brain and problems of emotional stress. The theory of functional systems of the organism, expounded by Academician P. K. Anokhin, constitutes the theoretical and methodological foundation of this research. Investigations are being pursued in two main directions: 1) investigation of the principal mechanisms of integrative activity of the brain, such as neurophysiological mechanisms of the central architecture of functional systems forming the purposeful behavioral reactions of man and animals; morphological, neurochemical, molecular and ultrastructural mechanisms of integrative neuronal activity; corticosubcortical correlations in integral behavioral reactions; mechanisms of convergence of stimuli of diverse nature in specific neurons

of cortical and subcortical structures; systems analysis of receptor functions. Considerable place is also devoted to investigation of neurophysiological and genetic mechanisms of selective maturation of functional systems and different parts thereof in prenatal and postnatal ontogenesis (systemogenesis); 2) experimental and clinical investigation of physiological mechanisms of emotions and emotional stress, and cerebrovisceral disorders formed on their basis, particularly arterial hypertension. Special attention is being given to the study of mechanisms of adaptational and defense reactions of the organism, including neurophysiological, biochemical and morphological levels of resistance to emotional stress. The objective of these investigations is to develop preventive measures to increase the resistance of the organism to emotional stress. Studies are also in progress of the neurophysiological mechanisms of emotional states varying in biological nature, neurohumoral mechanisms of formation of persistent emotional excitation in the central nervous system; morphofunctional changes in different organs and structures of the brain in the presence of emotional stress; neurohumoral mechanisms of involvement of somatic and vegetative reactions in emotional stress.



A. I. Shumilina, doctor of medical sciences, who heads the laboratory of general physiology of functional systems

The institute conducts scientific research in close contact with chairs of the First Moscow Medical Institute imeni I. M. Sechenov, as well as other institutes of the Academy, USSR and RSFSR ministries of health, the USSR AS and institutions under other agencies.

Much attention is given at the institute to development of international contacts in the field of physiology. Scientific collaboration in the main directions of research is developing on a broad scale with the Central Institute of Cardiovascular Regulation of the GDR Academy of Sciences, the

chair of pathological physiology on the medical faculty of the University of Sofia (Bulgaria), chair of physiology on the medical faculty of the Novi-Sad University (Yugoslavia), laboratory for the study of sociopsychological health factors at the Carolinska Institute in Stockholm (Sweden) and others. Close ties are maintained with international organizations: WHO, IBRO, "Interbrain," ISA [International Organization for Standardization?], and others.

The staff of the institute is actively involved in organizing and holding All-Union and international physiological conferences and congresses. Its facilities are used for the All-Union seminar on "Development of Theory of Functional Systems," in which representatives of collaborating countries participate.

The following research physiologists are presently working at this institute: A. I. Smirnov and K. V. Sudakov, corresponding members of USSR AMS; professors R. A. Durinyan, Ye. K, Plechkova; M. G. Amiragova, T. I. Belova, Ye. L. Golubeva, A. I. Yesakov, L. V. Kalyuzhnyy, Ye. M. Krokhina, L. M. Kurilova, V. A. Polyantsev, A. G. Rabik, G. V. Ryzhikov, N. N. Timofeyev, L. S. Ul'yaninskiy and A. I. Shumilina, doctors of medical sciences, and others.

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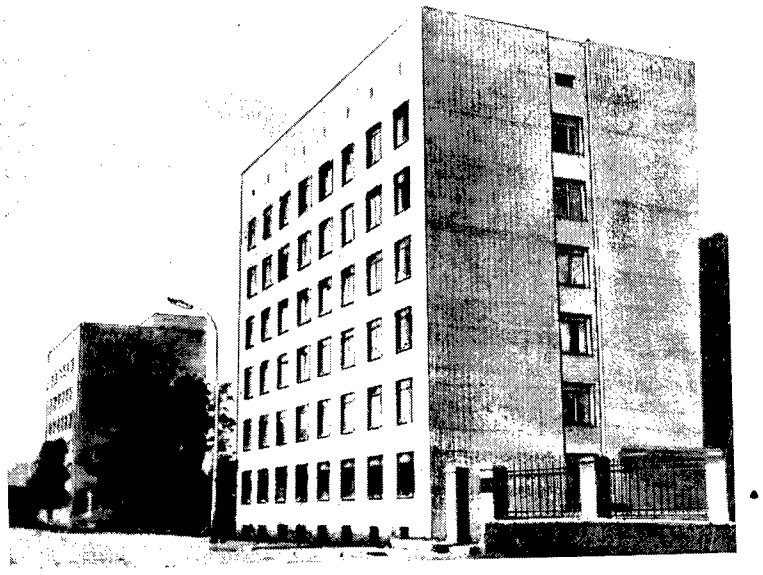
Institute of Biological and Medical Chemistry (10 Pogodinskaya Street, Moscow, 119117; director: Professor V. N. OREKHOVICH, academician of USSR AMS)

This institute was founded in 1944, in the facilities of the section of biochemistry and sector of chemistry of the All-Union Institute of Experimental Medicine imeni A. M. Gor'kiy (VIEM) with the active participation of Ya. O. Parnas and A. Ye. Braunshteyn, academicians of USSR AS and AMS; M. M. Shemyakin, academician of USSR AS; V. N. Orekhovich, academician of USSR AMS, and professor S. Ya. Kaplanskiy.

The institute has nine laboratories: biochemistry and pathochemistry of proteins; biochemistry and pathochemistry of collagen proteins; physical chemistry of biopolymers; biochemistry and pathochemistry of nucleoprotein complexes; chemical factors of regulation of growth and cell division; biochemistry and pathochemistry of vasoactive peptides; biochemistry of amines and other nitrogen compounds; biochemistry and pathochemistry of carbohydrate metabolism; organic chemistry.

This institute performs the duties of principal institution dealing with the problem of national importance, "Biochemistry and Pathological Chemistry of Metabolism, Mechanism of Regulation Thereof, and Problems of Medical Enzymology."

The main direction of research done at the institute is the study of molecular bases of human pathology. Scientific research concentrates on solving three principal problems: molecular mechanisms of regulating enzymatic processes under normal and pathological conditions; molecular mechanisms of function of the system of protein biosynthesis under normal and pathological conditions; molecular bases of congenital metabolic disturbances.



Institute of Biological and Medical Chemistry



In the laboratory of biochemistry and pathological chemistry of amines and other nitrogen compounds.

In the course of the investigations, a new group of connective tissue proteins was discovered, and it was named procollagen; the quaternary structure of procollagen molecules has been identified, and it was proven that this structure disintegrates into subunits. Studies have been made of the routes of formation and transformation of collagen proteins in the course of aging of the organism, as well as in the presence of some types of connective tissue pathology (collagen disease).

The mechanism of onset of serious hereditary diseases in infants has been identified; we refer to glycogenosis which is induced by impaired glycogen metabolism in the organism. Much assistance is being provided to the country's therapeutic institutions, with respect to diagnosing some forms of glycogenosis. In the course of investigating the effects of biogenous amines on activity of enzymes of carbohydrate metabolism, it was demonstrated that several forms of glycogenosis can be modeled.

A new proteolytic enzyme, carboxycathepsin, was discovered in renal tissue; it was established that this enzyme plays a key part in regulating vascular tonus; it was shown that it not only catalyzes synthesis of angiotensin II, a vasoactive peptide which elevates blood pressure, it also breaks down bradykinin (the antagonist of angiotensin II), which has the opposite effect on vascular walls.

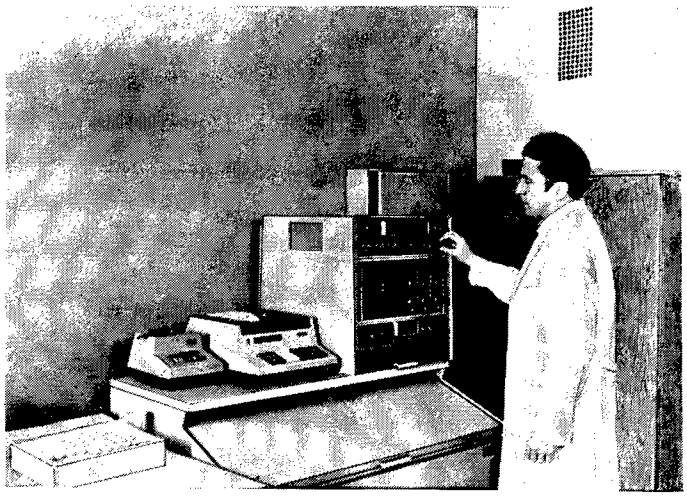
Enzymatic synthesis of saccharose in man was discovered, which is independent of the physiological state of the body. This refutes the conventional idea that biosynthesis of saccharose is a process inherent only in plants.

The institute has developed and handed to industry methods of chemical synthesis of more than 30 different amino acids and peptides; a method of synthesizing the antibiotic, levomycetin, and its racemate, synthomycin, has been developed and adopted in industry; these two agents are widely used in medical practice. More than 90 different methods of isolating and purifying enzymes, assaying biochemical components of tissues in biological objects, and a number of other new biochemical methods have been developed and adopted in practice.

The institute was awarded several medals for the discovery of the new group of connective tissue proteins, procollagens: Pasteur medal, medal of the French Biochemical Society, medal of the Second International Congress of Biochemists, as well as the gold, silver and bronze medals of the Exhibition of Achievements of the National Economy of USSR.

The results of research done at the institute have been published in numerous articles, monographs and collections. In recent years alone, seven monographs and collections were published on key problems of biological and medical chemistry.

Much of the activity of the institute pertains to training of scientific personnel, organization of seminars and practical courses, teaching new methods of biochemical investigation.



Working with liquid-gas chronometer in organic chemistry laboratory



Working with scintillation counter of radioactivity in laboratory of biochemistry and pathological chemistry of collagen proteins

In the years of its existence, major Soviet scientists have been on the staff of the institute: Ya. O. Parnas, academician of USSR AS and AMS; M. M. Shemyakin, academician of USSR AS; S. R. Mardashev, academician of USSR AMS; professors S. Ya. Kaplanskiy, D. L. Rubinshteyn, N. A. Fedorov, as well as A. Ye. Braunshteyn and S. Ye. Severin, academicians of USSR AS and AMS and Heroesof Socialist Labor, and N. A. Yudayev, academician of USSR AMS, who are presently working in other scientific institutions.

There are many researchers working at the institute on pressing problems of biological and medical chemistry, and among them are V. I. Orekhovich, academician of USSR AMS, professors V. Z. Gorkin, T. S. Paskhina, Ye. L. Rozenfel'd and others.

* * *

Institute of Experimental Endocrinology and Hormone Chemistry (11 Dmitriy Ul'yanov Street, Moscow, 117036; director: N. A. YUDAYEV, academician of USSR AMS)

This institute was organized in 1965, as a result of converting the All-Union Institute of Experimental Endocrinology of the USSR Ministry of Health.

The institute is comprised of 16 laboratories, 4 clinical departments with 175 beds and 4 offices. One full member and one corresponding member of USSR AMS, 6 professors, 15 doctors and 94 candidates of sciences work here.

The institute is the principal institution dealing with the problem of national importance, "Physiology, Biochemistry and Pathology of the Endocrine System."

The scientific research activity of the institute is directed toward investigation of problems of correlation and interaction between the hypothalamus and higher branches of the central nervous system in regulation of endocrine functions, with due consideration of the role of hypothalamic releasing factors in these processes; biosynthesis and metabolism of steroid and peptide-protein hormones under normal conditions and in the presence of endocrine pathology; mechanisms of action of hormones on different physiological levels, including specific receptors in target organs and processes of transmission of genetic information; chemistry of hormones and links between their chemistry and biological action; chemical synthesis of steroid, peptide-protein hormones, releasing factors of the hypothalamus and structural analogues thereof; investigation of hormonal regulation of metabolism and physiological systems of the organism under normal and pathological conditions; development of methods of assaying hormones and their derivatives in biological fluids. In the field of clinical endocrinology the following work is being done: research on pathogenesis and clinical manifestations of diseases of the hypophyseo-interstitial-adrenal system, thyroid, pancreas, gonads, etc.; new methods are being developed for diagnostics, therapy and prophylaxis of endocrine diseases. Special attention is given to research in the field of pathogenesis, diagnostics, therapy, prevention and epidemiology of diabetes mellitus.



Clinical building of Institute of Experimental Endocrinology and Hormone Chemistry



Using gas chromatography for the study of steroid hormone biosynthesis

A method has been developed for assaying thyrotropin releasing activity of the hypothalamus, which has provided new opportunities for the study of mechanisms of regulation of hypophyseal tropic functions. A tripeptide has been isolated from the hypothalamus which stimulates release of hypophyseal growth hormone, as well as a peptide that inhibits such release. The complete primary structure of two beta-lipotropic hormones of the hypophysis of pigs and cattle, and the prolactin of cattle have been identified. A highly purified preparation of luteinizing hormone (lutein) has been obtained from the hypophysis of cattle.

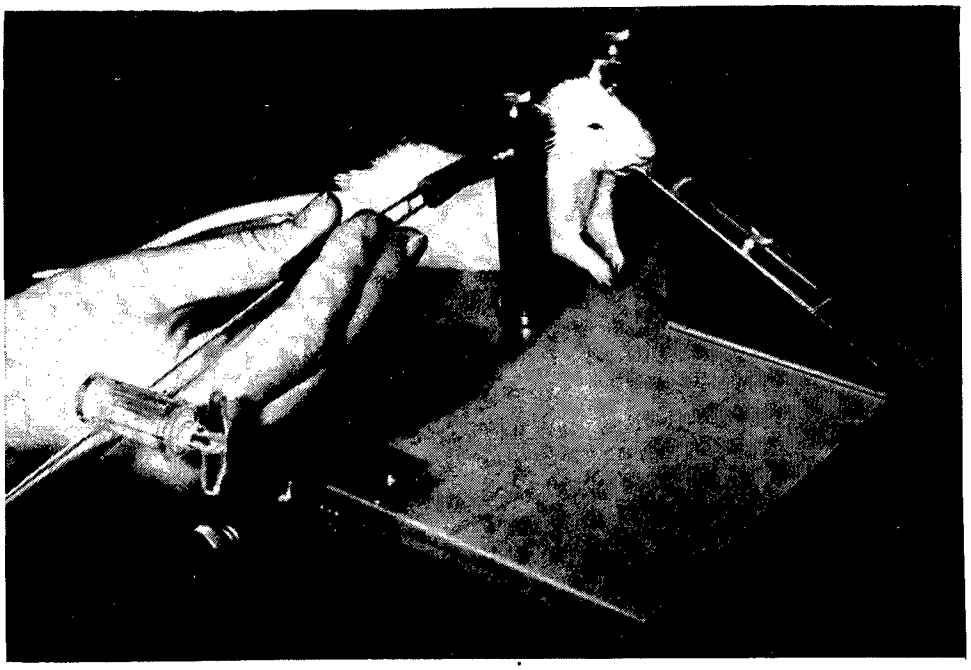
A new hypocalcemic thyroid hormone has been isolated, that is distinct from the thyrocalcitonin described in the literature. Complete laboratory chemical synthesis of insulin, identical to human insulin, has been performed.

The following have been synthesized: releasing factors of the hypothalamus that stimulate secretion of thyrotropic and luteinizing, follicle-stimulating pituitary hormones; a new anabolic preparation, silabolin, superior in growth activity to analogous foreign preparations; the first representative of silicon-substituted estrogens; 2-spirocyclopropane-9, 10-dehydro-19-nortestoreone steroid with antiandrogenic activity; trimethylsilyl esters of modified testosterones with high oral anabolic activity.

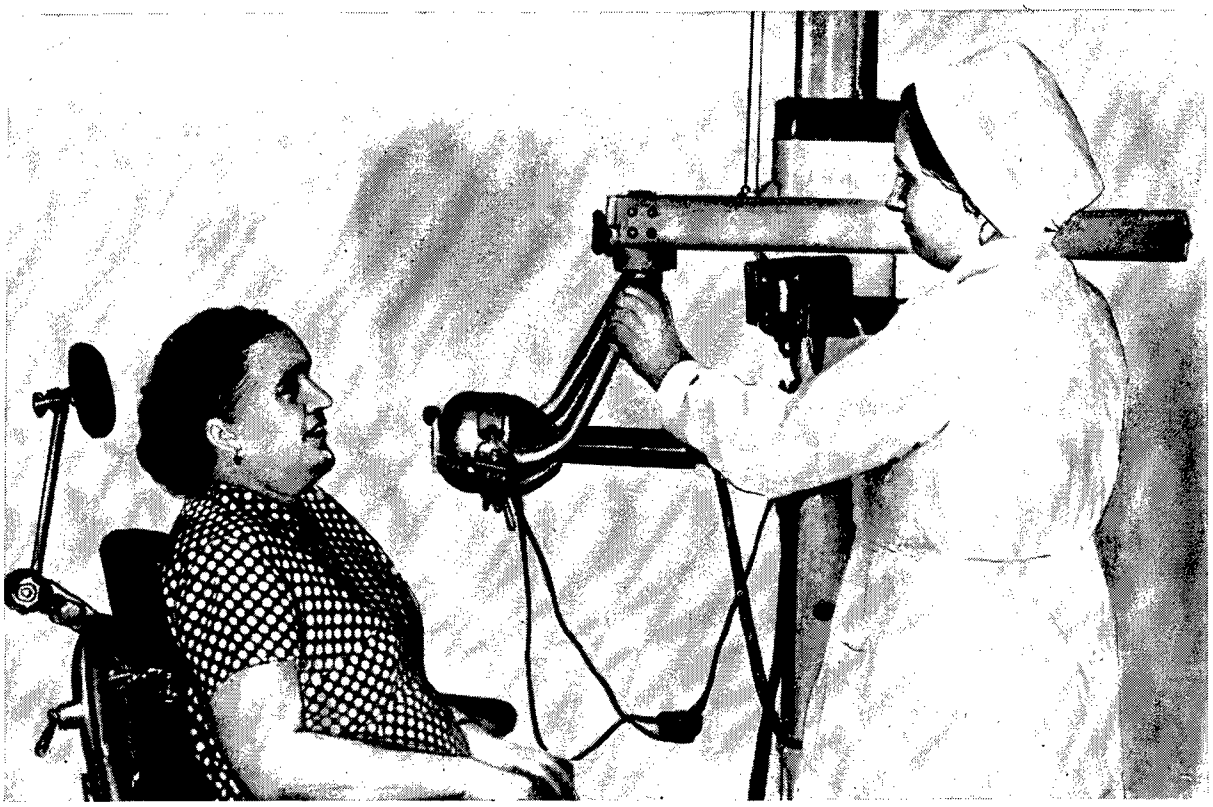
New routes of biogenesis of corticosteroids have been demonstrated; some previously unknown intermediate products of synthesis thereof have been discovered, and the sequence has been defined of hydroxylation of corticosteroid precursors. New data have been obtained on the distinctions of action of sex steroids on the molecular level. For the first time, it was proven that there is a receptor in the human uterine endometrium which binds testosterone specifically and with a high degree of affinity. It was established that there is a possible second route of biosynthesis of testosterone in virilizing adrenal tumors in man (via Δ^5-androstene-3, 17β-diol, and not only via androstendione), which is of substantial importance to determining the pathogenesis of this disease. It was established that, in the presence of diabetes mellitus, there is a change in blood protein insulin-binding and appearance of bound insulin in haptoglobin. It was shown that in insulin-dependent diabetics, insulin is bound primarily by α_2-macroglobulin.

Methods of determining the rate of steroid secretion have been modified and adopted in practice; they involve dilution of isotope tracer; the same applies to methods of biological and radioimmunological assay of insulin; method of determining proinsulin by means of specific protease; micromethods of assaying steroid hormones (estrogens and testosterone) in blood based on competitive binding thereof with proteins. A stereotactic device for transauricular removal of the rat hypophysis and electronic radioisotope analyzer of protein concentration have been invented.

A new clinical syndrome has been described in the institute's clinic: "hypermuscular lipodystrophy." Its symptoms and diagnostics have been studied, and methods of treatment have been outlined.



Instrument for transauricular removal of rat hypophysis (developed at the Institute)



Scanner used to diagnose pathology of the thyroid

The following methods have been developed and adopted in practice: surgical management of Cushing-Itsenko disease with a combination of bilateral total adrenalectomy and autotransplantation of a segment of adrenal cortex in the subcutaneous cellular tissue to prevent adrenal insufficiency and lower the dosage of replacement corticosteroid therapy; treatment of lipodystrophy in diabetics with pig insulin; etiological and pathogenetic therapy of patients with hypothalamo-hypophyseal pathology; functional tests with metyrapone, dexamethasone and adrenocorticotropic hormone (ACTH) in diagnostics of hypothalamo-adrenal diseases; roentgenodiagnostics and differential roentgenodiagnostics of menopausal osteopathies. A standardized method of active detection of diabetics, which makes it possible to investigate the epidemiology of diabetes mellitus in accordance with an All-Union program, has been developed and approved by the USSR Ministry of Health.

The following have been offered by the institute for practical use: the anabolic preparation, "silabolin," a drug form of thyrotropin releasing factor, a method of obtaining a preparation of human growth hormone, a method of obtaining methyl ether-histidine dihydrochloride, an instrument for transauricular resection of the rat hypophysis and a radioisotope analyzer of protein concentration.

N. A. Yudayev, academician of USSR AMS, has founded a scientific school with original directions of research in the field of hormone biochemistry. The scientists of the institute have published 17 monographs.

The institute devotes much of its time to training scientific personnel. Here, 1,400 specialists from different cities of our country have undergone on-the-job advanced training. A total of 19 doctoral and 104 candidatorial dissertations have been prepared under the guidance of scientists at the institute.

Since 1966, the institute prepared and convened 11 scientific conferences, the First All-Union Congress of Endocrinologists (1972) and the First All-Union Conference on Childhood Endocrinology (1970).

In 1970, a first class certificate of the Exhibition of Achievements of the National Economy of the USSR was awarded to the institute for a series of studies dealing with experimental and clinical endocrinology.

The following are presently working at the institute: N. A. Yudayev, academician of USSR AMS; Yu. A. Pankov, corresponding member of USSR AMS; Professor O. V. Nikolayev, Honored Scientist of RSFSR; professors L. M. Gol'ber, M. A. Zhukovskiy, I. B. Khavin and Yu. P. Shvachkin; V. N. Babichev, Ye. Z. Gincherman and V. P. Fedotov, doctors of medical sciences, and others.

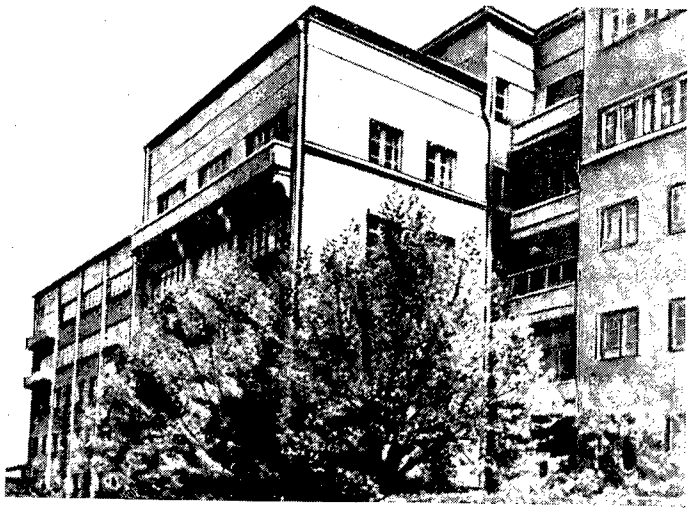
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Institute of Pharmacology (8 Baltiyskaya Street, Moscow, 125315; director: Professor V. V. ZAKUSOV, academician of USSR AMS)

This institute was founded in 1952.

It is comprised of four sections with a total of 14 laboratories.

This institute is the principal institution dealing with the problem of national importance, "Research and Investigation of New Pharmacological Agents."



Building of Institute of Pharmacology



In one of the institute laboratories

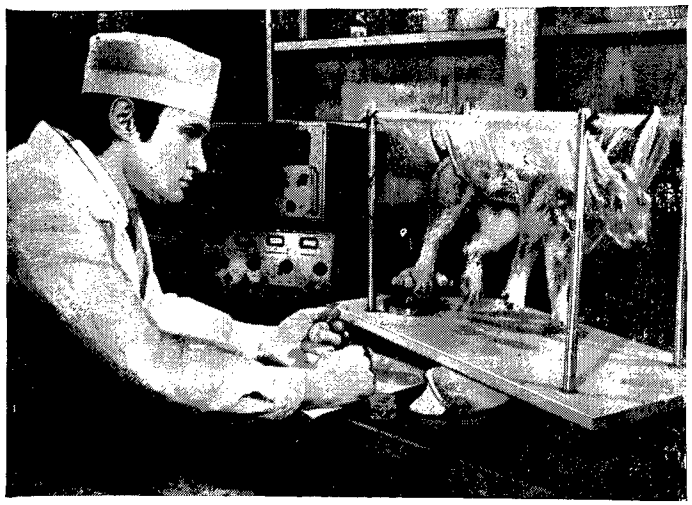
The following are the main directions of research conducted at the institute: investigation of correlation between chemical structure of drugs and their effect on the organism and, on this basis, search for new physiologically active agents, as well as investigation of mechanisms of their action. Accordingly, work is being done on two problems: search for new neurotropic agents (including psychotropic ones) and investigation of the mechanism of their action; search for new cardiovascular agents (antianginal, antiarrhythmic and hypotensive) in different classes of chemical compounds and investigation of mechanisms of their action.

In the years of its existence, the institute has offered about 40 new drugs for practical use, most of which are original. Best known in clinical practice are the neuroleptic, triftazin; the antipsychotic agent, carbidine; the antidepressant, fluoracizine, and many others.

The section of chemistry, where about 150 new chemical compounds are synthesized annually, and the section of pharmacology, in which these compounds are first submitted to primary screening then comprehensive pharmacological investigation, as well as study of safety when taken for long periods of time, are involved in work dealing with development of new drugs. New products are produced in the experimental technological section in quantities that are required for comprehensive clinical investigation; the drug forms of these preparations are developed and technical specifications prepared in order to begin producing them commercially. The institute has been awarded 125 author certificates for inventions, 37 patents in foreign countries and it has concluded two licensing agreements in connection with development of new drugs.

An important part of the work done at the institute deals with research to define the mechanism of action of physiologically active agents. It is conducted with the use of diverse methods: behavioral, electrophysiological, biochemical, electron microscope, radioisotopes, etc. Determination has been made of the predominant localization of depressive effects of agents of different types: narcotics, neuroleptics, tranquilizers and analgesics. It was established that sodium thiopental, γ-oxybutyric acid and the tranquilizer, diazepam, have a direct effect on the cerebral cortex, whereas aminazin [chlorpromazine] and triftazin manifest their action mainly in the region of the limbic structures of the brain, in particular the hippocampus and amygdallar nuclei. Neurophysiological analysis of the effect of morphine on spinal inhibition warrants the assumption that some of the stimulant effects of morphine-like analgesics are based on their alleviation of presynaptic spinal inhibition. Sodium oxybutyrate was found capable of eliminating this effect of morphine.

It was shown that tranquilizers and antidepressants have a two-phase action with respect to summation capacity of the central nervous system: enhancing [alleviating] in small doses and inhibitory in large ones. Basically new information has been obtained concerning the effects of neuroleptics, antidepressants and other psychopharmacological agents on processes of synthesis and active transport of mediators in the central nervous system.



Testing of effects of psychotropic agents on summation of impulses in the central nervous system



Building of Institute of Medical Genetics

There has been broad development of research on pharmacology of regional circulation (coronary and cerebral). As a result of these studies, a new conception emerged of the mechanism of action on coronary circulation of nitroglycerin, analgesics and some psychotropic agents. It was shown that the effects of these agents on processes of central, specifically adrenergic, regulation of circulation play a significant role in the mechanism of their

action. Some facts, important to theory and medical practice, were obtained from a study of the effects of psychotropic agents on processes of regulation of circulation. It was established that the efficacy of such agents in the treatment of cardiovascular disease is related not only to elimination of emotional tension, but to their direct and specific effect on central and peripheral processes of circulatory regulation.

The most important results of research done by the institute staff have been reported in 11 monographs and textbooks of pharmacology. In the last few years two collective monographs have been published: "Pharmacology of Monoaminergic Processes" and "Advances in Development of New Drugs," as well as the monograph by V. V. Zakusov, "Pharmacology of Central Synapses."

The N. P. Kravkov prize has been awarded to V. V. Zakusov (1964), academician of USSR AMS, and Professor N. V. Kaverina (1967) for scientific achievements in the field of pharmacology.

The Presidium of the All-Union Scientific Society of Pharmacology is based at the institute; it is directly involved in organizing conferences, symposiums and congresses in the Soviet Union and abroad. Much attention is given at the institute to training of personnel in the field of pharmacology.

Institute graduates presently head chairs and laboratories; they work as instructors and scientists in various institutions of our country. The institute offers work opportunities and provides consultant assistance to representatives of pharmacological institutions in our country.

The following are presently employed at the institute: S. Ye. Severin, academician of USSR AS and AMS, Hero of Socialist Labor; V. V. Zakusov, academician of USSR AMS; professors S. V. Zhuravlev, V. A. Zagorevskiy and N. V. Kaverina; N. A. Kruglov, B. I. Lyubimov, I. N. Padevich, N. T. Pryanishnikova, K. S. Rayevskiy and A. P. Skoldinov, doctors of sciences; and others.

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Institute of Medical Genetics (6a Kashirskoye Road, Moscow, 115478; director: Professor N. P. BOCHKOV, corresponding member of USSR AMS)

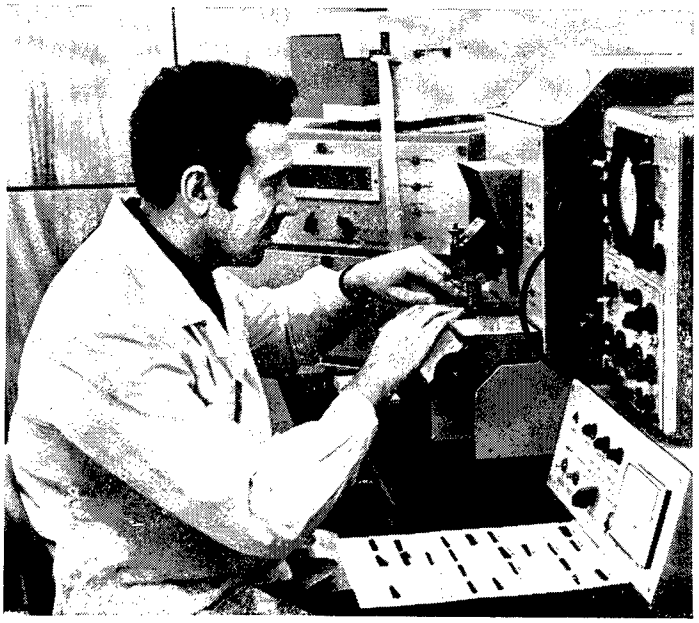
This institute was founded in 1969 in the facilities of the Institute of Experimental Biology.

It has nine laboratories (genetics of hereditary disease, immunogenetics, experimental genetics, biochemical genetics, molecular biology, biology, biophysics, mutagenesis, general cytogenetics and human cytogenetics) and a scientific organizational section.

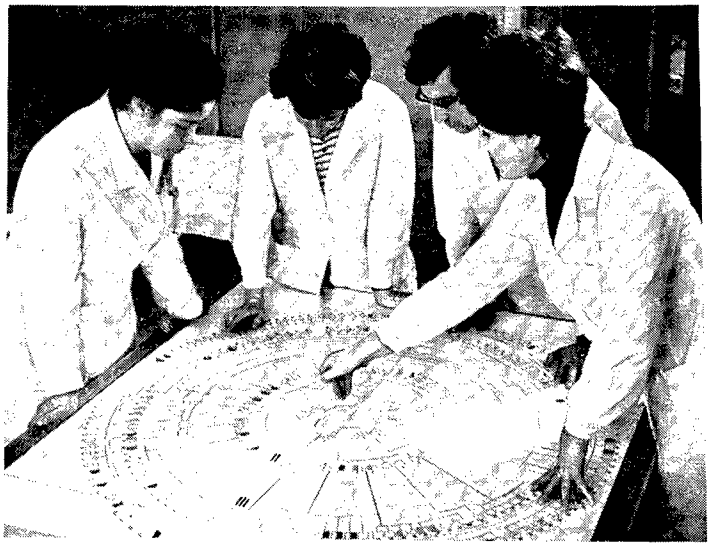
This institute is the principal institution dealing with the problem of national importance, "General and Medical Genetics."

Scientific research is being pursued here in the following main directions: investigation of hereditary constitutional properties of man under normal

conditions; determination of the relative roles of heredity and environment in human pathology; investigation of genetics of hereditary disease and pathology with inherited predisposition; development of basic problems of diagnostics and therapeutics of hereditary diseases.



In the laboratory of general cytogenetics. Chromosome analysis using a device developed at the institute by V. A. Benyush



In the laboratory of genetics of hereditary diseases; examination of genetic data dealing with detection of hereditary blood pathology

As a result of combined population, clinicogenetic and biochemical investigations of several hereditary diseases of man, determination was made, for the first time in our country, of the incidence and distribution of neurofibromatosis, mucoviscidosis, hereditary anemia of the thalassemia type and glucose-6-phosphate dehydrogenase deficiency. It was established that there is a high incidence of β-thalassemia and latent mutant gene carriers in several parts of Central Asia. Determination was made of the relative roles of the genetic factor and environment in the clinical diversity of such hereditary diseases as schizophrenia, phenylketonuria, myopathy and β-thalassemia. In particular, it was established that the phenylketonuria gene affects manifestation of the hereditary predisposition for schizophrenia.

On the basis of the results of biochemical testing of specialized groups in the child population, as well as patients with hereditary erythrocytopathy, mucoviscidoses and phenylketonuria, a program was developed for biochemical screening for hereditary metabolic defects, which is designed to detect about 70 hereditary enzymopathies. In the course of trial thereof, several dozen cases of various hereditary enzymopathies were picked up. For the first time in our country, mutant forms of enzymes were isolated and submitted to physicochemical investigation, in the presence of erythrocytopathy; new mutant forms of glucose-6-phosphate dehydrogenase have been discovered and described. Methods have been developed for the detection of β-thalassemia and mucoviscidosis for medical practice, as well as a method for demonstrating heterozygous (latent) carriers of the phenylketonuria gene.

A study of the fine structure of human chromosomes established the heterogeneity (differentiation) of linear structures of metaphase chromosomes; it was shown that it is linked with function of chromosomes and the phenomenon of selective staining of chromosome segments; on this basis, the problem of chromosome identification has been resolved. As a result of studying spontaneous and chemically induced mutagenesis in man, on the chromosome level, the incidence of chromosomal aberrations among neonates as a whole and in different groups thereof (premature babies, infants with congential defects, and others) has been established. A method was developed for detecting chromosomal structural mutations and mosaicism while conduction population and cytogenetic studies. A quantitative model was developed of induction of chromosomal aberrations in a culture of human lymphocytes. This model and method have begun to be used in a program of testing for mutagenic hazard of a number of chemical agents with which man comes in contact in everyday life and at work (food additives, drugs, etc.).

In the course of investigation of the patterns of expression of chromosomal mutations in a pathological phenotype (chromosome diseases), some original studies were made of correlations between karyotype and phenotype on the cellular level; a museum was created in which there is a collection of cell cultures from individuals with chromosomal pathology. For the first time, data were obtained concerning appreciable changes in properties of somatic cells in the presence of a number of chromosomal diseases. It was established that there is a correlation between nature of chromosomal anomalies in the presence of anemia and severity of impairment of human embryonic development, on the basis of material from aborted embryos and fetuses.

Molecular and biological investigations of organization and function of the cell's genetic system, chromatin and DNA, established for the first time that a specific protein complex, identification of the components of which is presently being worked on, is involved in regulation of the process of condensation of chromatin. It was established that the condition of chromatin is altered in cells of patients suffering from Down's syndrome, in the direction of greater condensation. Appreciable changes were found (under the influence of the mutagens, embrikhin [typo for embichin?] and nitrosomethylurea) in correlations between DNA and molecular protein of deoxyribonucleoproteins affecting transcription activity of DNA.

Much work is done by the institute in the following directions: training of scientific personnel in medical genetics, teaching practicing physicians new diagnostic and therapeutic methods referable to hereditary disease and acquainting them with the principles of medicogenetic consultation. So-called special topic courses ["schools"] for physicians specializing in medical genetics are called upon to aid in practical use of the advances in medical genetics; 4 such courses have been offered in the last 2 years.



Building of the Institute of Experimental Pathology and Therapy

Scientists specializing in genetics, cytogenetics, biochemistry and biophysics are working at the Institute of Medical Genetics: N. P. Bochkov, corresponding member of USSR AMS; G. A. Annenkov and L. A. Pevnitskiy, doctors of medical sciences; A. F. Zakharov and V. I. Ivanov, doctors of biological sciences; and others.

* * *

Institute of Experimental Pathology and Therapy (P.O. Box 66, Mount Trapetsiya, Sukhumi, 384900; director: Professor B. A. LAPIN, academician of USSR AMS)

This institute was founded in 1957 in the facilities of the biomedical station of the Academy (it was called the Sukhumi Monkey Farm in 1927-1931, and the Subtropical Branch of the All-Union Institute of Experimental Medicine in 1931-1944).

The institute has two sections with six laboratories, as well as a laboratory of radiobiology and zootechnical department with a monkey farm. There are four laboratories in the pathology section: experimental oncology (with hemoblastosis clinic and leukemia register), pathological anatomy, infectious pathology and biochemistry; there are two laboratories in the section of physiology and pathology of higher nervous activity.

This institute coordinates research on primates pursued in scientific institutions of the USSR AMS and Ministry of Health. The Commission for Biomedical Research on Primates is based here; it controls and provides methodological assistance in the use of monkeys for biomedical experiments.

Experimental research is concentrated on the study of the role of viruses in onset of malignant neoplasms of the human hemopoietic system (mainly leukemia). In 1975, basic research was begun on malignant neoplasms, in accordance with a unified program, along with the All-Union Oncological Center.

Traditional investigations of neurophysiological bases of higher nervous activity in primates concentrate mainly on determination of central mechanisms of regulation of emotions and their role in cerebrovisceral pathology.

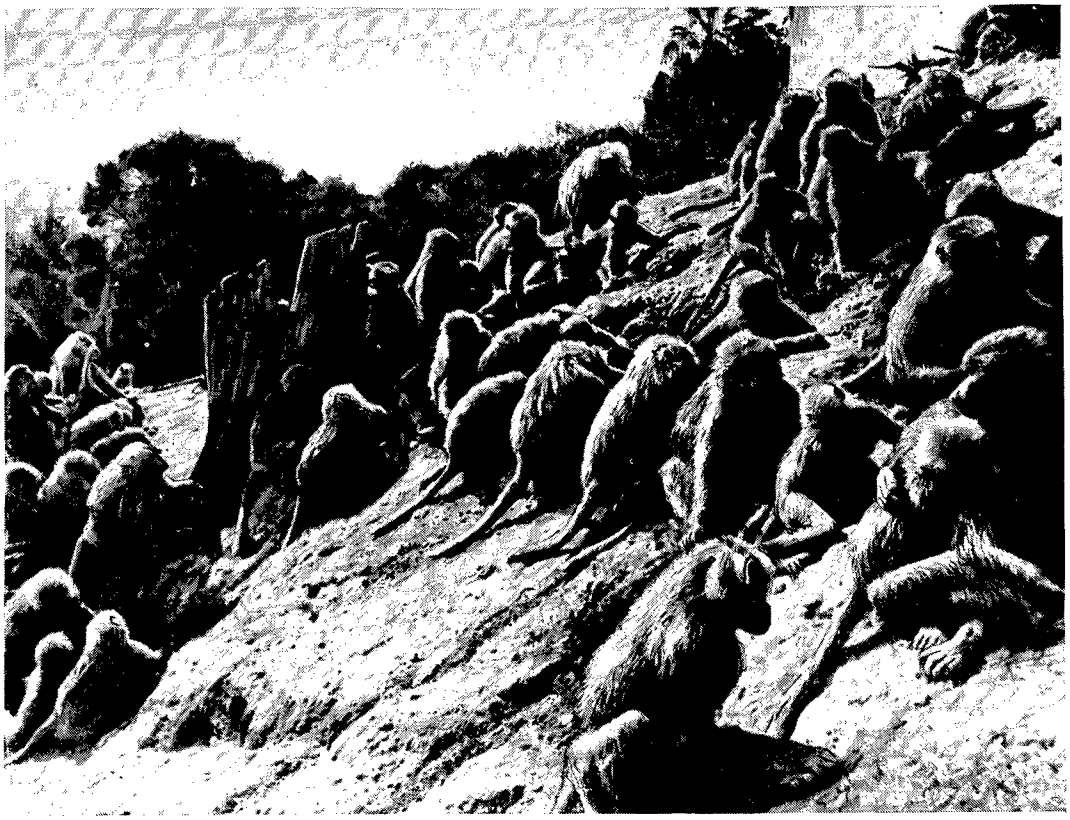
A special area of research is referable to biology and pathology of simians as an object of biomedical experiments: development of problems of acclimatization, breeding and maintenance of monkeys in captivity; study of their biological standards (including comparative study of hormones); comparative study of spontaneous and experimental infectious and noninfectious diseases in monkeys.

Data of theoretical and practical importance have been obtained at the institute. It was established that blood of individuals suffering from various forms of leukemia induces viral hemoblastosis in monkeys. The institute has a viral strain that has undergone numerous passages and that consistently induces leukemia-like illness in monkeys. The principal biochemical parameters of the virus have been studied, and it was established that it is antigenically independent and distinct from oncornaviruses of mice, cats and

some of the known simian oncornaviruses. Horizontal and transplacental transmission of experimental hemoblastosis has been confirmed. These data broaden the conception of viral nature of hemoblastosis in primates, and they serve as the basis for the hypothesis that the isolated viruses may be the pathogens of hemoblastosis in man.

In experiments on monkeys it was confirmed that the modification of the indirect immunofluorescence reaction made at this institute is of value in early detection of leukemia in primates.

Effective systems have been developed at the institute for chemoprophylaxis of acute radiation sickness in animals, as well as basically new approaches to the prevention of acute radiation lesions. The data on radiation cytogenetics of monkeys were used in revising the doubling dosage and permissible radiation background for man.



Monkey pen

Experimental models have been developed of neurotic disorders of the central nervous system and neurogenic pathology of visceral functions in primates (hypertension, coronary insufficiency, gastric achylia). The functional characteristics of various segments of the cerebral cortex and deep structures of the brain of adult specimens, as well as at different stages of postnatal ontogenesis of primates, have been defined. The distinctions of functional connections of the prosencephalon in monkeys and functional heterogeneity of associative fields of the frontal cortex in regulation of complex forms of primate behavior have been demonstrated. A comparative analysis revealed that some of the electrophysiological indices of brain structure function in primates are similar to the analogous indices in man.

A comparative study of a wide spectrum of steroid hormones of the adrenals and gonads revealed a qualitative similarity of secretion and metabolism of this group of hormones in man and lower monkeys, and rather appreciable differences have been demonstrated in amount of secreted corticosteroids, estrogens, gestagens, androgens and their precursors. Some new data were obtained on the role of the adrenals and gonads of primates in forming the pool of steroid hormones in systemic circulation of gestagens, androgens and estrogens; it was shown that in primates the hormonal response is determined by the nature of the stressor reaction.

Studies have been made of spontaneous bacterial and viral diseases of monkeys, and experimental models have been developed of a number of infectious diseases of man. New Soviet antibiotics and vaccines against intestinal infectious diseases are regularly tested on primates.

The research conducted at this institute on acclimatization, maintenance and breeding of captive lower monkeys, as well as work on spontaneous pathology of primates, are well-known in our country and abroad. The unique herd at the farm consists of more than 2,000 monkeys of different species and includes ninth generation specimens born in Sukhumi. Each year the herd increases by 200-300 monkeys. An experiment is being successfully conducted on acclimatization of monkeys to the forests of the Black Sea coast of the Caucasus, beyond the subtropical zone.

The opening, in the near future, of a breeding ["production"] branch of the farm in Adler and the imminent remodeling of the breeding facilities of the institute will broaden the opportunity for further development of research work at the institute.

The results of research done by the staff of the institute are reflected in numerous monographs, collections of works and other publications. Several monographs have been printed abroad.

The institute arranges All-Union and international symposiums on problems of primate biology and pathology, and experimental modeling of human diseases in primates.



Physician examining a monkey

The following individuals are presently working at the institute: Professor A. P. Lapin, academician of USSR AMS; N. P. Goncharov, E. K. Dzhikidze, V. G. Startsev, A. V. Trufanov, T. G. Urmancheyeva, V. G. Khasabov and L. A. Yakovleva, doctors of sciences; and others.

* * *



Building of Laboratory of Experimental Physiology of Resuscitation

Laboratory of Experimental Physiology of Resuscitation (9 25-Oktyabrya Street, Moscow, 103012; director: Professor V. A. NEGOVSKIY, academician of USSR AMS)

This laboratory was opened in 1936 at the Institute of Neurosurgery. In 1948, it was converted into an independent scientific research institution of the Academy.

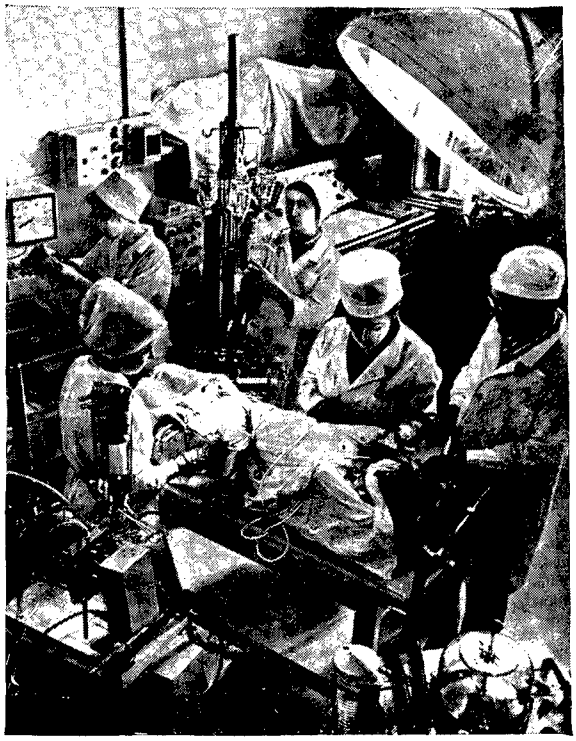
The laboratory is comprised of two departments and six groups. The experimental department is comprised of five groups: pathophysiology, biochemistry, neurophysiology, electrocardiology and pathomorphology. The clinical department, with a clinical pathophysiology group, is based at the Hospital imeni S. P. Botkin and has 20 beds; there is a mobile resuscitation center attached to the department, and it services the Hospital imeni S. P. Botkin and therapeutic institutions of Moscow.

The main directions of research done at this laboratory are: 1) investigation of general patterns of extinction and restoration of vital functions of the organism in experimental and clinical death and resuscitation, with special attention given to the study of death as a biological phenomenon, distinctions of life of the organism in the terminal and postterminal periods, pathology of the central nervous system and heart in death and resuscitation; 2) experimental and clinical therapy of the dying and resuscitated organism; 3) development of methods of increasing resistance of the organism to pathophysiological factors of dying and in the postresuscitation period, and particularly methods of prolonging the period of clinical death.

Several basic theoretical problems have been developed in this laboratory with regard to experimental and clinical resuscitation practices and organization of the resuscitation service. The principal pathophysiological patterns of dying and restoration of vital functions have been investigated, as related to acute hemorrhage, electric trauma, mechanical asphyxia, drowning, carbon monoxide poisoning, etc. The bases of pathology of the central nervous system, cardiac activity, systemic and regional hemodynamics, endocrine system, liver, kidneys, systems involved in maintaining acid-base equilibrium, blood clotting, immunological protection and others, inherent in terminal and postterminal states have been experimentally developed. Concepts have been formulated and introduced concerning clinical and biological death, and a new nosological entity, postresuscitation sickness. The causes of development and pathogenetic significance of some secondary pathological processes and complications of the recovery period have been defined (acute renal insufficiency, complications referable to the lungs, etc.).

A combined method has been developed for resuscitation from agonal states and clinical death, the efficacy of which was already confirmed in the years of the Great Patriotic War. It was shown that it is possible to prolong significantly the period of clinical death in experiments involving the use of deep hypothermia, plasmapheresis and other methods.

This laboratory initiated development of Soviet respiratory equipment that is used in resuscitation. On the basis of theory of cardiac fibrillation



Revival of an animal following prolonged clinical death



V. A. Negovskiy (second from left), academician of USSR AMS and director of Laboratory of Experimental Physiology of Resuscitation, at a consultation in the resuscitation department

developed in the laboratory, several models of pulsed defibrillators were developed and presently used in all therapeutic institutions, as well as methods of electric pulse therapy of severe cardiac arrhythmia.

Indications and contraindications have been worked out with regard to transportation of patients in terminal states. At the initiative of this laboratory, specialized resuscitation centers have been opened in major multispecialty hospitals of the USSR.

The scientific works of scientists in this laboratory have been highly rated in our country and abroad. V. A. Negovskiy, academician of USSR AMS, was awarded the Lenin Prize; the USSR State Prize was given to V. A. Negovskiy (twice), professor M. S. Gayevskaya; N. L. Gurvich and Ye. N. Smirenskaya, doctors of medical sciences. The honorary medal of the Institute of Surgery imeni A. V. Vishnevskiy, as well as honorary, commemorative and gold medals of several academies of sciences, universities and scientific societies of the United States, Italy, Poland and France have been conferred upon V. A. Negovskiy for his achievements in the field of resuscitation. Senior scientists, Ye. S. Zlatokrylina and V. L. Kassil', were awarded medals of the Exhibition of Achievements of the National Economy of USSR for organizing the therapeutic process and laboratory work-up of patients in the clinical department of this laboratory.

The scientists of this laboratory published works on resuscitation, including the first textbook of "Fundamentals of Resuscitology" in the USSR. Several monographs have been published in England, Bulgaria, GDR, Holland, Spain, Poland, Romania, the United States and Yugoslavia.

The scientists of this laboratory train scientific personnel. In the years of existence of the laboratory, its staff and specialists assigned to it have prepared 53 dissertations, including 13 doctoral ones. Seven instructions and methodological letters have been published that deal with treatment of terminal states.

The laboratory held two All-Union conferences (1952, 1961) and three symposiums on pressing problems of resuscitation, with the participation of foreign scientists.

The following specialists in the field of experimental and clinical resuscitation are presently working in this laboratory: V. A. Negovskiy, academician of USSR AMS; A. M. Gurvich and N. L. Gurvich, doctors of medical sciences; and others.

* * *



Operating scintillation counter



Analysis on gas chromatograph

Laboratory of Enzymology (3 Sadovo-Kudrinskaya Street, Moscow, 123242; director: Professor S. S. DEBOV, academician of USSR AMS)

This laboratory was founded in 1963 as part of the Institute of Biological and Medical Chemistry, and in 1972 it was converted into an independent scientific research institution of the Academy. S. R. Mardashev, academician of USSR AMS, Hero of Socialist Labor and USSR State Prize winner, was its founder and director (1963-1974).

The research done in this laboratory is directed toward investigation of the structure and properties of enzymes (histidine decarboxylase, L-asparaginase, enzymes of creatine synthesis and others) and development of methods of isolating and purifying them, both for the purpose of resolving some theoretical problems (biosynthesis of protein and nucleic acids) and for clinical use as therapeutic agents (asparaginase, glutaminase), in processes of regulation of metabolism (carboxypeptidase N) or for diagnostic purposes (enzymes of creatine synthesis, adenase and others). There are scientific groups working in the main directions of the laboratory's research, and they deal with the study of histidine decarboxylase, asparaginase, enzymes of creatine biosynthesis, biosynthesis of protein and nucleic acids.

The laboratory was first, in the entire world, to obtain a crystalline form of histidine decarboxylase (HDC) from micrococcus, with demonstration of several of its properties and structural distinctions. It was shown that the molecule of this enzyme is made up of structurally different segments. It was established that radicals [residues] of cysteine and, perhaps, tryptophan and methionine are important to manifestation of catalytic activity of HDC; evidently, radicals of these amino acids are contained in the enzyme's active center. Studies have been made of activity of guanidine-acetate-N-methyltransferase (GAMT), an enzyme involved in creatine biosynthesis, in the blood of patients with involvement of the pancreas and biliary tract. It was established that the change in activity of this enzyme could be used in differential diagnostics of icterus. The laboratory has proposed prescriptions for sets of reagents for demonstration of serum GAMT for the purpose of specific diagnostics of pathology of the kidneys and pancreas (transamidinase) and liver (GAMT in the presence of cholelithiasis). Investigation of regulation of GAMT activity in the organism revealed that the glucagon-cyclic adenosine-3',5'-monophosphate plays an important role in this process. In view of the fact that glucagon is a rather effective agent in the treatment of cardiac insufficiency, the obtained data are of interest as a means of defining the mechanism of its therapeutic action.

A study of the role of polynucleotide phosphorylase (PNP) in metabolism of RNA in E. coli revealed that amino acids have a specific influence on the nucleotide composition of RNA synthesized by this enzyme in vitro and under conditions approximating in vivo conditions. The synthesized heteropolymers can function as RNA templates for protein biosynthesis. Studies conducted on animal tissues dealt with intracellular localization of PNP in liver cells. It was established that the enzyme is present in the polyribosomal fraction, and that it is involved in breakdown and inactivation of a certain part of rat liver polyribosomes. A method was developed for partial purification of this enzyme from microsomes, and determination has been made of some of its catalytic and physicochemical properties.

A laboratory method was developed for preparation of crystalline L-asparaginase from E. coli. Trials of this preparation showed it to be suitable for clinical use in the treatment of leukemia; it is as good as the Japanese commercial preparation in antileukemic activity, and it is less toxic. The recommendations for obtaining crystalline L-asparaginase have been handed over to organize commercial production. Two other asparaginase products have been developed in highly purified form, asparagine deaminase and dual-function deamidase of asparagine and glutamine, from Pseudomonas fluorescens AG cells, which differ appreciably from the asparaginase of E. coli with respect to their properties.

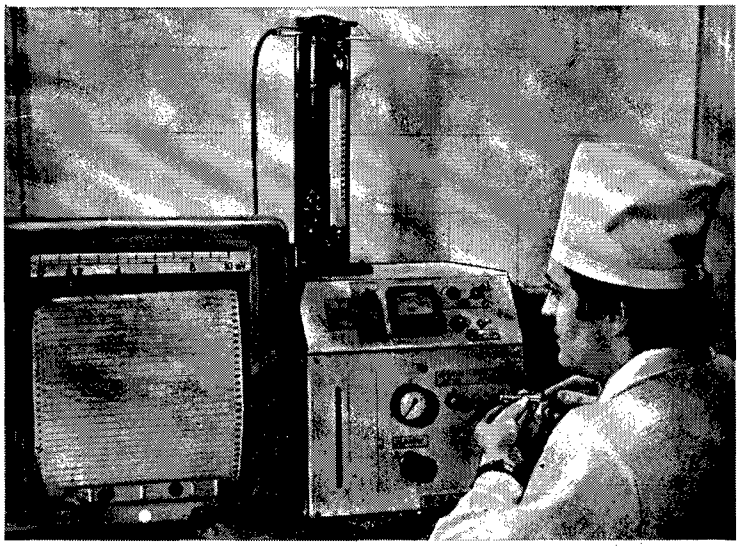
The laboratory staff has defended eight dissertations, two of which were doctoral.

The following are presently working in this laboratory: S. S. Debov, academician of USSR AMS; A. A. Karelin, candidate of medical sciences; A. A. Del'vig, Ye. A. Kozlov and L. A. Semina, candidates of biological sciences; and others.

* * *

Allergological Laboratory (8 Lenin Avenue, Building 22, Moscow, 117049; director: Professor A. D. ADO, academician of USSR AMS)

This laboratory was organized within the Academy system in 1961. It is the chief institution dealing with the problem of national importance, "Allergy," and serves as the base for the All-Union Allergological Center.



In functional diagnostics room

The laboratory consists of four groups: immunology of allergic reactions; pathophysiology of allergic reactions; clinical allergology; and organizational-methodological group. Hospital care is provided for almost 500 patients per year in the allergological department.

The scientific activities of this laboratory are concentrated on the study of causes of onset and mechanisms of development of allergic diseases, their incidence, and development of methods of diagnosing and treating allergic diseases.

A method has been worked out at the laboratory for keeping records of allergic morbidity in different climatic and geographic zones, and data have been obtained on the incidence of allergic disease in the USSR. The laboratory prepared a clinicopathogenetic classification of bronchial asthma which has been approved by the USSR Ministry of Health and is used extensively in clinical practice.

New data have been obtained concerning the existence of antigenic cross-properties in lung tissue and bacteria inhabiting the bronchopulmonary system of patients with the infectious and allergic form of bronchial asthma, and this is a new interpretation of development of autoallergic reactions in the pathogenesis of this disease. For the first time, there was demonstration of immunological relationship between the "deep" structures of the bacterial cell and human lung tissue.

On the cellular level, using cultures of contractile cells of the chick embryo heart, it was shown that their functions are impaired by anticardiac antibodies and the antigen-antibody complex.

It was established that immune complexes can have a direct deleterious effect on smooth muscle cells of man and animals, constituting one of the mechanisms of development of bronchial asthma and anaphylactic shock. Cytological analysis and the use of microcinematography yielded new data on the mechanism of allergic reaction of basophils and mast cells; it was established that these cells have transient activity under the influence of allergen, followed by recovery of their cytological structure. Allergic reactions of isolated mitochondria have been investigated. Phasic processes of swelling, depressed respiration and change in ion permeability of passively sensitized mitochondria were demonstrated under the influence of allergen.

For the first time, intermediate allergens, which play an important pathogenetic role in development of allergic involvement of the nervous system, were demonstrated and investigated. Methods have been developed of natural (inhalation) sensitization of experimental animals, and antibodies were obtained from them that are similar to human antibodies (reagins) in the presence of pollinosis, with regard to their biological and some physicochemical properties.

An experimental model of hay fever was developed in the laboratory for the study of immunological, pathochemical and pathophysiological mechanisms of development of this disease and trial of new antiallergenic preparations.



Diagnostic tests being made with infectious and noninfectious allergens developed in the laboratory



Investigation of mechanisms of allergic reactions and testing of new anti-allergenic products using the experimental model of pollinosis developed in the laboratory

It was demonstrated for the first time, on an experimental model, that large doses of influenza vaccine have an inhibitory effect on formation of homocytotropic antibodies (reagins) produced with inhalation sensitization of guinea pigs with pollen allergen, whereas small doses are capable of inducing a stimulating effect.

Supplementary methods have been developed in the technology of producing noninfectious diagnostic and therapeutic allergens, and changes have been made in the temporary Technological Specifications for these allergens that have been handed to production institutes, and several of the laboratory's staff members received certificates and silver medals of the Exhibition of Achievements of the National Economy of USSR for this work.

Allergens with prolonged action have been developed for the treatment of noninfectious bronchial asthma, and this resulted in administration of three times fewer therapeutic injections.

New technological procedures have been found for isolation of the most active and pure fractions of microorganisms for commercial production of allergens used to diagnose and treat infectious-allergic bronchial asthma.

On the basis of the results of specific therapy with mono-, di-, tri- and multi-component preparations of native bacterial allergens, it was shown that polyvalent allergy in patients does not present an obstacle to effective, specific hyposensitizing therapy.

The laboratory constantly tests new antiallergic products. The results of pharmacological investigations conducted in this laboratory were submitted at the International Symposium on Pharmacotherapy of Allergic Disease in Moscow, which was organized by the laboratory in collaboration with the Sandoz (Switzerland) and Egit (Hungary) companies.

The laboratory organized and conducted the All-Union Symposium on "Allergy and Autoallergy" (1963), the First All-Union Conference on "Problems of Allergy in Clinical Practice and Experimentation" (1971) and the All-Union Conference on "Bronchial Asthma" (1974).

The laboratory is to be credited with organizing a specialized allergological service in the Soviet Union. The laboratory has trained more than 250 allergologists who now head allergological offices in oblast, kray and republic hospitals in our country.

The laboratory staff members have published several monographs and textbooks that shed light on the most important mechanisms of allergic reactions, principles of diagnosing and treating allergic disease, and problems of organizing allergological offices.

The following are presently working in this laboratory: A. D. Ado, academician of USSR AMS; I. S. Gushchin, N. A. Terekhova and T. M. Tsaregorodtseva, doctors of medical sciences; and others.

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Laboratory of Experimental and Biological Models (Otradnoye Post Office, Krasnogorskiy Rayon, Moscow Oblast, 143412; director: V. A. DUSHKIN, candidate of veterinary sciences)

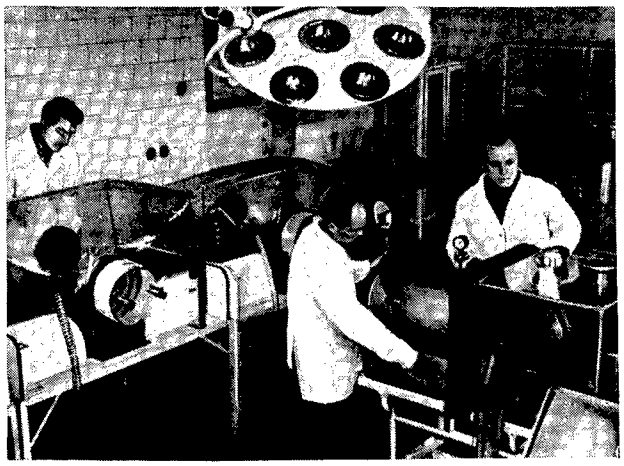
This laboratory was organized in 1961 under the Presidium of the Academy, and in 1967 it was converted into a scientific research institution of the Academy.

This multispecialty laboratory is comprised of nine scientific groups: genetics, ecology, comparative morphology, microbiology, virology, gnotobiology, laboratory fowl breeding with experimental farm of aleukemic poultry, experimental atherosclerosis with minipig farm, and the group for scientific information with a library.

The laboratory is the principal institution dealing with the problem of national importance, "Biology and Pathology of Laboratory Animals." More than 20 scientific research institutions specializing in comparative biology and medicine, modeling of human pathological processes in animals, are involved in working on this problem. The laboratory supplies the initial pairs of inbred mice for research; it offers consultations on questions of biology of laboratory animals and organization of experiments involving the use of these animals.

The main directions of research and practical activity of the laboratory are: comparative study of biology and pathology of laboratory animals; development of scientific bases of a new and specific field, laboratory animal breeding.

The laboratory has established a unified collection of inbred laboratory animals numbering almost 80 strains of laboratory mice and 3 strains of laboratory rats. A service for genetic control of experimental animals has been organized.



Experiment with gnotobiotic animals

A system has been developed for testing the mutagenic effects of chemical compounds on laboratory animals. The laboratory staff has bred 10 strains with finite resistance, 2 analyzer strains, 1 inbred strain and 12 mutant stocks of laboratory mice; these strains were made part of the unified collection fund [resources] and are used in medical experimentation. The foundation has been laid for research on gnotobiotic animals and minipigs; aleukemic chickens are being bred, and their embryos are used for virological research and production of vaccines.

Determination has been made of the oncological and immunobiological characteristics of strains of mice that are widely used in medical and biomedical research. Systems of measures have been developed for controlling and eradicating the most widespread infectious and invasive diseases of laboratory animals in the vivariums. A comparative analysis has been made of age-related morphology and spontaneous pathology in some species of laboratory animals. Dietary standards have been established for 34 species of experimental animals and producers, as well as sanitary rules for operation of experimental biological clinics, and they have been approved by the USSR Ministry of Health.

The results of research done by the laboratory's staff members are reflected in collections of works dealing with various problems of medical research on animals, in the monograph, "Inbred Mice" (N. N. Medvedev) and "Manual on Feeding Animals, Experimental Fowl and Producers."

The laboratory is involved in educational and methodological work, and it collaborates with analogous institutions in other countries.

In the last 5 years, there have been 10 educational seminars, 3 All-Union conferences and symposiums.

DEPARTMENT OF HYGIENE, MICROBIOLOGY AND EPIDEMIOLOGY

The Department of Hygiene, Microbiology and Epidemiology (DHME) is comprised of scientists pursuing research in the field of hygiene, microbiology, virology, epidemiology, immunology and specific prophylaxis of infectious diseases. The staff of the department includes 26 academicians (one of whom is also an academician of the USSR AS [Academy of Sciences]), 35 corresponding members and 6 foreign members of USSR AMS. Among them are 4 Heroes of Socialist Labor, 6 Lenin Prize winners and 11 USSR State Prize winners.

The Department is in charge of eight scientific research institutions, seven institutes, one laboratory with the standing of an independent scientific institution and one academic team. These institutions employ 1,473 scientists, 248 of whom are doctors and 943 are candidates of sciences.

The Department oversees scientific research dealing with 21 problems of national importance, 2 of which are independent and 19 are under the management of 3 scientific councils; 1 biomedical problem ("Allergy") is administered by the Department of Biomedical Sciences, USSR AMS.

The scientific council for viruses and viral diseases coordinates research on five problems of national importance: "General Virology," "Epidemic Hepatitis," "Arboviruses," "Viral Encephalitis, Poliomyelitis and Other Enteroviral Infections" and "Influenza, Influenza-Like Diseases, Prevention and Treatment Thereof."

The scientific council for epidemiology, microbiology, immunity, allergy and specific prophylaxis implements planning and coordination of research on seven problems: "General and Applied Immunology," "Genetics and Molecular Biology of Bacteria," "General and Applied Epidemiology," "Parasitic Diseases of Man," "Ecology of Infectious Diseases of Man," "Intestinal Infections" and "Allergy."

The scientific council for hygiene coordinates research on seven problems: "Scientific Bases of Hygiene of Populated Areas," "Scientific Bases of Industrial Hygiene and Occupational Pathology," "Scientiifc Bases of Hygiene and Toxicology of Pesticides, Polymers and Plastics," "Nutrition of Sick and Healthy People," "Hygiene of Children and Adolescents," "Scientific Bases of Rural Hygiene" and "Social Hygiene, Public Health Organization and Management."

The two independent problems of national significance are "Antibiotics and Other Biologically Active Substances of Natural Origin" and "Standardization of Biological Medical Products for the Prevention and Diagnosis of Infectious Diseases."

Outstanding scientists in scientific research institutes and medical VUZ's of our country are involved in the research that is planned by the scientific councils and problem commissions. The problem commissions, scientific councils and Departmental Office are developing the practice of cooperative research with institutions referable to other agencies: institutes of the USSR AS, All-Union Academy of Agricultural Sciences imeni Lenin, USSR Academy of Pedagogic Sciences, several Union and republic ministries, planning organizations, etc.

In different years, the following have been elected academician secretaries of the Department: F. G. Krotkov (1944-1950), A. N. Sysin (1950-1953), P. G. Sergiyev (1953-1957), A. A. Letavet (1957-1960) and G. V. Vygodchikov (1960-1964, 1966-1968).



V. D. SOLOV'YEV,
academician of USSR AMS



P. A. VERSHILOVA,
academician of USSR AMS
Departmental Office



A. A. MINKH,
academician of USSR AMS

DHME Departmental Office Staff (as of 1 January 1976)

Departmental academician secretary: V. D. SOLOV'YEV (since 1968), academician of USSR AMS.

Deputy academician secretaries: P. A. VERSHILOVA and A. A. MINKH, academicians of USSR AMS.

Office members: O. G. ANDZHAPARIDZE, O. V. BAROYAN, P. N. PURGASOV, G. V. VYGODCHIKOV, G. F. GAUZE, V. M. ZHDANOV, N. N. ZHUKOV-VEREZHNIKOV, P. N. KOSYAKOV, L. I. MEDVED' and YE. I. SMIRNOV, academicians of USSR AMS; V. D. BELYAKOV, N. A. VINOGRADOV, N. G. OLSUF'YEV, F. F. TALYZIN, N. YU. TARASENKO and S. N. CHERKINSKIY, corresponding members of USSR AMS.

DHME Personnel [Academic] (as of 1 January 1976):

Full Members (Academicians) of USSR AMS:

ANDZHAPARDIZE, Otar Georgiyevich (born 1920); virology.

BAROYAN, Oganes Varshakovich (born 1906); epidemiology.

BURGASOV, Petr Nikolayevich (born 1915); epidemiology.

CHUMAKOV, Mikhail Petrovich (born 1909), Lenin Prize and USSR State Prize winner; virology.

GAUZE, Georgiy Frantsevich (born 1910), USSR State Prize winner; microbiology, antibiotics.

GROMASHEVSKIY, Lev Vasil'yevich (born 1887), Hero of Socialist Labor; epidemiology.

IOFFE, Vladimir Il'ich (born 1898); microbiology, immunology.

KARPOV, Sergey Petrovich (born 1903); microbiology, epidemiology.

KHOTSYANOV, Lev Kipriyanovich (born 1889); industrial hygiene.

KOSYAKOV, Pavel Nikolayevich (born 1905); immunology.

KROTKOV, Fedor Grigor'yevich (born 1896), Hero of Socialist Labor; general, military and radiation hygiene.

LETAVET, Avgust Andreyevich (born 1893), Lenin Prize and USSR State Prize winner; industrial hygiene.

MEDVED', Lev Ivanovich (born 1905); industrial hygiene in agricultural production.

MINKH, Aleksey Alekseyevich (born 1904); general hygiene.

POKROVSKIY, Aleksey Alekseyevich (born 1916), USSR State Prize winner; biochemistry; member of USSR AMS Presidium since 1972.

SIDORENKO, Gennadiy Ivanovich (born 1926); general and municipal hygiene.

SMIRNOV, Yefim Ivanovich (born 1904); social hygiene, public health organization.

SMORODINTSEV, Anatoliy Aleksandrovich (born 1901), Lenin and USSR State prize winner; virology.

SOLOV'YEV, Mikhail Nikolayevich (born 1886); epidemiology.

SOLOV'YEV, Valentin Dmitriyevich (born 1907), USSR State Prize winner; virology.

TIMAKOV, Vladimir Dmitriyevich (born 1905), academician of USSR AS, Hero of Socialist Labor, Lenin and USSR State prize winner; microbiology; president of USSR AMS since 1968.

VERSHILOVA, Pelageya Al'bertovna (born 1904); microbiology.

VYGODCHIKOV, Grigoriy Vasil'yevich (born 1899); microbiology.

ZDRODOVSKIY, Pavel Felksovich (born 1890), Hero of Socialist Labor, Lenin and USSR State prize winner; microbiology, immunology.

ZHDANOV, Viktor Mihaylovich (born 1914); virology.

ZHUKOV-VEREZHNIKOV, Nikolay Nikolayevich (born 1908), USSR State Prize winner; immunology, microbiology.

Corresponding Members of USSR AMS:

BELYAKOV, Vitaliy Dmitriyevich (born 1921); epidemiology.

BELYAYEV, Igor' Ippolitovich (born 1910); general and municipal hygiene.

BLOKHINA, Irina Nikolayevna (born 1921); microbiology.

BOLDYREV, Tikhon Yefimovich (born 1900); epidemiology.

CHAGIN, Konstantin Petrovich (born 1913); parasitology.

CHERKINSKIY, Samuil Naumovich (born 1897); municipal hygiene.

DOMARADSKIY, Igor' Valerianovich (born 1925); microbiology.

IL'IN, Leonid Andreyevich (born 1928); radiation hygiene.

KALYUZHNYY, Denis Nikolayevich (born 1900); municipal hygiene.

KANEP, Vil'gel'm Vil'gel'movich (born 1923); social hygiene and public health organization.

KARAKULOV, Ishanbay Karakulovich (born 1909); corresponding member Kazakh AS; epidemiology.

KUNDIYEV, Yuriy Il'ich (born 1927); industrial hygiene.

LISITSYN, Yuriy Pavlovich (born 1928); social hygiene and public health organization.

L'VOV, Dmitriy Konstantinovich (born 1931); virology.

MARUASHVILI, Georgiy Minayevich (born 1910); parasitology, tropical medicine.

MAYEVSKIY, Mikhail Mikhaylovich (born 1894), USSR State Prize winner; microbiology, experimental oncology.

MOSHKOVSKIY, Shabsay Davidovich (born 1895); parasitology, epidemiology.

NAVASHIN, Sergey Mikhaylovich (born 1924); antibiotics.

OLSUF'YEV, Nikolay Grigor'yevich (born 1905); microbiology, parasitology.

PETROV, Boris Dmitriyevich (born 1904); social hygiene, history of medicine.

SERDYUKOVSKAYA, Galina Nikolayevna (born 1921); child and adolescent hygiene.

SERENKO, Aleksandr Fedorovich (born 1906); social hygiene and public health organization.

SHAKHBAZYAN, Gayk Khachaturovich (born 1896); industrial hygiene.

SHARMANOV, Teregel'dy Sharmanovich (born 1930); hygiene of nutrition.

SHITSKOVA, Anastasiya Pavlovna (born 1919); nutrition and municipal hygiene.

SHUBLADZE, Antonina Konstantinovna (born 1909), USSR State Prize winner; virology.

SKAVRONSKAYA, Adelina-Viktoriya Genrikhovna (born 1922); microbiology.

TALYZIN, Fedor Fedorovich (born 1903); parasitology.

TARASENKO, Natal'ya Yuvenal'yevna (born 1911), Lenin Prize winner; industrial hygiene.

VINOGRADOV, Nikolay Arkad'yevich (born 1910); social hygiene, public health organization.

VORONTSOVA, Yelena Ivanovna (born 1913), USSR State Prize winner; industrial hygiene.

VOROSHILOVA, Marina Konstantinovna (born 1922); virology.

VOTYAKOV, Veniamin Iosifovich (born 1921); virology, member of USSR AMS Presidium since 1972.

ZAKHIDOV, Abdulla Zakhidovich (born 1910); general hygiene.

Foreign Members of USSR AMS:

CANDAU, Marcelino Gomes (born 1911, Brazil); public health organization; elected in 1966.

IKICH, Drago (born 1917; corresponding member of Yugoslavian Academy of Sciences and Arts, director of Institute of Immunology in Zagreb, Socialist Federated Republic of Yugoslavia); immunology; elected in 1968.

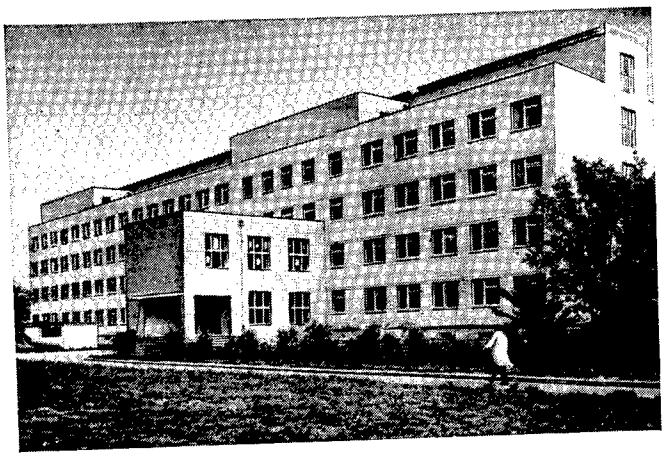
KURYLOWICZ, Wlodzimierz (born 1910; director of State Institute of Hygiene in Warsaw, Polish People's Republic); microbiology; elected in 1966.

LEPINE, Pierre (born 1901; section supervisor at the Pasteur Institute, France); virology; elected in 1969.

LWOFF, André (born 1902; head of laboratory at Pasteur Institute, France); virology; elected in 1967.

RASKA, Karel (born 1909, CSSR; director of Communicable Disease Section, World Health Organization); microbiology, epidemiology; elected in 1961.

* * *



One of the buildings of the Institute of Epidemiology and Microbiology imeni N. F. Gamaleya

Institute of Epidemiology and Microbiology imeni N. F. Gamaleya (18 Gamaleya Street, Moscow, 123098; director: Professor O. V. BAROYAN, academician of USSR AMS)

In 1947, the Central Institute of Epidemiology and Microbiology (TSIEM) of the USSR Narkomzdrav was converted into the Institute of Epidemiology and Microbiology of the USSR Academy of Medical Sciences. In 1949, the name of N. F. Gamaleya, honorary academician and one of the founders of Russian microbiology, was given to the institute. In 1962, this institute was the recipient of the Order of the Red Banner of Labor. V. D. Timakov, academician of USSR AS and AMS, was the first director of the institute. In subsequent years, it was headed by the following: G. V. Vygodchikov (1954-1955), academician of USSR AMS; S. N. Muromtsev (1956-1961), academician of the All-Union Academy of Agricultural Science imeni Lenin; P. A. Vershilova (1961-1964), academician of USSR AMS. O. V. Baroyan, academician of USSR AMS, has been the institute's director since 1964.

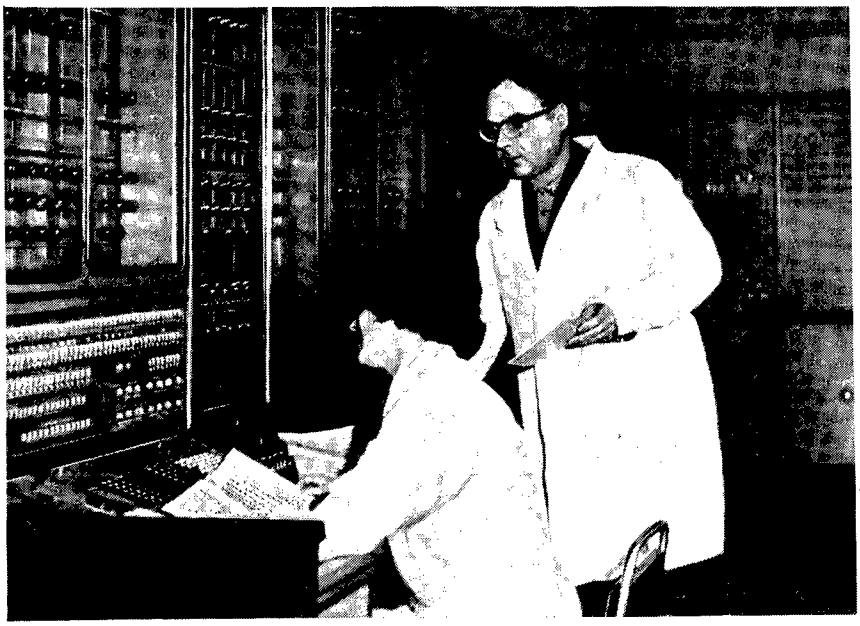
The institute is comprised of 9 sections with 40 laboratories, 10 independent laboratories and an enterprise that produces bacterial products. It employs 305 scientists, including one academician of the USSR AS and AMS, 5 academicians of USSR AMS, one corresponding member of USSR AMS, 29 professors, 82 doctors and 217 candidates of sciences.

This institute is our country's largest and international scientific research and scientific methodological center dealing with problems of medical microbiology, immunology and epidemiology. It performs the duties of the principal institution dealing with three problems of national importance: "General and Applied Immunology," "Genetics and Molecular Biology of Bacteria" and "Endemic Diseases of Man."

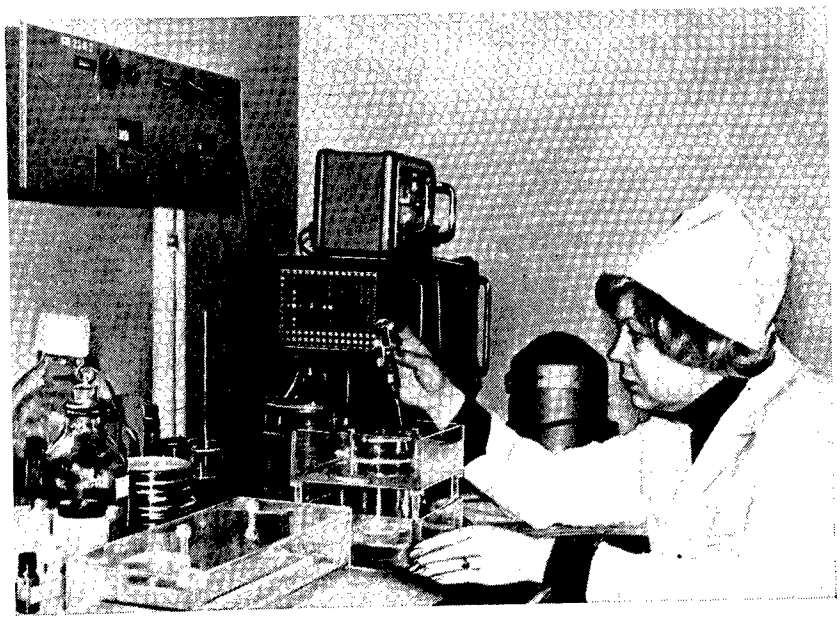
There are 12 international centers, including 5 WHO collaborative ones, based at this institute: for brucellosis, pertussis, tumor-specific antigens, leptospirosis, investigation of biology and distribution of ticks; two cooperative laboratories, one a reference center for mycoplasma infections and the other for training personnel in the field of immunology; it is involved in 5 scientific projects contracted with WHO: research on leishmaniasis, toxoplasmosis, distribution and detection of toxigenic fungi and investigation of their role in pathology; immunological markers in cancer; investigation of diseases induced by small mammals of Iran.

The institute is engaged in diversified research and production activities, directed toward in-depth development, from basically new positions, of the most important problems of medical microbiology, immunology and epidemiology, continued refinement of existing therapeutic, prophylactic and diagnostic products and development of new such products.

The main objective of research conducted here is to work out the strategy and tactics of controlling infectious diseases. In these investigations, a special place is taken up by the study of structure, function and genetics of microorganisms on the molecular and submolecular levels, genetic and biochemical factors of virulence and toxigenicity, correlation between infectious



Working with a computer in the laboratory of epidemiological cybernetics



In the laboratory of immunology of tumors

agents and hosts on different levels of their organization; problems of general immunology, including immunochemistry and immunomorphology, problems of antiviral immunity and immunology of tumors; investigation of the structure of infectious morbidity, epidemiology of chronic and latent infections, and of intramural diseases; development of principles of modeling epidemic and epizootic processes; investigation of general patterns of existence of endemic diseases.

As a result of many years of basic research, the scientists at this institute have made several important discoveries. Virogenetic theory of tumor formation was formulated. It was proven that the tumor cell does not contain complete virus, but does retain the viral genome. Research dealing with viral carcinogenesis revealed specific tumor antigens, and the existence of specific antineoplastic immunity was proven; it was established that Rous virus is pathogenic in mammals.

There was continued development of the teaching on endemicity [existence of natural endemic sites] of human diseases; endemic sites of many disease have been discovered, and maps of distribution thereof have been plotted.

In the field of general immunology, there was development of the hypothesis of neurohumoral regulation of immunogenesis via the hypothalamo-hypophysio-adrenocortical system.

It was established that the stroma plays a decisive role in determining the direction of differentiation of hemopoietic and lymphoid cells. A technique has been developed for cloning stromal precursor cells, and determination has been made of their concentration in different cell populations of lymphoid and hemopoietic tissue, as well as in blood.

An original method has been developed, which permits an assay of very small amounts (0.02-0.004 micrograms) of various antigens. This method has been used for detection of primary carcinoma of the liver, dysentery antigen and cholera antigens. The high specificity and diagnostic value of this method of immunodiagnostics of liver cancer were confirmed by the results of extensive clinical trials in different parts of the USSR, as well as seven countries of Africa, southeast Asia and America (pursued jointly with the International Center for Cancer Research).

For the first time, production of alpha fetoprotein (AFP) by malignant teratoblastoma of the testes and ovaries of humans was demonstrated, and a new immunodiagnostic test for these tumors was proposed.

A Soviet product was developed, human leukocytic interferon, which is an effective preventive and therapeutic agent in influenza and a number of viral respiratory diseases. Some new data have been obtained on the mechanisms of cellular antiviral resistance, viral interference, difference in capacity of different strains of influenza virus to induce interferon production in the organism. These data are of some importance to practice, with respect to use in the control of viral infections of man.

A new model system was developed for the study of genetic activity of isolated DNA of nontransformable bacteria. It was established that DNA function is manifested in the absence of its integration with the recipient chromosome. In recipient cells, DNA binds with membrane structures, while part of the DNA molecules undergo replication. A hypothesis was expounded concerning the existence of two types of DNA and membrane structure complexes, "static" ["inert"] and "functionally active." Radioresistance of salmonella has been submitted to genetic analysis; the genes involved in resistance of these bacteria to radiation have been mapped.

The uniqueness of means of recovery from radiation damage to DNA and damage of DNA induced by chemical agents has been demonstrated, and it was established that the different stages of such recovery are implemented by the same enzymes.

Some important information has been obtained on genetic determination of factors that determine the virulence of dysentery bacteria. Genetic control has been identified of synthesis of somatic antigens of S. flexneri, and this made it possible to propose the genetic bases for classifying these bacteria.

It was established that L forms of bacteria and mycoplasma play a significant role in human infectious pathology, and methods have been developed for identification and diagnostics thereof.

The principles and methods of decontaminating cell cultures from mycoplasma were developed, and pure lines of transferable cells have been obtained. A study has been made of anatomy and ontogenesis of more than 30 bacterial species referable to different taxonomic groups. Methods have been developed for electron microscopic investigation of cytochemistry of bacterial oxidizing enzymes, and it was shown that oxydizing enzymes are not bound with membrane structures of anaerobic bacteria, in contrast to aerobic ones.

For the first time, as a result of many years of experimental research on supramolecular organization and developmental cycle of development of different groups of viruses, it was established that there are many stages to their development, and it was shown that viral specimens are formed and develop in viroplasts; large viruses undergo five successive stages of development; more simply organized viruses undergo one or two stages; the virion is always the last stage of development. These data disproved the generally held opinion that viruses have no ontogenesis or growth, and that they reproduce by means of assembly of components synthesized by host cells.

For the first time in the USSR, there was a report on epidemiological and statistical morbidity data referable to the most important infectious diseases over a 50-year period; factors affecting dynamics and geographic distribution thereof have been analyzed; an objective evaluation was made of the dynamics of morbidity referable to different infections over a 50-year period, and of sociobiological factors that predetermined successful control of the most mass-scale infections in our country. On this basis, the routes of future development of general epidemiology were defined. A model of influenza

epidemics within the USSR was developed and forwarded to public health agencies; experiments have been conducted on model simulation of tularemia epizootics under natural conditions, and quantitative indices have been obtained, which characterize the distinctive features of development of epizootics in closed ecosystems.

The institute's staff members have made a large contribution to lowering infectious morbidity in our country and, in particular, eradication of such particularly dangerous diseases as smallpox, diphtheria, tularemia, and development of the means of lowering morbidity referable to brucellosis, pertussis, tetanus and tuberculosis.

For a long time, this institute was the country's most important center for the production of preventive, diagnostic and therapeutic products. Over 70% of the bacterial products produced in our country were developed here. The Institute continues to produce 6 preventive, 13 diagnostic and 4 therapeutic bacterial products for all of our republics, and 10 of them are exported. The new products include the following: interferon for prevention and treatment of influenza and some viral diseases; diagnosticum for primary cancer of the liver; immunodiagnosticum for hepatitis B, and others.

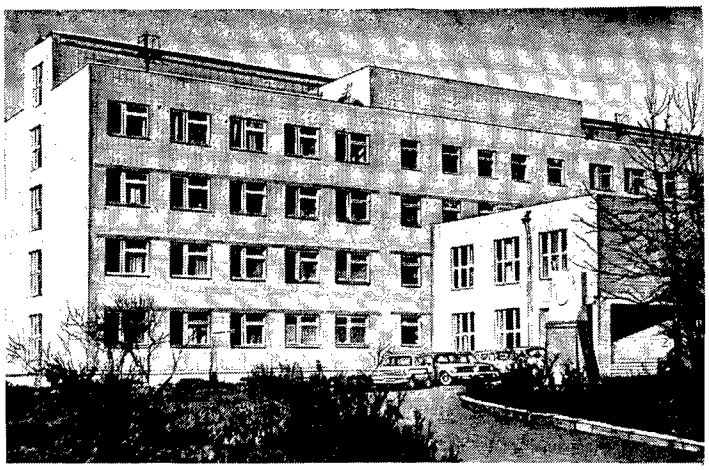
Nine certificates have been awarded to the institute for development and production of new products and investigative methods, while 70 members of its staff have received medals of the Exhibition of Achievements of the National Economy of USSR. The staff of the institute published more than 600 scientific articles, 66 monographs and 70 collections; 65 doctoral and 360 candidatorial dissertations were defended.

Among those who have worked at this institute are such outstanding scientists as N. F. Gamaleya, honorary member of USSR AS and academician of USSR AMS, one of the founders of medical microbiology of our country; Ye. N. Pavlovskiy, academician of USSR AS and AMS, who created the teaching on endemicity of human diseases; L. A. Zil'ber, academician of USSR AMS, who authored the virogenetic theory of cancer; N. A. Morozov, academician of USSR AMS, the greatest specialist on smallpox and smallpox vaccination; V. L. Troitskiy, academician of USSR AMS, founder of the direction of radiation microbiology and immunology; Kh. Kh. Planel'yes, academician of USSR AMS, the greatest specialist in the field of experimental chemotherapy and pathogenesis of infections; P. A. Petrishcheva and N. I. Latyshev, corresponding members of USSR AMS, prominent specialists in the field of investigation of endemic infections.

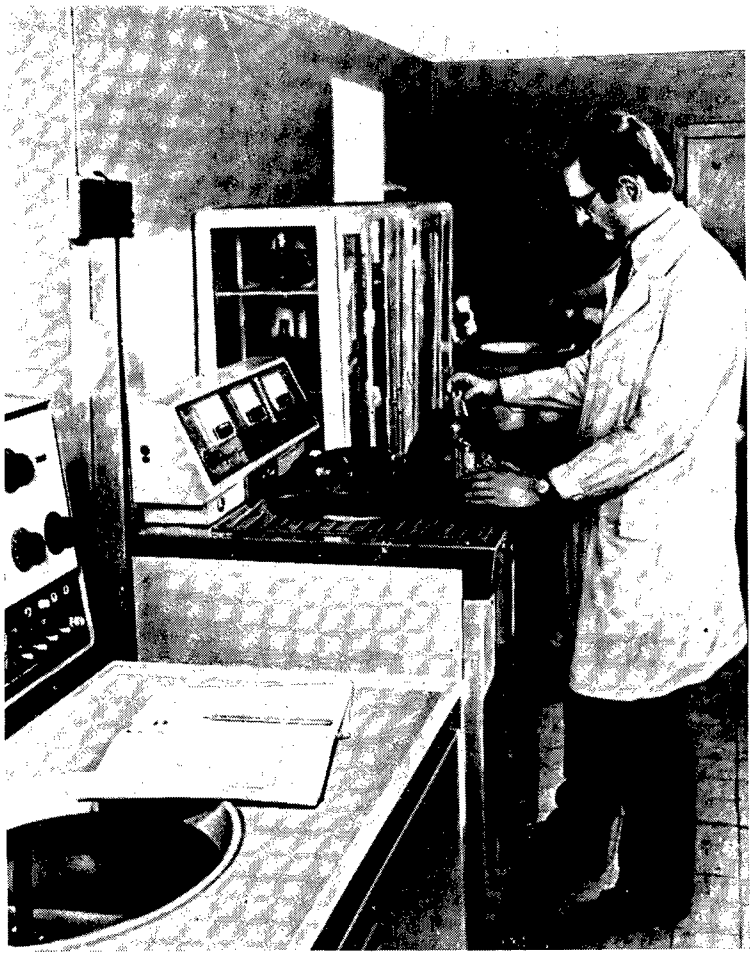
High rewards have been granted for the work done by the scientists at this institute. The Lenin Prize was awarded to P. F. Zdrodovskiy, V. D. Timakov, Ye. M. Golinevich and G. Ya. Kagan; the USSR State Prize, to Ye. N. Pavlovskiy and V. D. Timakov, L. A. Zil'ber (twice), P. F. Zdrodovskiy, M. A. Morozov and V. D. Solov'yev, P. A. Petrishcheva.

The following are presently working at the institute: V. D. Timakov, academician of USSR AS and AMS; O. V. Baroyan, P. A. Vershilova, G. V. Vygodchikov, P. F. Zdrodovskiy and V. D. Solov'yev, academicians of USSR AMS; N. G. Olsuf'yev, corresponding member of USSR AMS; and others.

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Building of molecular biology, Institute of Virology; monument to D. I. Ivanovskiy on the right



In the laboratory of physiology of viruses. Working with ultracentrifuge

Institute of Virology imeni D. I. Ivanovskiy (18 Gamaleya Street, Moscow, 123098; director: Professor V. M. ZHDANOV, academician of USSR AMS)

This institute was founded in 1944 within the Academy system, using the facilities of the section of viruses of the All-Union Institute of Experimental Medicine. In 1950, the name of Professor Ivanovskiy, discoverer of viruses, was adopted by this institute. In 1944-1950, V. D. Solov'yev, academician of USSR AMS, and Professor A. T. Kravchenko (its first director) were the institute's organizers; thereafter, the staff was headed by M. P. Chumakov (1950-1953) and P. N. Kosyakov (1954-1961), academicians of USSR AMS. V. M. Zhdanov, academician of USSR AMS, has been director of the institute since 1961.

Outstanding scientists, who made a significant contribution to microbiology, virology and epidemiology, have worked here in different years: L. A. Zil'ber, M. A. Morozov and P. G. Sergiyev, academicians of USSR AMS; V. L. Ryzhkov, corresponding member of USSR AMS, and others.

There are 8 sections in the institute which are comprised of 33 laboratories and a viral infection clinic (with 480 beds) and service laboratories. The institute employs 193 scientists, including 2 academicians of USSR AMS, one corresponding member of USSR AMS, 39 doctors and 122 candidates of sciences.

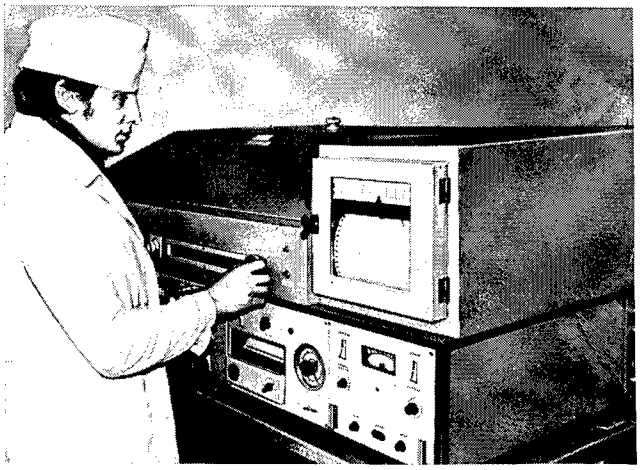
The institute is a major scientific research and scientific-methodological center of the country in the field of virology. It performs the duties of the principal institution dealing with three problems of national importance: "General Virology," "A boviruses" and "Viral Hepatitis." There is a branch for viruses of the State Museum of Live Cultures, as well as the USSR Regional Center for Influenza and Acute Respiratory Disease.

The scientific research of the institute is concentrated on pressing problems of general virology, molecular biology and genetics of viruses, ecology of viruses, diagnostics and labeling ["indication"] of arboviruses; investigation of etiology and epidemiology, and development of scientific bases for prevention of viral hepatitis, influenza and viral respiratory diseases; oncogenic viruses (virology of neoplastic processes); chemotherapy of viral infections.

Some fundamental data have been obtained at the institute in recent years, dealing with molecular and medical virology, in particular, on the mechanism of transcription and translation of virus-specific macromolecules. Molecular biological methods have been used to isolate oncogenic viruses from transferable lines of human cells, and their physicochemical properties have been studied; studies have been made of the molecular biological mechanisms of chronic viral infections.

A previously unknown phenomenon was experimentally demonstrated; we refer to loss of natural resistance to myxoviral (for example, influenza-like) infection by animals that are susceptible (tolerant) to antigens of heterologous noninfected cells, if such antigens are present in the structure of myxoviruses. This phenomenon, discovered by V. M. Zhdanov, academician of USSR AMS, and

G. K. S. Chepulis, candidate of medical sciences, was registered in 1969 as a discovery by the State Committee for Inventions and Discoveries, under the USSR Council of Ministers.



In the laboratory of physical investigative methods

Some new data have been obtained on the primary and secondary structure of viral nucleic acids and the unique conformation of viral nucleic acids in the virion, as well as new molecular biological data on production and action of interferon.

A previously unknown phenomenon was experimentally demonstrated: formation of hybrid, infectious ribonucleoprotein complexes that appear with interaction between viral ribonucleic acids and animal cell proteins, and which have typical properties that distinguish them from both viruses and ribonucleic acids isolated from them (shifts of sedimentation coefficients, buoyant density, partial sensitivity to ribonuclease, resistance to virus-specific sera). In 1970, the State Committee for Inventions and Discoveries of the USSR Council of Ministers issued a certificate for this discovery to Professor F. I. Yershov; V. M. Zhdanov, academician of USSR AMS; and L. V. Uryvayev, candidate of medical sciences.

New arboviruses were discovered (Tyuleniy, Sakhalin, Baku, Okhotskiy, Olyka, Kharagash); for the first time, it was shown that several arboviruses exist in the USSR (Sindbis and others), and endemic sites thereof were defined.

There was confirmation of the fact that infectious and serum hepatitis are separate entities; their clinico-epidemiological characteristics have been described; it was demonstrated that gamma globulin is effective and has a prolonged prophylactic effect with reference to infectious hepatitis.

The works of many of the institute's scientists have been rated highly. The USSR State Prize was awarded to M. A. Morozov, P. G. Sergiyev (twice), A. A.

Smorodintsev, M. P. Chumakov and L. A. Zil'ber, academicians of USSR AMS; A. K. Shubladze, corresponding member of USSR AMS, and Professor Ye. N. Levkovich. Academicians of USSR AMS, M. P. Chumakov (1953) and V. U. Zhdanov (1969), professors Ye. N. Levkovich (1960) and S. Ya. Gaydamovich (1969) were awarded the academic D. I. Ivanovskiy Prize; the prize commmemorating N. F. Gamaleya, honorary academician, was bestowed upon P. N. Kosyakov, academician of USSR AMS (1969).

The scientists of this institute published about 5,600 scientific works and 54 monographs.

In the period from 1946 to 1973, the institute held 42 scientific sessions, symposiums and conferences dealing with general and special problems of virology; their results are reflected in 54 collections and Institute Proceedings [Trudy Instituta].

The institute has made a considerable contribution, with respect to training scientific personnel. Between 1946 and 1974, 47 physicians completed their clinical residency and 143 specialists, their graduate studies. In these same years, 2,267 scientists and physicians from scientific institutions and sanitary-epidemiological stations underwent on-the-job training at the institute. Between 1946 and 1973, 90 doctors and 324 candidates of sciences were graduated.

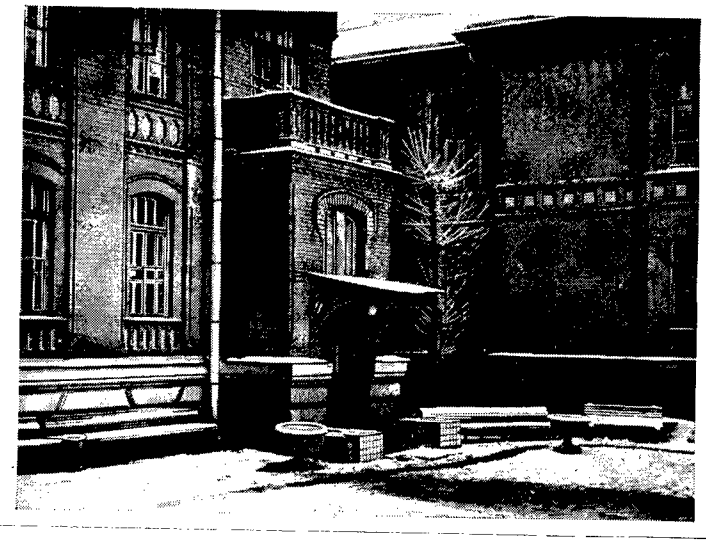
In the many years of their scientific endeavors, V. M. Zhdanov and P. N. Kosyakov, academicians of USSR AMS, A. K. Shubladze, corresponding member, and R. M. Shen, doctor of medical sciences, created their own original directions in virology and scientific schools.

The following are presently working at the institute: V. M. Zhdanov and P. N. Kosyakov, academicians of USSR AMS; Professor A. K. Shubladze, corresponding member of USSR AMS; professors S. Ya. Gaydamovich, F. I. Yershov, L. Ya. Zaktsel'skaya, Ye. S. Ketiladze, D. K. L'vov, T. I. Tikhonenko, L. L. Fadeyeva and others.

* * *

Institute of Nutrition (2/14 Ust'inskiy Way, Moscow, 109240; director: Professor A. A. POKROVSKIY, academician of USSR AMS)

The Institute of Physiology of Nutrition was founded in 1920, as part of the State Institute of Public Health; in 1930, it emerged as an independent scientific research institution, the Central Institute of Nutrition, and in 1944 it was made part of the Academy system. Professor M. N. Shaternikov, one of the founders of our country's science of nutrition, a disciple and close coworker of I. M. Sechenov, was the founder and first director (1920-1930). In subsequent years, the following were directors of this institute: B. I. Zbarskiy, academician of USSR AMS; S. Ye. Severin, academician of USSR AS and AMS; O. P. Molchanova, corresponding member of USSR AMS. A. A. Pokrovskiy, academician of USSR AMS, has headed the institute since 1961.



Therapeutic nutrition clinic



Staff of laboratory of technology developing new foods for infants and dietetic nutrition

The institute is comprised of 9 sections with 30 laboratories and a 120-bed clinic. It employs 185 scientists, including 25 doctors and 132 candidates of sciences.

This institute is the principal scientific research and scientific methodological center dealing with development of theoretical bases of the science of nutrition, hygiene of nutrition, dietetics, preventive diet, as well as development of methods of research in the field of nutrition.

The institute performs the duties of principal institution dealing with the problem of national importance, "Nutrition for Healthy and Sick People."

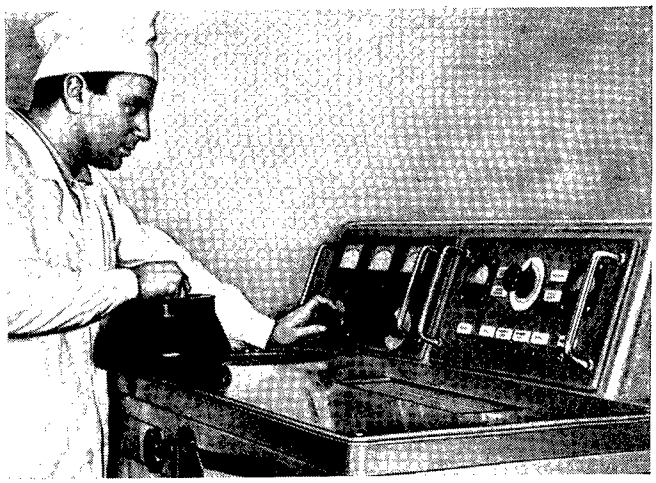
Scientific research is pursued at the institute in three main directions: theoretical research (referable to the whole organism, on the organic, cellular, subcellular and molecular levels) to determine the importance of various essential substances to vital activity of the organism, demonstration of the laws of assimilation of food and substantiation of the conception of balanced nutrition; development of effective diets, on the basis of pathogenetic mechanisms of disease, to be used in comprehensive therapy of a number of chronic diseases of the cardiovascular and digestive systems, and metabolic pathology; search for ways and means of protecting foodstuffs from possible contamination and admixtures in order to work out recommendations on disease prevention.

The institute spends much of its time on research to determine optimum requirements of children in different age groups, with regard to energy and different food items, and physiobiological substantiation of specifications for children's food items; systematic investigation of chemical composition of domestic food items; toxicohygienic studies of food additives, enzyme preparations and other substances used in the food industry, as well as hormone products and pesticides used in agriculture.

As a result of many years of research, one of the most important prerequisites for assimilation of food was established: consistency between enzymatic constellations of the organism and chemical structures of food. A study of correlation between enzyme and isozyme constellations of cells and subcellular structures and state of biological membranes, on the one hand, and qualitative composition of food, on the other, revealed that, not only the fatty acid composition of membranes, but functional state of the oxidizing conveyer of mitochondria constitute a fine indicator of the correlation between vital activity and quality of nutrition.

An optimum formula of balanced diet and "Recommended Food and Energy Requirements" were offered on the basis of the conception of balanced diet being developed at the institute. These requirement levels (so-called dietary norms) have been approved by the USSR Ministry of Health.

Joint expeditions have been made to several parts of our country, and a comprehensive method, developed by the institute, was used to investigate the correlation between diet and health of the people.



Isolation of subcellular structures using the method of differential centrifuging



Working with KCP-4 potentiometer

Several original infant food items have been developed, maternal milk substitutes (Malysh and Malyutka formulas), new types of bread, mixed cereals, confectionery [or pastry], specialized items for children and dietetic food; the formulas and technology have been developed for a new protein and mineral supplement with high biological value and several qualities that make it useful in therapeutic nutrition.

Investigation of basic possibility and specific means of utilizing proteins of unicellular organisms revealed some important data on processes of assimilation by the animal organism of various types of yeast and unicellular algae, their biological properties, including systemically toxic, carcinogenic, teratogenic and mutagenic effects, and routes of metabolism in the animal organism. The USSR State Prize and Prize of the USSR Council of Ministers were awarded in 1971 for many years of research on biomedical evaluation of proteins of unicellular organisms.

In the field of therapeutic diet, effective diets have been developed, with due consideration of special pathogenetic mechanisms, and they are recommended for patients with atherosclerosis, rheumatism, peptic ulcer, gastritis, chronic enteritis, pathology of the liver and biliary tract, obesity and a number of other diseases. These diets are widely used in combined therapy at therapeutic and prophylactic institutions of our country.

The distinctions of effects on the organism of chemicals in the organic chlorine and organic phosphorus group and carbamine compounds have been established; regulations have been defined for the use of such compounds in agriculture, and the USSR Ministry of Health refers to them in setting up requirements dealing with control of pesticide use in agriculture.

An ultramicrosystem of biochemical analysis was developed, which permits the performance of a wide set of tests on microquantities of biological material. Sets of reagents have been developed and prepared for serial production; they are used to determine the activity of several digestive enzymes in accordance with original techniques. Over 30 new methods have been developed for toxicological and hygienic studies. They include an express method for demonstrating microquantities of organophosphorus pesticides in water, air and foods, which is convenient to use in the field; a method of demonstrating aflatoxin intended for wide use by sanitary and epidemiological stations.

In the last few years alone, about 100 of the suggestions offered by the institute have been adopted in practice; in 1970-1974, its staff received about 30 author certificates.

Training of scientific personnel takes up a considerable place in the work of the institute. More than 500 specialists underwent on-the-job training in 1970-1974.

The results of research conducted in recent times were reflected in numerous publications in the periodic press, several major monographs, textbooks and guides.

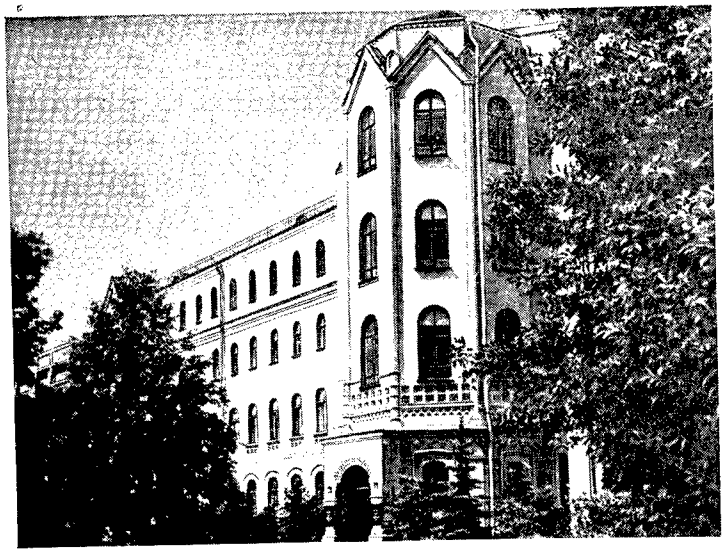
The institute has held 17 scientific sessions, with the participation of representatives of institutes of nutrition of socialist countries, and the All-Union Scientific Conference on "Biochemical Adaptation."

The institute maintains permanent contact with and participates in the work of several international alliances and organizations. In 1971, there was a meeting at the institute of a working group dealing with unicellular proteins of the Consultant Group for Protein (PAG) in the system of the UN, with the participation of specialists from England, France, the United States, Japan, FRG and several other countries. Scientific collaboration is being expanded between the institute and several foreign countries, within the framework of CEMA; joint studies are being pursued on different topics, as well as exchange of scientific information and research by agreement with WHO.

The following have made a considerable contribution to development of Soviet science on nutrition: B. A. Lavrov and B. I. Zbarskiy, academicians of USSR AMS; S. Ye. Severin, academician of USSR AS and AMS; O. P. Molchanova, corresponding member of USSR AMS; professors F. Ye. Budagyan, O. L. Gordon, D. I. Lobanov, M. I. Pevzner, L. A. Cherkes, V. V. Yefremov and others.

The following are presently working at the institute: A. A. Pokrovskiy, academician of USSR AMS; M. A. Samsonov, corresponding member of USSR AMS; professors G. K. Shlygin, A. I. Shtenberg and others.

* * *



Building of Institute of General and Municipal Hygiene

Institute of General and Municipal Hygiene imeni A. N. Sysin (10 Pogodinskaya Street, Moscow, 119117; director: Professor G. I. SIDORENKO, academician of USSR AMS)

This institute was founded in 1919 in the system of the State Institute of Public Health; in 1931, it was converted into an independent scientific research institution, the Central Institute of Municipal Sanitation and Hygiene, which has been under the jurisdiction of the Academy since 1944, when it was given its present name. The outstanding scientist-hygienist and public health organizer, Professor A. N. Sysin, academician of USSR AMS and Honored Scientist, whose name was adopted by the institute in 1958, was its founder and first director (1919-1956). The institute was then headed by major specialists in the field of sanitation and hygiene: Professor N. N. Litvinov (1956-1962), corresponding member of USSR AMS; Professor V. A. Ryazanov, academician of USSR AMS (1962-1964).

The institute is comprised of 5 scientific sections and 21 laboratories, 7 of which are independent. The sections are: hygiene of atmospheric air, with laboratories; hygiene of atmospheric air and sanitary toxicology; hygiene of water and sanitary protection of reservoirs, with laboratories of hygiene of drinking water, hygiene of desalinated water, toxicology of water and sanitary protection of reservoirs; hygiene of residential and public buildings, with laboratories of hygiene of residential and public buildings, therapeutic and prophylactic buildings, radiant energy; hygiene and toxicology of household chemicals, with two laboratories; sanitary microbiology, with laboratories of sanitary bacteriology, pathogenic enterobacteria, sanitary virology and others. The independent laboratories deal with the following work: hygiene of urban planning, soil hygiene, physiology, biochemistry, morphology, physicochemical and radiological methods and scientific expert certification and consultations.

The institute employs 184 scientists, 14 doctors and 108 candidates of sciences.

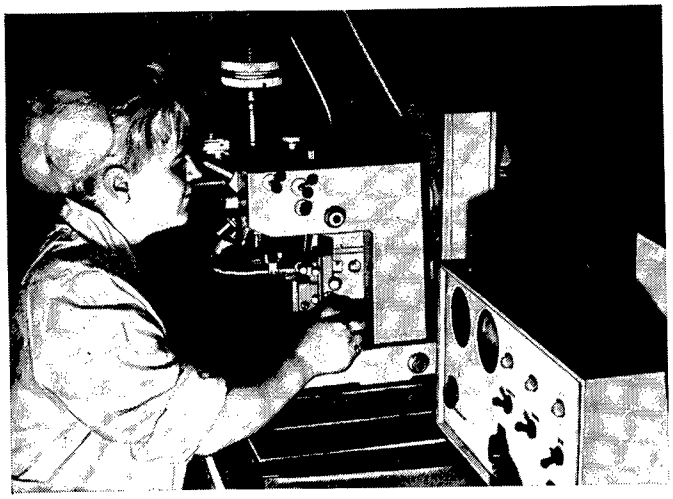
This institute is the scientific research and scientific-methodological center of our country in the field of environmental hygiene. It performs the duties of principal institution dealing with the problem of national importance, "Scientific Bases of Environmental Hygiene." Since 1972, the institute has been the coordination center for CEMA member nations dealing with the problem of "Hygienic Aspects of Environmental Protection," as well as the head institution dealing with the same problem within the framework of collaboration between the USSR and the United States. In 1974, the institute was appointed the head organization in the field of environmental hygiene, for collaboration of hygienic institutions of the USSR with foreign countries and international organizations.

The research activity of the institute is concentrated on pressing problems of providing optimum hygienic conditions for the public. Studies are being pursued in the following directions: development of theoretical and methodological bases of general and municipal hygiene; scientific substantiation of hygienic standards and criteria for evaluating the biological effects of

various environmental factors on man and recommendations for sanitary protection of populated areas in our country; hygienic evaluation of the effects on living conditions and health of environmental factors (chemical, physical, biological), as well as planning and quality of civic improvements in populated centers, residential buildings, public and hospital buildings; scientific substantiation and development of State ameliorative measures to assure optimum living conditions for the public; upgrading existing methods of studying the environment and biological objects and developing new methods; evaluation of efficacy of ameliorative measures.



Testing human behavioral reactions



Testing the gonadotropic efffect of chemicals by the method of fluorescence microscopy

Among the comprehensive theoretical and methodological investigations, in recent years special attention has been given to development of a unified theory of setting hygienic standards with regard to chemicals in the environment, trace element levels in drinking water, with due consideration of separate, combined and complex intake of trace elements.

Research has been deployed, since 1970, to develop various means, by the method of hygienic evaluation, of desalinating sea water and highly mineralized subterranean water, as well as criteria for hygienic evaluation of the quality of desalinated water.

As a result of many years of basic research, the hygienic principles have been defined with regard to planning, construction and civic improvements in cities in various landforms and climates of our country, and they served as the basis for construction legislation. Differentiated hygienic standards referable to microclimate, lighting and ultraviolet factors have been adopted for residential and public buildings in different climate zones of the USSR. Measures have been proposed for sanitary protection of atmospheric air in populated areas, and they served as the basis for sanitary legislation in this field. A sanitary classification of industrial enterprises has been developed, with indication of minimum zones of sanitary protection between them and residential blocks, with due consideration of the increasing size of enterprises, organization of industrial complexes and modern technology of treatment of industrial waste to remove chemicals that are deleterious to health.

The findings of studies dealing with biological effects and influence of deleterious substances in reservoir water on sanitary conditions of public water consumption, as well as of the sanitary condition of our country's water resources, have been reflected in legislation dealing with water sanitation, in the form of hygienic standards of maximum permissible levels of industrial pollutants in reservoir water. Methods have been refined for forecasting maximum permissible concentration of pollutants in atmospheric air and water. Hygienic requirements and conditions for utilization of sewage and waste from some industries for irrigation have been developed, and are now reflected in sanitary legislation.

New patterns have been demonstrated in processes of vital activity of pathogenic bacteria and viruses in the environment. More sensitive and faster methods have been adopted to label microorganisms in environmental objects: pathogenic enterobacteria and enteroviruses in water varying in degree of pollution; influenza virus and adenoviruses in air of hospitals; yeast-like fungi in air and on surfaces, etc. A sanitary and virological assessment has been made of efficacy of methods of purifying and decontaminating drinking water, sewage and sediments thereof with regard to enteroviruses.

It was shown that the microorganism, Bdellovibrio bacteriovorus, can be used to accelerate self-purification processes in natural waters, with regard to pathogenic microflora.

Existing methodological approaches and criteria for in-depth hygienic evaluation of products made of polymers, used in construction and the manufacture of clothing and shoes, have been refined, and new ones developed. On their basis, the hygienic characteristics have been provided for many polymers, and hygienic requirements pertaining to them have been developed, now reflected in sanitary legislation.

The results of research done at the institute are reflected in numerous instructions, rules, methodological instructions and recommendations on setting hygienic standards. The principal hygienic standards have been included in Construction Norms and Regulations, State Standards [GOST], All-Union Standards, sanitary legislation and other State documents. The institute has published 46 monographs, more than 60 collections of Institute Works, 20 multivolume textbooks, manuals and guides dealing with municipal hygiene; more than 5,500 scientific papers have been published in the periodic press.

V. A. Ryazanov, academician of USSR AMS, was awarded the academic F. F. Erisman Prize for his research in the field of sanitary protection of atmospheric air in populated areas (1960).

Many of the scientific works of the institute have been displayed at All-Union and international exhibitions, and were awarded certificates. Several of the staff members have received silver and bronze medals of the Exhibition of Achievements of the National Economy of USSR.

In the last 5 years alone (1970-1974), more than 160 specialists from various institutions in our country underwent on-the-job advanced training at the institute.

There are specialists in general and municipal hygiene working at the institute: G. I. Sidorenko, academician of USSR AMS, professors N. M. Dantsig, Ye. I. Korenevskaya and others.

* * *



Institute of Industrial Hygiene and Occupational Diseases

Institute of Industrial Hygiene and Occupational Diseases (31 Budennyy Avenue, Moscow, 105275; director: N. F. IZMEROV, doctor of medical sciences)

The Moscow Institute for the Study of Occupational Diseases imeni V. A. Obukh was founded in 1923. After merging with the Institute of Labor and Industrial Sanitation in 1936, it was renamed the Central Scientific Research Institute of Industrial Hygiene and Occupational Diseases imeni V. A. Obukh, under the RSFSR Narkomzdrav. The institute became part of the Academy system in 1944, as the Scientific Research Institute of Industrial Hygiene and Occupational Diseases. L. S. Bogolepova was the founder and first director of the institute. Subsequently, the instituted was headed by G. A. Arnautov and A. A. Letavet, academician of USSR AMS.

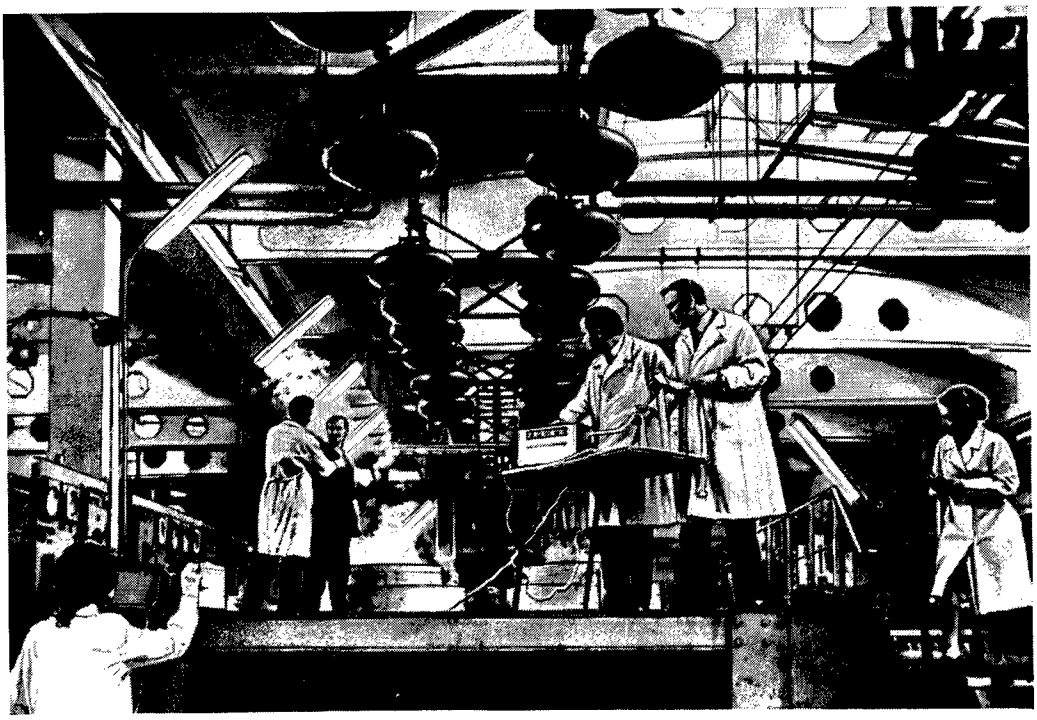
The institute is comprised of three sections and 17 laboratories; there is a 150-bed clinical department. The institute employes 36 doctors (16 of whom are professors) and 162 candidates of sciences.

This institute is the chief institution dealing with the problem of national importance, "Scientific Bases of Industrial Hygiene and Occupational Pathology."

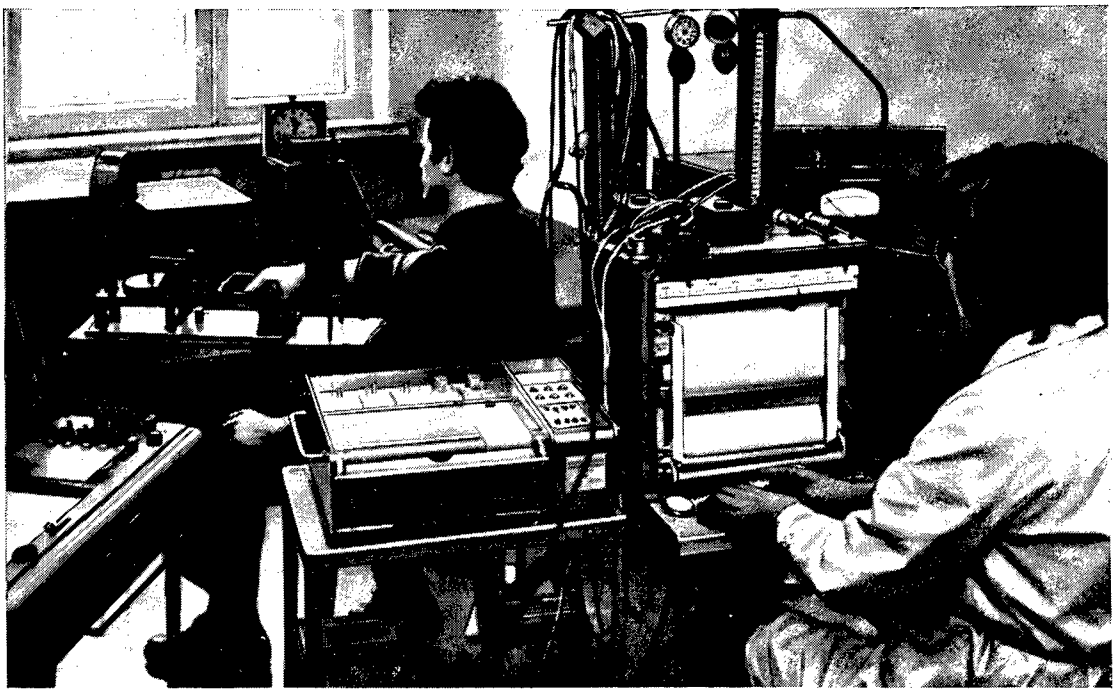
The following are the main directions of activity at this institute: development of problems of industrial hygiene in the main branches of industry (chemical, mining, coal, metallurgical, machine-building, electronics, etc.); investigation of symptomatology of occupational diseases; development of methods of early detection thereof, specific therapy, expert certification of fitness for work and medical rehabilitation in cases of occupational diseases induced by chemicals, dust, physical factors, unrational organization of work processes; development of problems of industrial toxicology, including the study of toxicity of new industrial chemicals, in order to set maximum permissible concentrations thereof in the air of work areas, as well as demonstrate the correlation between chemical structure of substances and their toxicity (including substances with long-term effects); development of methods of predicting toxicity, demonstration of correlation between toxicity and exposure conditions, determination of boundaries between stages of actual physiological adaptation and compensation of a pathological process; investigation of the effects on the organism of physical factors of the industrial environment, microclimate, noise and vibration, ionizing radiations, electromagnetic waves (radio-frequency), and development of preventive measures against them; development of data pertaining to sanitary legislation in the field of industrial hygiene (maximum permissible concentrations and levels of industrial factors, GOST's, sanitary rules, specifications, etc.).

In the years of its activity, the institute has developed and adopted in practice measures for industrial hygiene, prevention and treatment of occupational diseases, etc. The methodological bases have been worked out for setting hygienic standards for deleterious factors of the industrial environment, with due consideration of long-term sequelae of exposure.

A system of dustproofing measures has been proposed for the mining industry. It was confirmed experimentally that silicon dioxide plays the leading role and certain chemicals are significant in collagen production with development



Study of working conditions on the continuous-flow automatic line for vulcanization of automobile tires



Testing muscular efficiency

of the pneumoconiotic process. A classification has been proposed for the main types of pneumoconiosis. There has been development of problems of pathogenesis, symptomatology, diagnostics and therapy of pneumoconiosis and dust-induced bronchitis.

A direct link was established between impaired dynamics of nerve processes when the organism is exposed to noise and onset of diseases of occupational etiology. Theory of energetic effects of vibration on the body has been developed, and physical criteria have been substantiated for setting hygienic standards of vibration.

A conception was created on qualitative differences between the effects on the organism of radiant and convection heat, which made it possible to develop research on radiation and convection heat exchange between man and the environment. The mechanisms of action of electromagnetic radiowaves of low intensity on different organs and systems have been identified. The symptomatology of chronic exposure to radio-frequencies has been developed, and methods of treating wave sickness have been substantiated.

Physiological criteria have been substantiated for assessing the difficulty ["heaviness"] and intensity of work; a classification has been devised for conveyor types of labor; suggestions have been prepared on organization of work rhythm and pace, measures to control monotony, rational organization of work places, etc.

It was established that the dosage and primary irritant effect of chemical allergen affect the pathogenesis of contact allergic dermatitis; the role of each ingredient of complex allergenic compositions, as well as auto- and bacterial allergens has been established.

The general patterns and distinctions of changes in neurohumoral regulation have been defined, in particular with reference to the hypothalamus--hypophysis--adrenal cortex system, at different stages of occupational disease of the nervous system. The symptomatology of diencephalic lesions in the presence of intoxication has been defined.

The main methodological approaches have been spelled out, with respect to investigation of the effects on the organism of small doses of radioactive substances in chronic experiments; the patterns of metabolism thereof in the organism have been established; the blastomogenic action of ruthenium-106, ferric oxide-59 and certain other radioactive substances, as well as high-energy protons.

The institute has developed and regularly supplements the main sanitary legislative document, "Sanitary Norms and Rules for Designing Industrial Enterprises"; about 30 sanitary rules have been approved for different industries; more than 100 maximum permissible concentrations have been substantiated for chemicals, maximum permissible levels of physical factors, and GOST for permissible noise and vibration levels.

The institute's staff has published over 30 monographs in the last few years dealing with the most important areas of industrial hygiene and occupational pathology, a three-volume manual on industrial hygiene, a manual on occupational diseases, manual on industrial hygiene in the chemical industry. Collections of Institute Works are published regularly; they deal with problems of industrial toxicology and toxicology of radioactive substances.

The Lenin Prize was awarded to A. A. Letavet, academician of USSR AMS, and Professor A. K. Gus'kova for outstanding research in the field of industrial hygiene and occupational pathology. Ye. I. Vorontsova, corresponding member of USSR AMS, was awarded the USSR State Prize for radical amelioration of working conditions and increasing the productivity of labor referable to welding of rutile-coated electrodes. Professor Ye. V. Khukhrina and V. V. Tkachev, candidate of engineering sciences, were awarded the academic F. F. Erisman Prize in 1970, for their monograph, "Pneumoconiosis and Prevention Thereof." In the years of its participation in the Exhibition of Achievements of the National Economy of USSR, the institute has received first and third class certificates. Many of the staff members of the institute have received medals of the Exhibition of Achievements of the National Economy of USSR. An honorary certificate was awarded for participating in the international "Public Health 1974" exhibition.

All-Union congresses, conferences and symposiums are regularly organized by the institute to deal with the most important directions of industrial hygiene and physiology, and occupational pathology. Its facilities are used for seminars and meetings of working groups of the World Labor Organization that deal with problems of setting hygienic standards, methods used in industrial hygiene and toxicology. The scientists of the institute are WHO experts; they participate in international and national congresses and conferences.

Some famous hygienists, specialists in occupational pathology and toxicologists have worked at the institute: A. A. Letavet and L. K. Khotsyanov, academicians of USSR AMS; K. P. Molokanov, corresponding member of USSR AMS; professors B. I. Martsinovskiy and N. S. Pravdin.

At the present time, the following are working at the institute: Ye. I. Vorontsova, corresponding member of USSR AMS; professors N. M. Konchalovskaya and V. V. Sokolov; N. F. Izmerov, doctor of medical sciences, and others.

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Institute of Poliomyelitis and Viral Encephalitis (27th km of Kiev Road, Institute of Poliomyelitis Post Office, Moscow Oblast, 142782; director: Professor S. G. DROZDOV)

This institute (called the Institute for the Study of Poliomyelitis up to 1960) was founded in the Academy system in 1955, in the facilities of the laboratory of poliomyelitis and endemic viral fevers, organized in 1942, under the Institute of Virology imeni D. I. Ivanovskiy. M. P. Chumakov, academician of USSR AMS, was its founder and first director (1955-1972).

This institute is a large and comprehensive scientific research institution where 1 academician of USSR AMS, 1 corresponding member of USSR AMS, 35 doctors (including 8 professors) and 95 candidates of sciences are at work.

The institute is comprised of 4 sections with 24 laboratories and a 100-bed clinical department for patients with viral diseases (within the specialty of the institute).

The institute is a large scientific research and scientific-methodological center of our country, dealing with control of such serious viral diseases as polio, encephalitis, hemorrhagic fever and rabies. It performs the duties of chief institution working on the problem of national importance, "Viral Encephalitis, Poliomyelitis and Other Enteroviral Infections." The institute conducts its research in conjunction with several scientific research institutions of socialist countries, as well as (through WHO) with similarly specialized laboratories and institutes of a number of capitalistic countries. Three cooperative reference and scientific centers of WHO are based here and headed by prominent scientists of this institute: M. P. Chumakov, academician of USSR AMS, for arboviruses; M. K. Voroshilova, corresponding member of USSR AMS, for enteroviruses, and Professor M. A. Selimov, for rabies.

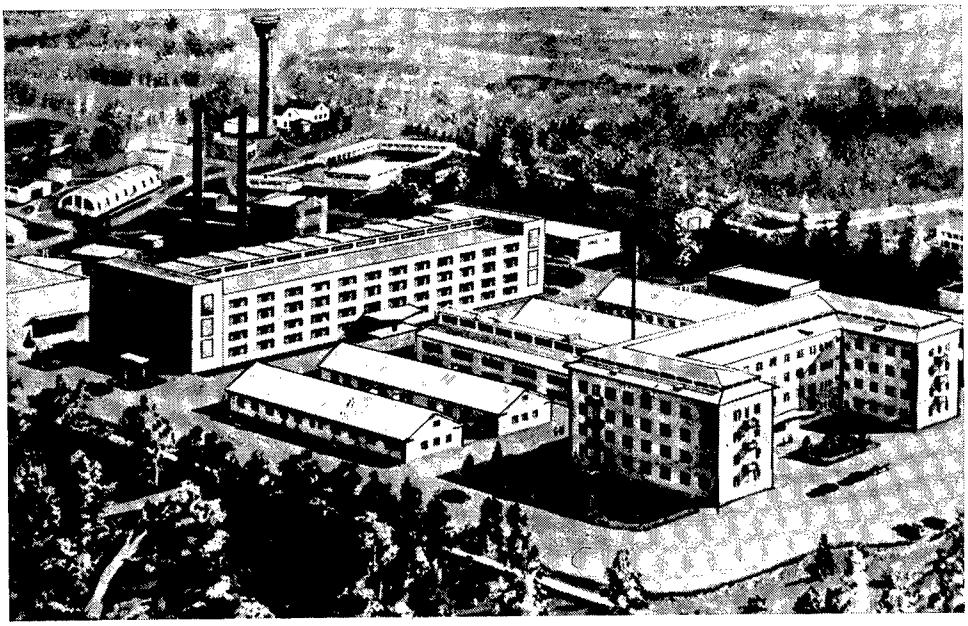
The research activities of the institute are concentrated on studies in the following main directions: viral infectious diseases of children; viral encephalitis, rabies and hemorrhagic fever (arboviruses, rhaboviruses, adenoviruses, new unclassified viruses); investigation of physiology, morphology, biochemistry and genetics of pathogens, immunity and pathogenesis, epidemiology and symptomatology; studies on general virology. Much space is devoted to development and trial of more refined preventive, therapeutic and diagnostic measures to control viral diseases.

On the basis of fundamental research on etiology, immunology, epidemiology, diagnostics and symptomatology of polio, a new technology has been developed for large-scale production of live polio vaccine; regular output of this product has been set up on a scale that makes it possible to administer, for the first time in the world, extensive immunization of children against polio, in the Soviet Union and 40 countries of Europe, Asia, Africa and South America. This has resulted in eradicating epidemic outbreaks of polio, and it has sharply lowered the incidence thereof in the USSR and several other countries to isolated cases. Many disciplines of M. P. Chumakov, academician of USSR AMS, were involved in the research, as well as development of technology for large-scale production of polio vaccine: M. K. Voroshilova, corresponding member of USSR AMS; professors S. G. Dzagurov, S. G. Drozdov, V. A. Lashkevich, B. F. Semenov and others.

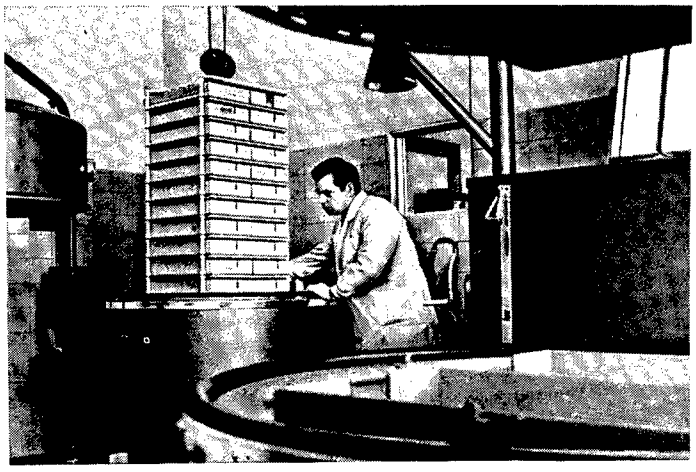
New data have been obtained from a study of numerous types of enteroviruses that circulate in the USSR. Attenuated variants of some of them are being cultivated for use as live vaccines.

A system of preventive measures has been developed to control tick-borne encephalitis and certain other arboviral (transmitted by ticks and mosquitoes)

diseases. A new technology was developed for the production of formalin-killed culture vaccine against tick-borne encephalitis, and regular production of this product has been organized.



Complex of buildings of Institute of Poliomyelitis and Viral Encephalitis



Desiccation of vaccine in production department

New methods of laboratory diagnostics of tick-borne encephalitis have been refined and tested; they are based on isolation and identification of viruses in tissue cultures, use of immunofluorescence and other procedures; this has broadened appreciably etiological diagnostics of viral encephalitis in our country and abroad.

Some viral infections, new to the USSR, that are not infrequently concomitant with tick-borne encephalitis (Kemerovo) and the new tick-borne viruses, Astra-Dkhori and Bhanja, have been isolated and submitted to comprehensive investigation.

In the field of study of viral hemorrhagic fevers, questions of etiology, diagnostics, prevention and therapy of Crimean hemorrhagic fever have been developed the most thoroughly. Studies are in progress of the significance of several strains of viruses, isolated from natural carriers of HFRS infection [hemorrhagic fever with renal syndrome] (common redbacked vole, striped field mouse) or from the blood of sick humans, in etiology of HFRS.

A new, updated Soviet, inactivated therapeutic and preventive culture vaccine against rabies has been developed. After extensive trial, it is being gradually adopted in public health practice. For several years, it has been successfully used in veterinary institutions of the USSR and some socialist countries (GDR, Czechoslovakia).

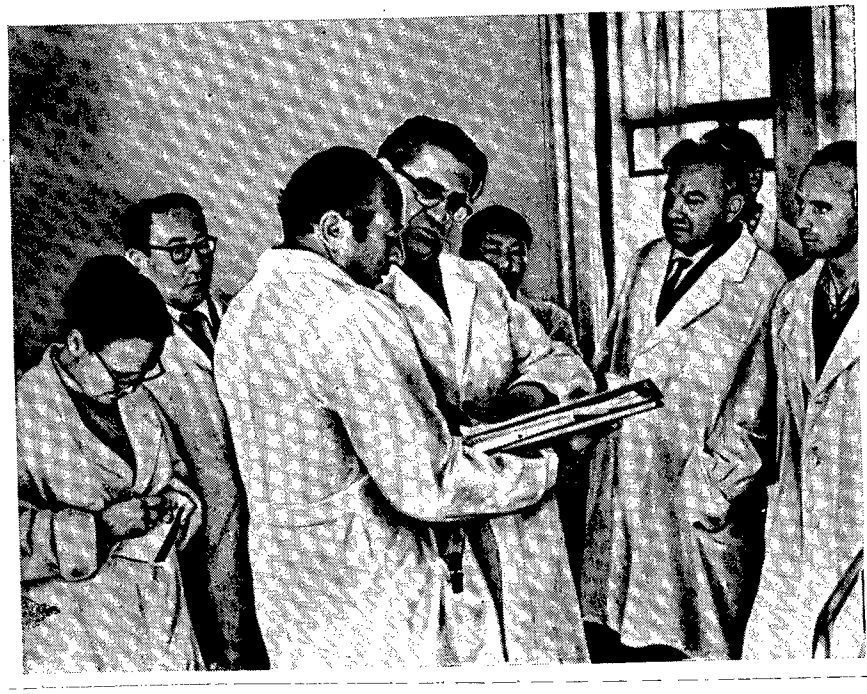
As a result of original research on biochemistry, physiology, morphology and genetics of viruses, the interferon system and searching for new antiviral chemopreparations, some new types of interaction between virus and cell have been discovered; circular molecules of replicative RNA have been discovered in encephalomyocarditis virus; the mechanism of reproduction of some picornaviruses and others has been defined.

The results of research and practical projects of the institute's scientists are covered extensively in monographs, numerous publications in the scientific periodic press, methodological instructions and Institute Works that are published in the form of collections dealing with specific topics; 5 monographs, 10 volumes of Institute Works and 26 other editions have been published.

In the period of its existence, the institute organized 17 All-Union conferences dealing with pressing problems of general and medical virology, with the participation of prominent Soviet specialists in viral infections, as well as foreign scientists.

The work of scientists at this institute have been given a high rating. M. P. Chumakov, academician of USSR AMS, who supervised the research, along with A. A. Smorodintsev, academician of USSR AMS, received the Lenin Prize for achievements in the field of control of polio (1963). The Estonian State Prize was awarded to Professor S. G. Drozdov (1965). The institute was awarded a certificate of honor by the Exhibition of Achievements of the National Economy of USSR for successful development of a new encephalitis vaccine; medals were awarded to seven staff members (A. V. Gagarina, doctor of medical sciences, I. M. Rodi and others)(1965). Gold and silver medals of the

Exhibition of Achievements of the National Economy of USSR were awarded to 12 staff members. Various awards have been bestowed by GDR, Czechoslovakia, Hungary and other countries.



Institute scientists, headed by M. P. Chumakov, academician of USSR AMS, at the Yakutskaya Oblast Hospital



Automatic line for decanting prepared vaccine

A significant place in the institute's activities is taken by training of scientific personnel. Trainees from virological institutions of the USSR and other countries undergo on-the-job training here each year.

In the 20 years of its existence, the institute developed a major scientific school under the guidance of M. P. Chumakov, academician of USSR AMS. The works of scientists of this school in the field of medical virology and prophylaxis mainly of neuroviral diseases are well-known in our country and abroad.

Prominent scientists are now working at this institute: M. P. Chumakov, academician of USSR AMS; M. K. Voroshilova, corresponding member of USSR AMS; professors V. I. Agol, S. G. Drozdov, Ye. N. Levkovich, M. A. Selimov, B. G. Grukhmanov and others.

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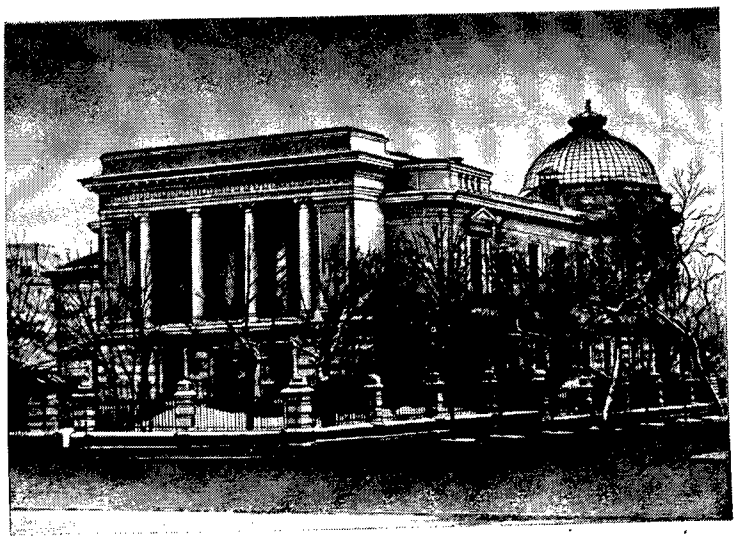
Institute of Research on New Antibiotics (11 Bol'shaya Pirogovskaya, Moscow, 119021; Director: Profesor G. F. GAUZE, academician of USSR AMS)

This institute was founded in 1953 in the facilities of the laboratory of antibiotics in Moscow.

The institute is comprised of three sections and nine laboratories: section of microbiology with laboratories of research on antibiotic producers, cultivation of such producers, breeding thereof and biosynthesis of antibiotics; section of chemistry with laboratories for isolation and chemical investigation of antibiotics, and laboratory for determination of their chemical structure; section of chemotherapy with laboratories of experimental chemotherapy and pharmacology. An experimental installation was opened (on the order of an experimental plant) that produces new antibiotics in sufficient quantities for comprehensive experimental and clinical investigation.

This institute performs the duties of principal institution dealing with the problem of national importance, "Antibiotics and Other Biologically Active Substances of Natural Origin."

The research done at the institute is developing in the following directions: theoretical research in the field of classification of antibiotic producers; investigation of mechanisms of action of new antibiotics on the molecular level; development of new methods of selecting antibiotics with antineoplastic, antibacterial and antiviral action and development of special models for this purpose; early identification of new antibiotics according to chemical indices; physicochemical investigation of new antibiotics and development of methods of isolating them; determination of the chemical structure of new antibiotics; investigation of chemotherapeutic properties and development of new models to assess the chemotherapeutic activity of new antibiotics; investigation of pharmacological properties of new antibiotics; investigation of histopathological effects of new antibiotics, and problems related to their side-effects on the macroorganism.



Institute of Research on New Antibiotics

As a result of the research conducted at this institute, several new antibiotics were developed and adopted in medical practice; we refer to the following: antibacterial antibiotics: gramidicin S, colimycin (neomycin), monomycin, ristomycin, kanamycin, lincomycin and heliomycin; antineoplastic antibiotics: olivomycin, bruneomycin and rubomycin. These antibiotics are widely used in the treatment of bacterial infections and malignant tumors. A new, original, antibioplastic antibiotic was developed, which is presently being studied successfully in clinics, in the treatment of a number of malignant neoplasms.

The USSR State Prize was awarded to G. F. Gauze, academician of USSR AMS, and Professor M. G. Brazhnikova for developing the new antibacterial antibiotic, gramicidin S (1946). First class certificates and gold medals of the Exhibition of Achievements of the National Economy of USSR were awarded to the institute for work dealing with development and adoption in medical practice of the following new antibiotics: monomycin, ristomycin, lincomycin, heliomycin, olivomycin, bruneomycin and rubomycin.

The institute's scientists have published several major works and monographs on problems of searching for and biosynthesizing new antibiotics, and clinical use thereof.

Conferences and symposiums, including the International Symposium on "Ways and Means of Finding Antineoplastic Antibiotics," conferences on experimental and clinical research on new antibacterial and antineoplastic antibiotics developed at this institute and others have been organized by the institute for the purpose of coordination of research in the field of new antibiotics conducted in the USSR and other socialist countries.

The following scientists are presently working at the institute: G. F. Gauze, academician of USSR AMS; professors M. G. Brazhnikova and V. A. Shorin; L. Ye. Gol'dberg, L. P. Ivanitskaya, N. N. Lomakina and T. P. Preobrazhenskaya, doctors of sciences; and others.

* * *

Laboratory of Experimental Immunobiology (8 Baltiyskaya Street, Moscow, 125315; director: Professor N. N. ZHUKOV-VEREZHNIKOV, academician of USSR AMS)

This laboratory was organized in 1948, as part of the Institute of Experimental Biology; and in 1970, it was converted into an independent scientific research institution of the Academy; N. N. Zhukov-Verezhnikov, academician of USSR AMS, is its founder.

The laboratory is comprised of nine independent scientific teams. It employs 78 scientists, including 11 doctors (5 of whom are professors) and 30 candidates of sciences.

The main direction of work done in this laboratory is research on the immunological and genetic bases of specific interaction between infectious and noninfectious antigens and cells and tissue of the organism under normal and pathological conditions. One of the main tasks is to study mild and heterogeneous antigens and their role in development of immunological interactions, including immunobiological processes that develop in the organism under the influence of mild transplantation and cancer antigens that "imitate" bacterial antigens, as well as antigens represented in cells and tissues of the organism in infinitesimal quantities.

In the 20 years of scientific work of this laboratory, the staff developed several new directions in experimental immunology: experimental modeling of genetic anomalies on different levels of biological organization; immunobiology of neoplastic pathology; immunology of incompatibility in organ and tissue transplantation; immunology of intercellular interactions; immunology of embryogenesis; space microbiology and cytology, with genetics of bacteria.

Studies of the nature of primary molecular genetic defects, upon which hereditary diseases and hereditary immunopathology are based, demonstrated the antigenicity and immunological distinctions of DNA isolated from tissues of normal and leukemic animals; it was found that leukemic tissue DNA is immunologically specific with reference to some forms of leukemia of cows (myeloleukemia, lympholeukemia and reticulosis); it was noted that the immunological specificity of tissular DNA of leukemic cows differs from the specificity of DNA of leukemic mice. High titers of antibodies to DNA of autologous luekocytes were demonstrated in patients suffering from various forms of leukemia.

An immunological method was developed for regulating the localization of metastases in experimental mice, from both transferable and induced tumors. For the first time, a direct correlation was demonstrated between hyaluronidase

activity and malignancy of tumors. It was shown that use of antihyaluronidase serum has an inhibitory effect on metastasizing of malignant neoplasms. A study of cellular factors of immunity revealed an immunological reaction of lymphocytes and macrophages to mild tumor antigens in an autologous system. Investigation of the dynamics of development of cellular immunity in the course of chemical carcinogenesis in vivo and in vitro established that there is a decrease in activity of cellular and humoral immunity factors at late stages of tumor development.



In the noninfectious immunology group

Some important data have been obtained on intimate mechanisms of immunological reactions upon which rejection of homotransplants is based. A study of intimate mechanisms of cellular reactions to mild and potent transplantation antigens in vitro established that the cytopathogenic action of lymphocytes on "target" cells includes lymphophagocytosis and allogenic inhibition, which are related to the activity of "target" cells. In animal experiments, it was shown that it is possible to specifically overcome tissular incompatibility of transplants by administering appropriate antigens to the recipient, in conjunction with immunosuppressants. On the basis of the results of these investigations, the survival time of transplants was significantly extended.

A new experimental model was developed of hemolytic disease of neonates, which makes it possible to investigate different aspects of pathogenesis and develop immunological methods of preventing this disease. A new method has

been proposed for preventing isoserological incompatibility in the case of pregnancy with immunological conflict, by means of grafting a skin flap from the father to the mother of the future baby. This method was successfully used for the first time to treat recurrent miscarriages and late toxicosis of pregnancy.

An effective system of biological indication [tagging?] of space flight factors was developed and tested; it is now part of the set of methods used to determine the safety of flights in space satellites and apparatus; an original method of automatic recording of rate of reproduction of microorganisms in weightlessness has been tested. Investigation of immunological properties of human cells in culture and exact identification thereof according to antigenic markers made it possible, for the first time, to use this object with success, along with microorganisms as valuable biological indicators to demonstrate the distinctions of effects of space flight factors on genetic structures.

Investigation of genetic bases of antigenicity of pathogens of infectious diseases is quite important. As a result of immunological investigation of a number of particularly dangerous infections directly in epidemiological sites, it was established that pathogens contain heterogeneous antigens in common with human and animal cells. This permitted formulation of the conception of "antigenic mimicry," a phenomenon that is believed to be one of the causes of increased virulence of a pathogen of infection and poor formation of defense immunological reactions to this infection. The facts obtained are very important to determination of the distinctions of pathogenesis of many infectious diseases, immunological reactions of the organism in the presence of autoimmune states, as well as to refine vaccines.

The laboratory, jointly with other scientific research institutions, developed and successfully used measures of emergency prophylaxis and diagnostics of particularly dangerous infectious diseases, as well as measures to control leprosy.

N. N. Zhukov-Verezhnikov, academician of USSR AMS, was awarded the USSR State Prize (1949) for developing a new method of treating particularly dangerous infections.

The scientists in this laboratory have published more than 1,200 papers, 25 collections and more than 25 monographs. A multivolume "Textbook of Microbiology, Symptomatology and Epidemiology of Infectious Diseases," edited by N. N. Zhukov-Verezhnikov, has been published.

The laboratory trained 47 doctors and 125 candidates of sciences.

The following scientists and specialists in the field of immunology are now working in the laboratory: N. N. Zhukov-Verezhnikov, academician of USSR AMS; professors L. S. Volkova, I. N. Mayskiy, A. P. Pekhov and N. I. Rybakov; N. S. Artem'yeva, V. K. Kozlov, M. S. Lomakin, G. V. Suvorova and K. G. Chamova, doctors of sciences; and others.

SIBERIAN BRANCH OF THE USSR ACADEMY OF MEDICAL SCIENCES (14 Yadrintsevksaya Street, Novosibirsk, 630091; chairman (director): Professor V. P. KAZNACHEYEV, academician of USSR AMS)

The Siberian Branch of the Academy was founded in 1970, in connection with the emerging need to coordinate and make long-term plans for medical and biomedical research conducted by scientific research organizations of Siberia, the Far East and Extreme North, as well as development of problems of local pathology, adaptation and acclimatization of man to eastern and northern parts of our country.

The main directions of work of the Siberan Branch were spelled out by the State Committee for Science and Technology of the USSR Council of Ministers: comprehensive investigation of sociohygienic and biomedical problems that are pressing for Siberia, the Far East and Extreme North, with due consideration of the developing industrial base; investigation of physiological, biological and immunological changes in the organism in the course of adaptation; development of a system of prophylaxis and therapy of acute and chronic diseases of diverse systems of the organism in the course of adaptation; investigation of the distinctive features in the course of acute and chronic childhood diseases, and development of a rational system of prevention and treatment thereof; development of sociohygienic and general hygienic principles of organization of labor and life style, and prevention of occupational diseases in Siberia, the Far East and Extreme North, with due consideration of the proposed development of new branches of industry in the national economy.

The Siberian Branch is manned by academicians and corresponding members of the USSR Academy of Medical Sciences, who are on the staff of its departments in different special fields and work in scientific institutions and medical VUZ's of Siberia, the Far East and Extreme North. At the present time, five academicians and six corresponding members of USSR AMS are working in scientific institutions of these regions of our country.

The Branch is under the jurisdiction of the Presidium of USSR AMS, and it has the standing of an Academy department, in accordance with its charter.

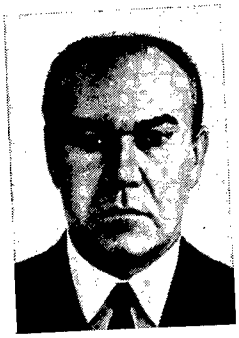
The Branch is comprised of the Institute of Clinical and Experimental Medicine, Institute of Physiology (Novosibirsk), Scientific Research Laboratory

of Polar Medicine (Noril'sk) and the scientific team of V. P. Bisyarina, academician of USSR AMS. The institutions of this branch employ 200 scientists, including 5 academicians and 6 corresponding members of USSR AMS, 21 doctors and 75 candidates of sciences.

The Office of the Siberian Branch is in charge of the branch's activities; it consists of a chairman, three deputy chairmen and Office members. The heads of scientific coordination commissions are elected to work in the Office on a voluntary basis. The Office staff for this branch elected in 1973 included prominent medical scientists of Siberia, who were actively involved in founding the Siberian Branch of the Academy: V. P. Kaznacheyev (director of the Branch) and I. V. Toroptsev, academicians of USSR AMS; D. K. Belyayev, academician of the USSR AS [Academy of Sciences], and others.



V. P. KAZNACHEYEV, academician of USSR AMS



M. A. SOBAKIN, corresponding member of USSR AMS



K. R. SEDOV, corresponding member of USSR AMS



N. R. DERYAPA, corresponding member of USSR AMS

Offfice of Siberian Branch of USSR Academy of Medical Sciences

In 1972, the Siberian Branch was charged with development of a biomedical program, planning, coordination and general supervision of implementation of projects in the "Adaptation of Man" program, as well as development of long-term biomedical and sociohygienic forecasts of development of Siberia, the Far East and Extreme North up to 1990-2000.

The scientific council of the Siberian Branch was established for operational handling of problems of coordination and planning of scientific research in the eastern parts of our country; in addition to members of the Branch Office, it is comprised of prominent scientists and organizers of biomedical science in Siberia and the Far East, who represent scientific research and educational institutes of the RSFSR Ministry of Health, Siberian Department of USSR AS and other agencies.

The Branch and its subdivisions concentrate on "Physiology and Pathology of Mechanisms of Man's Adaptation to Various Climatogeographic and Industrial Regions of Siberia, the Far East and Extreme North," a problem of All-Union [national] importance. The Branch also performs the duties of the principal organization in the area of scientific ties with foreign countries in connection with biomedical problems of reclaiming the Arctic and Antarctic regions.

There are 13 scientific coordination councils, organized under the Branch Office, that implement general scientific supervision and scientific-methodological assistance with regard to research conducted by the scientific research institutions in the eastern part of our country, which deals with the most pressing medical and biomedical problems for these areas. There are five interdepartmental problem laboratories that operate within the framework of these councils on a voluntary basis. A permanent joint scientific expedition was organized in this branch to study processes of human adaptation to Polar and high-altitude regions.

Work pertaining to development of the second section of the network of its scientific institutions takes up a large place in the Branch's activities: Institute of Combined Problems of Industrial Hygiene and Occupational Diseases (Kemerovo), Institute of Medical Problems of the North (Krasnoyarsk), Primatology Center of USSR AMS (Novosibirsk). This network of institutions is being developed to implement the main directions of research approved by the Board of the USSR Ministry of Health for the Branch in 1976-1990: industrial hygiene and occupational diseases, environmental hygiene, problems of nutrition, pediatrics, immunoallergology, pulmonology and regional pathology.

In a relatively short period of time the regular and nonstaff scientific divisions of this branch have made a significant contribution to preparation of plans for basic research on sociohygienic and biomedical problems, and to fulfilment of tasks aiding in intensified development of public health in the eastern part of our country. The scientists here have developed a model of a comprehensive scientific program on the problem of "Human Adaptation," as well as subprograms for the problems, "The North," "Work Shift"

["guard duty"], "The City," "The Economic Region," "Antarctica," "Man and the Ocean," "High Altitudes," "Arid Zone," etc. The program, "Human Adaptation," which was well rated by the Presidium of USSR AMS, Board of the USSR Ministry of Health and Department of Physiology, USSR AS, will be implemented within the framework of the All-Union unified problem commission for "Human Adaptation." Its members include representatives of the USSR AS and AMS, USSR Ministry of Health, academies of sciences of Union republics and several other agencies and ministries. This problem commission is already pursuing comprehensive processing of the above-mentioned scientific subprograms.

The scientists at the Siberian Branch, in close collaboration with scientific research institutes of the Siberian Department and Far East Scientific Center of the USSR AS, have worked on 41 topics referable to the problem of "Adaptation of Man," including 19 topics referable to the State Committee for Science and Technology of the USSR Council of Ministers. Biomedical problems of the Far East, Ob' region in the North, Extreme North, questions of coordinating research at medical VUZ's of Siberia, and other problems were discussed at visiting sessions of the branch in 1972-1974, with the participation of representatives of different agencies and ministries, in Irkutsk, Vladivostok, Noril'sk, Tyumen' and Tomsk.

The Siberian Branch has organized and participated actively in several major All-Union, republic-level and regional scientific forums dealing primarily with sociohygienic and biomedical problems of the North. They include the Sixth symposium on Biological Problems of the North (Yakutsk) in 1974, All-Union Conference on "Physiology and Pathology of Adaptation Mechanisms in Different Climatogeographic and Industrial Regions of Siberia, the Far East and Extreme North. Current Questions in the Problem of General Pathology" (Novosibirsk); the republic-level seminar on "Man and the Environment" (Novosibirsk) and others.

The results of research done by scientists in this branch have been reflected in 9 monographs, 7 collections of works, proceedings of conferences and meetings, as well as more than 250 scientific articles.

Staff of Office of the Siberian Branch:

Chairman: Professor V. P. KAZNACHEYEV, academician of USSR AMS.

Deputy chairmen: M. A. SOBAKIN, K. R. SEDOV and N. R. DERYAPA, corresponding members of USSR AMS.

Branch Office members: V. P. BISYARINA, S. P. KARPOV, I. V. TOROPTSEV and D. D. YABLOKOV, academicians of USSR AMS; A. A. DEMIN and YE. N. MESHALKIN, corresponding members of USSR AMS.

Personnel of Siberian Branch of USSR AMS (as of 1 January 1976):

Full Members (Academicians) of USSR AMS:

BISYARINA, Valentina Pavlovna (born 1912); pediatrics; elected from DCM [Department of Clinical Medicine].

KARPOV, Sergey Petrovich (born 1903); microbiology and epidemiology; elected from DHME [Department of Hygiene, Microbiology and Epidemiology].

KAZNACHEYEV, Valil' Petrovich (born 1924); therapeutics; elected from DCM; member of Presidium of USSR AMS since 1972.

TOROPTSEV, Innokentiy Vasil'yevich (born 1907); pathological anatomy; elected from DBMS [Department of Biomedical Sciences].

YABLOKOV, Dmitriy Dmitriyevich (born 1896), State Prize winner; therapeutics; elected from DCM.

Corresponding Members of USSR AMS:

BORODIN, Yuriy Ivanovich (born 1929); anatomy; elected from DBMS.

DEMIN, Aristarkh Aleksandrovich (born 1918); therapeutics; elected from DCM.

DERYAPA, Nikolay Romanovich (born 1923); therapeutics; elected from DCM.

MESHALKIN, Yevgeniy Nikolayevich (born 1916), Hero of Socialist Labor, Lenin Prize winner; cardiovascular surgery; elected from DCM.

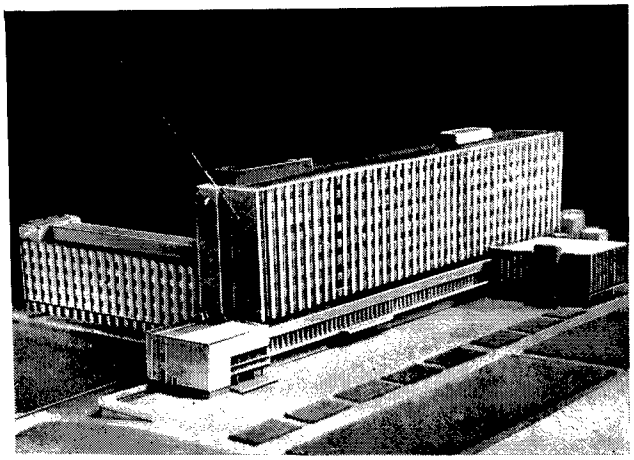
SEDOV, Konstantin Rafailovich (born 1918); therapeutics; elected from DCM.

SOBAKIN, Mikhail Alekseyevich (born 1917); physiology; elected from DBMS.

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Institute of Clinical and Experimental Medicine (14 Yadrintsevskaya Street, Novosibirsk, 630091; director: Professor V. P. KAZNACHEYEV, academician of USSR AMS)

This institute was founded in 1970. It is comprised of 16 laboratories and the Computer Center of the Siberian Branch of USSR AMS. It employs 107 scientists, including 10 doctors and 28 candidates of sciences.



Main building of Institute of Clinical and Experimental Medicine with clinic (model)

This institute performs the duties of principal institution dealing with the problem of national importance, "Physiology and Pathology of Adaptation Mechanisms in Different Climatogeographic and Industrial Regions of Siberia, the Far East and Extreme North."

The scientific work at the institute is concentrated on development of the problem of adaptation of man on the sociohygienic, population and organism levels. Investigations are being pursued in two main directions: physiological, biochemical, biophysical and immunological changes in the organism in the course of adaptation; development of a system of prevention and treatment of acute and chronic diseases of various systems of the organism, which occur in the course of adaptation.

Implementation of the All-Union program for biomedical research on the problem of adaptation, scientific methodological bases for preparing long-term biomedical and sociohygienic forecasts of development of eastern parts of our country, as well as principles involved in organization and development of automated systems of medicobiochemical research and medical care of the public takes up a considerable place in the activities of this institute's divisions.

The staff of the institute has developed the scientific program of "Human Adaptation," which is being followed in sociohygienic and biological investigations. Data have been obtained on the mechanisms of adaptation in the institute laboratories and expeditionary studies in the Extreme North. Investigation of molecular mechanisms of adaptation revealed that there are remote intertissular and intercellular interactions expressed through electromagnetic radiation. On the basis of investigation of mildly induced fluorescence of blood serum of patients, some original approaches have been developed to genesis and prognosis of a number of pathological processes related to "disruption" of adaptation (inflammatory, dystrophic, neoplastic). It was shown that the kinetics of biochemoluminescence reflects early functional and structural changes in the cell during interaction of various factors, including the specific factors of the North.

Investigation of homeostatic systems of the organism in the course of adaptation to polar conditions revealed changes in metabolism (shift from carbohydrate type of metabolism to fatty type, with elevation of glucocorticoid level and deficiency of water-soluble vitamins), respiratory function, blood, thermoregulation, as well as immunosuppressive and immunoactive factors involved in expression of immune reactions in the course of adaptation. It was established that there are two critical periods in the course of adaptation of man to the North (2d-8th and 18th-24th months), during which there is a greater possibility of exacerbation of focal infection and manifestation of immunopathological disturbances under the influence of specific climatogeographic factors.

It was shown that an inherited burden is involved in development of cardiac ischemia in northern regions, and that desynchronization of corticoid function and hemodynamics is one of the causes of circulatory diseases.



Morphometric machine developed in the institute's laboratory of biophysics

Studies have been pursued of age-related distinctions of circadian and seasonal rhythms of physiological functions in individuals arriving in western Siberia from other parts of our country; on this basis, criteria of acclimatization to local conditions are being developed. Cellular models have been developed for the study of mechanisms of the adaptation process in neurons, and determination of the role of memory mechanisms under the influence of extreme factors and pharmacological agents. Methods of mathematical processing of biorhythmological data have been proposed and presently used in practice for comprehensive evaluation of early disturbances of endocrine regulation in the course of adaptation.

Several measures have been proposed by the institute's scientists to public health practice and are now being used with success by therapeutic institutions of Novosibirsk and Noril'sk for early detection, prevention and treatment of rheumatism, rheumatoid arthritis and chronic tonsillitis; for the prevention and correction of adaptational disturbances in the mother--fetus system; modified method of demonstrating photochemoluminescence (PCL) of blood serum; a combined method of biorhythmological investigation and evaluation of man's adaptation to adequate and inadequate environmental conditions.

The institute has developed and proposed a system of automation of biomedical investigations (SAMBI) for the purpose of gathering and processing data, and controlling biological objects in the course of an investigation; an automated data processing system for automated control of the process of rendering emergency medical care (ASOD--"Emergency Care").

Development and preparation are being completed on an automated system of dispensary care of the public living in major territorial and industrial complexes of Novosibirsk, Novokuznetsk and Noril'sk.

The staff of the institute has published several monographs through the Nauka Publishing House in Novosibirsk.

Much of the institute's time is spent on training scientific personnel for institutions of the USSR Academy of Medical Sciences, USSR Ministry of Health, as well as Union republics. In 1971-1974, 30 physicians underwent specialized on-the-job training at this institute.

The following are now working at the institute: V. P. Kaznacheyev, academician of USSR AMS; V. P. Lozovoy and M. B. Shtark, doctors of sciences; and others.

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Institute of Physiology (101 Zolotodolinskaya Street, Novosibirsk, 630090; director: Professor M. A. SOBAKIN, corresponding member of USSR AMS)

This institute was founded in 1967, in the facilities of the Department of Ecological Physiology of Man and Animals of the Institute of Cytology and Genetics, Siberian Department of USSR AS, and in 1973 it was transferred to the Siberian Branch of USSR AMS.

The institute is comprised of three sections (physiology of human adaptation, physiological mechanisms of adaptive behavior, visceral systems) with nine laboratories. A total of 62 scientists work here, including one corresponding member of USSR AMS, 10 doctors and 29 candidates of sciences.

The scientific research activities of the institute are concentrated on the physiological mechanisms of adaptation. Experimental and clinical investigations (in the field and hospitals) are pursued in three main directions: study of dynamics of functional state of the integral organism under stress with exposure to subextreme and extreme factors, neurohumoral mechanisms of regulation of adaptational processes, mechanisms of specific and nonspecific resistance of the organism in the course of adaptation.

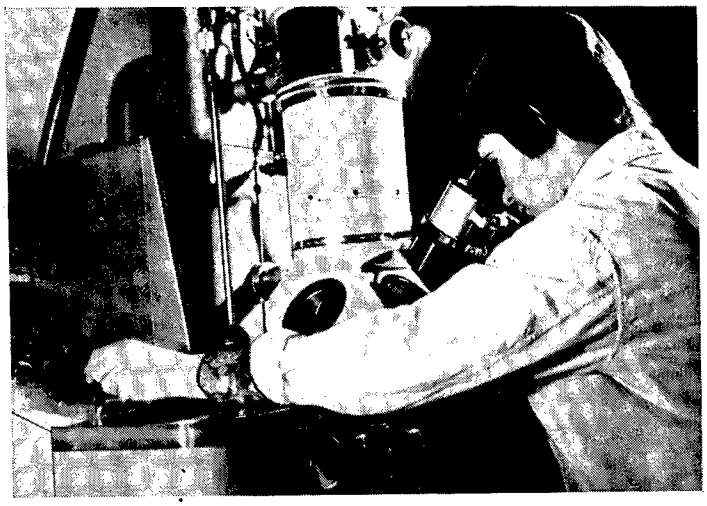
In the years of its existence, the institute has obtained new data on the nature of adaptational reorganization of functions of organs and systems, and the organism as a whole. It was established that with the move to different landform and climate conditions and change in time zone the adaptation process is a lengthy one. Individuals that have moved to western Siberia from the Far East, polar region, Kazakhstan and Central Asia demonstrated adaptational reorganization of functions of the cardiovascular system, external respiration, thermoregulation and central nervous system.

Expeditionary studies yielded data characterizing the adaptability of people (thermoregulatory reaction, biochemical indices of blood) to living and working conditions in the extreme northeastern part of our country. The

"Work Shift" subprogram of the "Human Adaptation" program was developed, i.e., recommendations on systems programming of scientific research on work-shift schedules of work, the long-term objective of which is biomedical optimization of various types of this form of organization of labor, with lowering of labor loss and material expenditures. On the basis of the proposed "Work Shift" subprogram, determination has been made of the principal tension factors inherent in the work-shift method of labor, and their combined influence on various functional systems of individuals employed in the petroleum and gas industry in the northern Ob' region. The most significant



In the laboratory of biological mechanisms of adaptive behavior



Examination of ultrastructures of skeletal muscles in adaptation to various stress [tension] factors

tests and methods of studying various functional systems under field and hospital [or permanent] conditions have been defined; they aid in assessing different variants of work-shift labor regimens. Some of the methods that have been tested under experimental conditions are being adopted by the permanent biomedical laboratory of the Tyumen' petroleum and gas region.

Data have been obtained to define the distinctions of central mechanisms of adaptive behavior. Studies of neuronal, structural and neurohumoral mechanisms of regulation of formation of memory as components of adaptive reactions of the organism revealed that the rate of formation of memory traces is closely related to the nature of activity of the amygdallar complex. A delayed evoked potential (electrographic phenomenon) was demonstrated in a study of deferred conditioned reactions. It was found that with development of a temporary association, not only in the cerebral cortex, but in the mesencephalic reticular formation, posterior hypothalamus and hippocampus, a delayed evoked potential is recorded, and it is interpreted as an indication of a formed memory trace.

It was shown that the ascending noradrenergic system is involved in formation of memory and that disturbances referable to ascending noradrenergic pathways have a distinct effect on activity of acetylcholinesterase in the hippocampus and hypothalamus; it was established that, under the influence of acute cold, there is a decrease in energy of activation of oxidizing enzymes and acetylcholinesterase in the hypothalamus. It was established that the serotoninergic system of the mesencephalon and hypothalamus is involved in regulating formation of the adaptive, defense, immune reaction of the organism, and that it determines the nature of formation of this reaction. Investigation of visceral and homeostatic systems in the course of adaptation demonstrated the important role of connective tissue in maintaining osmotic homeostasis in the course of species-specific and individual adaptation to different living conditions.

Several new methods and techniques of clinical physiological investigations were developed at the institute. A method of regional electroplethysmography and an instrument to be used for this purpose were developed and adopted in practice; this permits examination of pulmonary circulation and evaluation of pulmonary functions. A method has been developed for determining the elastic properties of arterial walls, and it has been tested in the clinical section of the Institute of Cytology and Genetics, Siberian Department of USSR AS, as well as in hospitals and rest homes in Berdsk. New techniques have been proposed for multichannel electromyography, recording electrical activity of secretory organs, electromagnetic field of radiation of man and infrared radiation. Experimental electrogastrography demonstrated topograms of distribution of potentials of the stomach on the surface of the abdominal wall; studies are in progress of the reactions of the motor system of the stomach to adequate and inadequate stimuli. The method and instrument developed for electrogastrographic studies are being adopted in therapeutic institutions.

On the basis of research on the mechanism of development of the conditioned emotional fear reaction, the hypothesis has been expounded of a cholinergic

mechanism of emotional memory about fear; it was shown that this state can be eliminated by blocking cholinergic structures of the brain, and new methods have been proposed for the treatment of obsessive fear. The validity of this theoretical approach has been confirmed by the beneficial results of treatment of obsessive states.

The institute's scientists have published eight monographs. In 1974 alone, the staff of the institute completed and submitted for defense seven dissertations, one of which was a doctoral dissertation.

Specialists in the field of physiology are presently working at this institute: M. A. Sobakin, corresponding member of USSR AMS; V. V. Vinogradov and R. Yu. Il'yuchenok, doctors of medical sciences; and others.

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Laboratory of Polar Medicine (P.O. Box 625, Noril'sk, 663310; acting director: A. CHERNUKHA, candidate of medical sciences)

This laboratory was opened in 1973, and it is the base for comprehensive research of the Siberian Branch of USSR AMS in the Extreme North.

There are three scientific groups in the laboratory: hygiene of nutrition and biochemistry; study of ecology and epidemiology of zooanthroponoses; immunology and clinical immunopathology.

The scientific work of this laboratory is pursued within the framework of the "Human Adaptation" program, and it follows two directions: investigation of adaptation processes in new arrivals and indigenous population with reference to climatogeographic, working and living conditions of the polar region; investigation of distinctive features of etiology, pathogenesis, symptomatology, prevention and treatment of diseases in the polar region.

The laboratory pursues scientific research in conjunction with the unified commission for development of the "Human Adaptation" program and scientific research institutions under the jurisdiction of various ministries and agencies of eastern regions of our country.

ADMINISTRATIVE STRUCTURE OF THE PRESIDIUM. SCIENTIFIC COUNCILS AND COMMISSIONS OF THE USSR ACADEMY OF MEDICAL SCIENCES

The Presidium of the USSR AMS implements its scientific-organizational and scientific-coordinating duties by means of a regular [staff] organization created for this purpose, as well as permanent and temporary commissions, committees and scientific councils manned by members of the Academy and outstanding medical scientists of our country who have the greatest knowhow in a specific branch of medicine and public health.

Organization of the Presidium

There are special sections working within the Presidium for practical implementation of measures in the field of planning and coordinating medical and biomedical research in the country and providing the material and technical base for such research, development of international scientific ties, etc.: scientific coordinating section, personnel board, section for international scientific ties, technical section, secretariat, business management, as well as ancillary administrative divisions: clerical office and scientific archives.

The Presidium of the USSR AMS works in close contact with departmental offices, committees, commissions and scientific councils, the activities of which are under the jurisdiction of the vice president and chief scientific secretary of the Academy.

The deputy president of USSR AMS who deals with administrative and financing activities of the Academy is in charge of such activities and implements them by means of the appropriate divisions of the organizational system of the Presidium of USSR AMS: financial planning section, central accounting, section of physical [material] resources and equipment, major construction administration, and others.

Scientific Coordinating Section, Headed by A. A. KISELEV, Doctor of Medical Sciences

This section is an executive body responsible to the vice president in charge of the science section, and it works in immediate contact with the Academy's departmental offices, its scientific councils and commissions.

This section works up methodological instructions on preparing plans and reports on scientific research and forecasting implementation by the Academy of tasks involved in management of medical science in the country; it participates in organizing and preparing long-term forecasts of development of medical science in the USSR: it prepares summary plans of scientific research and reports on performance of such research on problems of All-Union importance under the jurisdiction of the Academy; it participates in preparing proposals for adoption of results of research in public health practice.

Much of the work of this section deals with coordinating problems of planning and coordination of combined scientific research among departments, scientific councils and problem commissions of the Academy, as well as institutions and organizations referable to other agencies of our country, as related to combined development of medical and biomedical problems.

Personnel Board, Headed by YE. K. PONOMAR', Candidate of Medical Sciences

This board is an executive body of the Presidium of USSR AMS under the jurisdiction of the chief scientific secretary of the Academy, and it works in direct contact with the departmental offices of the Academy, its scientific councils, scientific research institutes and institutions, as well as the USSR Ministry of Health and USSR AS.

Its tasks include the following: preparation of decisions, instructions and recommendations in the field of screening training, placement and educating scientific personnel; organization of work dealing with nomination and election of scientists to the Academy; management, control and assistance to institutes and institutions of the Academy in the field of screening, disposition and use of administrative and scientific personnel, as well as specialists with higher and specialized secondary education; keeping records of personnel and reserves with regard to administrative scientific and management personnel, as well as specialists with higher and specialized secondary education; preparation of recommendations and instructions on keeping personnel records at Academy institutes and institutions; preparation of guides and other material dealing with composition and training of personnel in the Academy system.

Much of this board's work deals with training and disposition of scientific personnel: preparing plans pertaining to demand and filling of vacancies for graduate studies and clinical residencies at the Academy, as well as plans and applications to the USSR Ministry of Health concerning the training of scientific ancillary personnel for the Academy; organization of enrollment for graduate studies and clinical residencies in scientific research institutions of the Academy; checking quality of preparation and organization of certification of graduate students and residence, and assignment thereof for work at Academy institutes and institutions in the Union republics; organization, jointly with the Central Committee of the Komsomol, of work with young scientists and specialists working both in the system of the USSR AMS and in other institutions of our country.

Section for International Scientific Ties, Headed by V. V. KOVANOV, Academician and Vice President of USSR AMS

This section was created in 1957 for the practical resolution of problems related to development and implementation of international scientific ties of the Presidium and Academy institutions.

Much of the work done by this section deals with coordination of work on international scientific contacts with both the Foreign Relations Administration and departments and scientific research institutions of the Academy. This section submits proposals dealing with mission assignments abroad for Soviet specialists in order to participate in international measures and work on joint topics, as well as exchange of knowhow; it checks fulfilment of signed agreements on scientific collaboration between the USSR AMS and foreign academies; it organizes enrollment [or reception] of visiting foreign specialists in Academy institutes; it analyzes the effectiveness of scientific collaboration with other countries.

Technical Section, Headed by V. I. GUKIN

The main tasks of this section are: organization of rational use of medical equipment and apparatus in Academy institutions; investigation of the Academy needs with regard to the latest medical equipment and apparatus and issuance of recommendations as to the desirability of purchase thereof; supplying Academy institutions and organizations with the necessary medical equipment and apparatus, as well as spare parts; technical and organizational management and coordination of work done in experimental production shops of the Academy with regard to centralized repair and technical maintenance of scientific and medical equipment in scientific research institutions of the Academy.

Scientific Councils and Commissions of the Presidium

The Presidium of USSR AMS creates scientific councils and problem commissions for the purpose of planning and coordinating combined scientific research on problems of national importance under the jurisdiction of the Academy; they are based at scientific research institutes and laboratories of the Academy and USSR Ministry of Health which are the principal institutions for a given problem of All-Union importance. They include the Council for Philosophical Problems of Medicine, Scientific Technical Council (NTS), Scientific Editorial Council (NISO), Council of deputy directors for therapeutic work (under the jurisdiction of the Department of Clinical Medicine), with branches of consultation offices in major cities of our country, etc.

Scientific Technical Council of the AMS; Chairman: V. V. KOVANOV, Academician and Vice President of USSR AMS

The NTS of the Academy deals with problems related to practical use in biomedical research of the latest advances of science and technology, and development on this method of new methods of experimental and clinical investigations.

Among the problems discussed, a prominent place is occupied by the following: development of medicotechnical directions; problems dealing with the status and means of development of scientific instrument building in the Academy system; scientific planning of research and projects using electronics and cybernetics; long-term planning of use in scientific research of the latest medical, electronic computer and measurement technology; consideration of suggestions dealing with organization of rational use of medical equipment and refinement of the material and technical base of scientific research institutions of the Academy and USSR Ministry of Health.



Publications of USSR AMS

The scientific technical council of USSR AMS is comprised of outstanding scientists and specialists in the field of medicine, biology, medical and computer technology and other branches of science; they work in the system of the USSR AMS, USSR Ministry of Health as well as other ministries and agencies. There is a problem commission under this council to deal with use of mathematical methods and computers in biomedical investigations.

Scientific Editorial Council

The scientific editorial council (NISO) is the scientific-consultation and checking body of the Presidium of USSR AMS in matters dealing with publication of literature summarizing the results of research conducted by scientific teams of the Academy, as well as Academy members employed in our country's public health system. Its tasks include preparation of long-term, 5-year and annual plans, approved by the Presidium of the USSR AMS, for pulication of Academy literature; evaluation of the scientific relevance of monographs

that are being prepared; organization and preparation of regular issues in the series, "Principal Results and Achivements of Scientific Research in the Field of Medicine," dealing with the principal problems in the State plan for scientific research. NISO also supervises 10 scientific journals.

The Presidium supervises the work of this council, which consists of 20 major scientists in different specialties. At meetings of the Presidium, monographs submitted for publication, as well as questions of implementing the plan for preparing and publishing Academy literature, are discussed.

The NISO works in close contact with Meditsina Publishing House which publishes and markets the literature and journals of the Academy.

INSTITUTIONS ATTACHED TO THE PRESIDIUM OF THE USSR ACADEMY OF MEDICAL SCIENCES

The following are attached to the Presidium of the USSR AMS: main editorial board of "Bol'shaya Meditsinskaya Entsiklopediya" (BME) [Great Medical Encyclopedia], chairs of philosophy and west European languages, two medical schools, main library, section of scientific and experimental cinematography, central design office with an experimental plant, laboratory animal vivariums. There are 1,730 people employed in Academy institutions.

The editorial boards of 10 scientific journals supply information to the medical community concerning the latest findings of scientific research institutions of the Academy. The scientific editorial council of USSR AMS, in close contact with the relevant All-Union scientific medical societies provides scientific methodological supervision and coordination of their work.

The main editorial board of BME is not only the main authority that implements practical work dealing with preparation and publication of Soviet medical encyclopedic works, it is also the base for research in the field of medical terminology and encyclopedic problems, which is pursued by the scientific research encyclopedic team of USSR AMS and members of the editorial board.

The chairs of philosophy and west European languages are scientific-methodological and consultation centers that assist scientific institutions of the Academy in matters within the competence of these chairs.

The central design office, experimental plant and industrial-repair base supply new electronic, electron optical and mechanical instruments which they have developed and produced (in small series) to scientific research institutions of the Academy for scientific research and measurements; they implement centralized repair and maintenance of scientific and medical equipment.

Motion picture records of experiments that are difficult to repeat, performed in various divisions of the Academy, scientific expeditions, as well as filming of scientific objects that cannot be perceived under ordinary conditions, which facilitates dynamic analysis of complex processes and phenomena, are provided by the department of scientific and experimental cinematography.

The main library of the Academy is one of the largest specialized libraries in our country, it provides specialized, reference-bibliographic and abstract literature for medical workers.

The two medical schools train highly qualified feldshers, nurses, laboratory and x-ray technicians for scientific research institutions and laboratories of the Academy. In the years of their existence, they have graduated more than 3,500 people classified as paramedical personnel.

There are three vivariums, with overall output of 5 million animals per year, that supply laboratory animals not only to scientific research institutions of the Academy, but other medical institutions of Moscow and Leningrad.

These institutions are largely instrumental in the creative work of the Academy and they have been repeatedly awarded certificates and medals of the Exhibition of Achievements of the National Economy of USSR.

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Main Editorial Board of the Great Medical Encyclopedia (6/8 Petroverigskiy Lane, Moscow, 101882; chief: Professor I. P. LIDOV, deputy editor in chief of BME)

In the USSR, more than 100 volumes of original medical encyclopedias have been published, in a overall printing of about 7 million copies, including those published by the main editorial board of the "Great Medical Encyclopedia" (BME) totaling 58 volumes.

The main editorial board of BME was organized under the Presidium of the Academy in 1955. Its main tasks are: scientific-methodological and scientific-editorial preparation of medical encyclopedic and dictionary publications, as well as scientific research work in this field.

There is an editorial board approved by the Presidium of the USSR AMS that implements scientific supervision of preparation of encyclopedic publications.

The editorial board is headed by the Presidium and it is comprised of an editor in chief and his deputies. A. N. Bakulev, academician of USSR AS and AMS was the editor in chief in 1955-1964. In 1975, the staff of the editorial board consisted of the following: B. V. Petrovskiy, academician of USSR AS and AMS, editor in chief; V. D. Timakov, academician of USSR AS and AMS, and Professor I. P. Lidov, deputy editors in chief; the following members of the editorial board: N. N. Blokhin, T. Ye. Boldyrev, P. N. Burgasov, S. P. Gurenkov, A. I. Burnazyan, V. Kh. Vasilenko, D. D. Venediktov, M. V. Volkov, P. D. Gorizontov, N. P. Dubinin, S. V. Yemel'yanov, V. V. Zakusov, G. A. Zedgenidze, R. Ye. Kavetskiy, B. N. Kazakov (chief scientific secretary), V. V. Kovanov, P. N. Kosyakov, I. G. Kochergin, N. A. Krayevskiy, F. G. Krotkov, Yu. P. Lisitsyn, N. N. Malinovskiy, M. F. Merkulov, S. S. Mikhaylov, A. I. Nesterov, L. S. Persianinov, A. A. Pokrovskiy, A. P. Romodanov, S. A. Rusanov, S. Ye. Severin, A. F. Serenko, N. S. Smelov, Ye. I. Smirnov, A. V. Snezhnevskiy, A. I. Strukov, V. I. Struchkov, V. V. Trofimov, I. T. Frolov, G. I. Tsaregorodtsev, Ye. I. Chazov, A. M. Chernukh, A. N. Shabanov, Ye. V. Shmidt and N. A. Yudayev.



Soviet
medical
encyclopedias



Presidium of the First plenum of BME. Professor I. P. Lidov, deputy editor in chief of BME is at the podium



In the meeting hall of first BME plenum



Meeting of scientific council of main editorial board of BME. The speaker is P. N. Burgasov, academician of USSR Academy of Medical Sciences

The first plenary session of BME convened in January 1971, under the guidance of Academician B. V. Petrovskiy, editor in chief. The plenum dealt with problems of scientific and methodological preparation of the third edition of BME and the "Encyclopedia of Medical Terminology." More than 600 of our country's scientists participated in this plenum.

The chief of the main editorial board, who is deputy editor in chief, implements administrative management of the main editorial board. From 1955 to 1962, the main editorial board was headed by Professor L. Ya. Brusilovskiy, who was involved in preparing the first edition of BME. In 1962-1966, the board was headed by the famous scientist and public health organizer, Professor N. I. Zavalishin. Since 1967, the board has been headed by Professor I. P. Lidov.

There are five editorial offices in the main editorial board: general editorial office with team for scientific control and technical divisions; editorial office for glossary and transcription group; scientific control editorial office with groups for bibliography, numerical [?] and technical divisions; editorial office for illustrations with recording group; editorial office for the "Encyclopedia of Medical Terminology."

The distinctive feature in the organizational structure of the main editorial board is the presence of a scientific consultant and scientific editorial body: non-staff editorial sections dealing with the main branches of medicine and allied branches of science. The scientific secretaries of editorial sections are regular [permanent] representatives of editorial sections in the organizational system of the board, who solve current scientific editorial problems. There are 54 editorial sections working with the main editorial board; they are headed primarily by academicians and corresponding members of USSR AMS. More than 1,000 prominent scientists of our country are among the staff of these sections.

The main editorial board conducts scientific investigations in close collaboration with its loyal scientific research encyclopedic group of the USSR AMS, which is a body of the scientific methodological office of the main editorial board.

Work is being done to systematize the terminology of modern medicine, in collaboration with the terminology commission of USSR AMS which is headed by N. A. Krayevskiy, academician of USSR AMS.

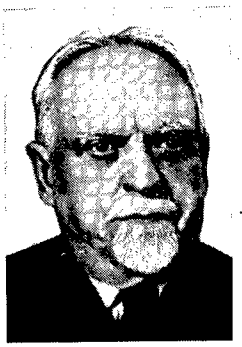
Plenums of BME convene to resolve preeminent scientific and methodological problems dealing with preparation of medical encyclopedic publications.

Scientific and scientific-methodological aspects of preparing encyclopedic publications are discussed by the scientific council and scientific methodological office of the main editorial board of BME.

> The USSR Academy of Medical Sciences published 7 medical encyclopedias in 1946-1975, with overall printing of 57 volumes in more than 1 million copies. At the present time the Academy is publishing the third, new edition of BME and preparing an Encyclopedia of Medical Terminology for publication.

In May 1975, the main editorial board of BME, together with the All-Union Scientific Research Institute of Technical Information, Classification and Coding of the USSR State Committee for Standards, Main Terminology Commission of

USSR State Committee for Standards and terminology commission of the USSR AMS, held the country's first conference on problems of systematization and standardization of medical terminology. The conference adopted a comprehensive resolution directed toward laying a scientific foundation for the problem of systematizing medical terminology and several organizational recommendations related to this.



N. A. SEMASHKO, academician of USSR AMS and RSFSR Academy of Pedagogic Sciences, first RSFSR people's commissar of health; editor in chief of BME (1928-1935)



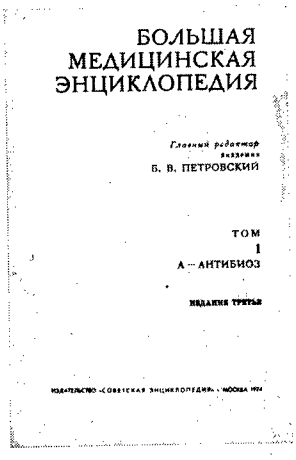
Academician A. N. BAKULEV, editor in chief of BME (1954-1967)



Academician B. V. PETROVSKIY, editor in chief of BME since 1967

Editors in chief of BME

"Bol'shaya Meditsinskaya Entsiklopediya" [BME, Great Medical Encyclopedia] in 30 volumes. The first volume was published in 1974.



The most important scientific methodological problems dealing with preparation of encyclopedic publications are raised at plenums of BME, with the participation of the editorial board, editorial sections and scientific editorial body

of the main editorial board. In particular, the scientific-methodological bases of the third edition of BME and "Encyclopedia of Medical Terminology" were discussed and approved at the first plenum, which convened in January 1971. More than 600 of our country's scientists participated in the work of the plenum. The second plenum of ME, which convened in December 1974, discussed problems of continued upgrading of medical encyclopedic publications.

Current scientific and scientific-methodological questions are comprehensively discussed at meetings of the scientific council of the main editorial board, manned by scientific secretaries of editorial sections and administrative personnel of the editorial board.

Such an organizational structure constituted creative development of principles, the foundations of which were laid during preparation of the first edition of the Great Medical Encyclopedia (1928-1935, 35 voumes, 21,000 copies), the editor in chief of which was N. A. Semashko, academician of USSR AMS, the first people's commissar of health, outstanding figure of the Communist Party and Soviet State. Development of organizational and scientific methodological principles continued in the course of work on military medical encyclopedic publications: "Entsiklopedicheskiy Slovar' Voyennoy Meditsiny" [Encyclopedia of Military Medicine] (1946-1950, 6 volumes, 15,000 copies; Ye. I. Smirnov, academician of USSR AMS, editor in chief) and a one-volume "Entsiklopedicheskiy Spravochnik Dlya Voyennykh Fel'dsherov" [Encyclopedic Guide for Military Feldshers](1953; Professor N. I. Zavalishin, editor in chief). These principles were also refined while working on the second edition of BME (1956-1964, 38 volumes, over 90,000 copies; A. N. Bakulev, academician of USSR AS and AMS, editor in chief), which covered the achievements of Soviet and foreign medical science in the 1940's and 1950's.

In 1965-1970, the main editorial board published "Malaya Meditsinskaya Entsiklopediya" [Small Medical Encyclopedia] (MME), in 12 volumes (125,000 copies; A. N. Bakulev, academician of USSR AS and AMS, editor in chief for the first 5 volumes; B. V. Petrovskiy, academician of USSR AS and AMS, editor in chief for the 6th-12th volumes) and three volumes of the BME Annual (1968-1970; also edited by him [Petrovskiy?]).

"Kratkaya Meditsinskaya Entsiklopediya" [Concise Medical Encyclopedia](KME) was published in 1972-1974 in 3 volumes, for paramedical personnel (125,000 copies; Academician B. V. Petrovskiy, editor in chief). There is no precedent for the KME in either the Soviet or foreign encyclopedic practice. This is the most complete scientific reference that meets the demands of paramedical personnel working independently.

The main editorial board prepared and published seven editions of "Popylyarnaya Meditsinskaya Entsiklopediya" [Popular Medical Encyclopedia], a one-volume manual for the public (over 1 million copies printed).

Publications of the main editorial board have often been mentioned among the best books of the year and awarded certificates of the USSR Ministry of Health and Scientific Technical Society of Printshop and Publication Workers, the honorary certificate of the international "Public Health-74 exhibition, as

well as certificates of the VDNKH [Exhibition of Achievements of the National Economy of USSR]. Honorary titles, "Excellent USSR Public Health Worker" and "Excellent Worker of the Press," have been bestowed upon a number of staff members, and many have been awarded gold, silver and bronze medals of VDNKH USSR.

Concurrently with work on the last volumes of MME and KME, the editorial board has deployed work dealing with preparation of two comprehensive publications, the third edition of BME and Encyclopedia of Medical Terminology.

In the course of the preparatory work, Soviet and foreign knowhow was analyzed, with regard to preparation of encyclopedias and dictionaries; some original approaches were developed to planning, lay-out and presentation of material consistent with the present level of development of medical science. As a result, the following were published: "Methodological Data Referable to the Third Edition of the Great Medical Encyclopedia," "Methodological Data Referable to the Medical Terminology Dictionary" and "Memorandum to Authors of Entries in the Third Edition of BME," edited by professors I. P. Lidov and S. A. Rusanov.

The third edition of BME (30 volumes; Academician B. V. Petrovskiy, editor in chief) reflects the radical changes that took place in science in the last few years. In particular, it covers molecular biology, clinical biochemistry, molecular genetics, biophysical chemistry, medical and physiological cybernetics, bionics, quantum biochemistry, medical electronics and other branches of science, without which continued investigation of the origin and essence of human diseases and development of effective methods of treating and preventing them would be impossible at this stage. In view of exacerbation of the ideological struggle in modern science, this publication deals extensively with social and philosophical problems of medicine; current reactionary conceptions in biology and medicine are submitted to well-reasoned scientific criticism from the positions of Marxist-Leninist philosophy. The distinctive feature of the third edition is that long entries have been broken down into shorter ones, there are more entries, summary tables are provided, and the material contained in volumes already published is regularly updated by means of publication of supplements in the 5th, 10th, 15th, 20th, 25th and one of the last volumes. The first volume was published in 1974 and the second, in 1975.

The Encylopedic Dictionary of Medical Terminology (three volumes; B. V. Petrovskiy, editor in chief) will be the first Soviet dictionary in which modern terminology used in medicine and allied branches of science will be defined. The extensive work done to systematize medical terminology leads us to expect that most of the terms listed will be of a standardizing nature, from the standpoint of both spelling and usage, as well as scope. Publication of this dictionary is expected in 1980.

The main editorial board also processes and releases recordings of lectures delivered by prominent scientists of our country (lectures of P. K. Anokhin, B. Ye. Votchal, I. V. Davydovskiy, S. R. Mardashev, A. L. Myasnikov, B. V. Petrovskiy and Ye. I. Chazov have been released), as well as pathological phenomena.

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Journals of the USSR Academy of Medical Sciences

In addition to books and encyclopedias, the USSR AMS published 10 scientific journals.

The editorial boards of these journals consist of outstanding scientists working in those branches of medicine, the problems of which are discussed in the different journals. The staff of the editorial boards is approved by the Presidium of USSR AMS.

Eight of the journals are also the printed organs of the relevant scientific medical societies, and they are published with two endorsements.

The scientific editorial council of the Academy supervises the work of the editorial boards. The specialized Meditsina Publishing House implements publication duties.

VESTNIK AKADEMII MEDITSINSKIKH NAUK SSSR [Vestnik of the USSR Academy of Medical Sciences, is the organ of the Academy. N. N. Blokhin, academician of USSR AMS, is the editor in chief. Summary works reflecting advances and problems of modern biological and medical science are published in this journal. There are 12 issues published each year.

BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY [Bulletin of Experimental Biology and Medicine] (published since 1935). A. D. Ado, academician of USSR AMS, is its editor in chief. This journal publishes original works of an innovative nature performed in institutions of the Academy and other scientific groups. There are 12 issues per year.

The results of scientific research in the most important directions of medical science and activities of relevant scientific medical societies are reflected on the pages of eight Academy journals.

ARKHIV ANATOMII, GISTOLOGII I EMBRIOLOGII [Archives of Anatomy, Histology and Embryology] (published since 1916) is the organ of the USSR AMS and All-Union Scientific Society of Anatomists, Histologists and Embryologists. A. G. Knorre, corresponding member of USSR AMS, is the editor in chief. There are 12 issues per year.

ARKHIV PATOLOGII [Archives of Pathology](published since 1934) is the organ of the USSR AMS and All-Union Scientific Society of Pathoanatomists. A. I. Strukov, academician of USSR AMS, is the editor in chief. There are 12 issues per year.

VOPROSY VIRUSOLOGII [Problems of Virology](published since 1955), is the organ of the USSR AMS and All-Union Scientific Society of Epidemiologists, Microbiologists and Infectious Disease Specialists imeni I. I. Mechnikov. V. M. Zhdanov, academician of USSR AMS, is the editor in chief. Six issues are published annually.

VOPROSY MEDITSINSKOY KHIMII [Problems of Medical Chemistry](published since 1954) is an organ of the USSR AMS. S. S. Debov, academician of USSR AMS, is the editor in chief. Six issues are published annually.

MEDITSINSKAYA RADIOLOGIYA [Medical Radiology] (published since 1954) is an organ of the USSR AMS and All-Union Scientific Society of Roentgenologists and Radiologists. G. A. Zedgenidze, academician of USSR AMS, is the editor in chief. It is published 12 times a year.

PATOLOGICHESKAYA FIZIOLOGIYA I EKSPERIMENTAL'NAYA TERAPIYA [Pathological Physiology and Experimental Therapy](published since 1957) is an organ of USSR AMS and the All-Union Scientific Society of Pathophysiologists. N. A. Fedorov, academician of USSR AMS, is the editor in chief. It is published 6 times a year.

FARMAKOLOGIYA I TOKSIKOLOGIYA [Pharmacology and Toxicology] is an organ of USSR AMS and the All-Union Society of Pharmacologists. G. N. Pershin, corresponding member of USSR AMS, is the editor in chief. It is published 6 times a year.

EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZIOLOGIYA [Experimental Surgery and Anesthesiology](published since 1953) is an organ of USSR AMS and the All-Union Scientific Society of Anesthesiologists and Resuscitation Specialists. A. A. Vishnevskiy [deceased], academician of USSR AMS, was its editor in chief. It is published 6 times a year.

Medical journals can be purchased in any store that sells medical publications.

Subscriptions to medical journals are taken by public [volunteer?] distributors of periodicals at work or in educational institutions, at special subscription offices and agencies of Soyuzpechat', [Main Administration for Distribution of Publications], main and branch postoffices.

Foreign trade agencies of different countries deal with distribution of medical books and journals abroad.

Comprehensive information about medical literature and journals can be obtained by foreign readers from the annual catalogue, "Sovetskiye Knigi po Meditsine" [Soviet Books on Medicine](SK-2), of the All-Union Mezhdunarodnaya Kniga [International Book] Association.

Orders for publications can be sent to organizations dealing with Soviet literature, in each country, or maintaining contacts with Mezhdunarodnaya Kniga. The address of the latter is 121200, Moscow, USSR.

* * *

Chair of Philosophy (12 Baltiyskaya Street, Moscow, 125315; headed by Professor G. I. TSAREGORODTSEV)

This chair was founded in 1946, and it is an educational-pedagogic and scientific research institution attached to the Presidium of the Academy.



Display of publications

Up to 300 graduate students and scientists from scientific research institutes of USSR AMS, USSR and RSFSR ministries of health, as well as graduate students for special purposes from Union republics and a number of socialist and developing countries, study on this chair each year.

Several works dealing with philosophy and social problems of biology and medicine have been prepared on this chair, with the participation of scientists of the Academy as well as other scientific institutions and VUZ's of our country and foreign scientists.

The staff of this chair has published monographs, collections, textbooks and methodological aids, articles and reviews; some have been translated into other languages. The N. A. Semashko Prize was awarded (1974) for the monograph, "Society and Human Health" (coauthored by Soviet and foreign scientists).

Together with the scientific council for philosophical problems of medicine, the chair aids in coordination of scientific research on methodology of science conducted not only in the USSR, but in other socialist countries.

The chair is involved in preparing material dealing with philosophical problems of medicine for the Great Medical Encyclopedia, MEDITSINSKAYA GAZETA [Medical Gazette] and scientific medical journals.

The chair has trained 15 doctors and candidates of philosophical sciences (dealing with philosophical and social problems of medicine).

The staff members on this chair are involved in the work of international congresses and symposiums; they travel abroad to deliver lectures.

This chair provides consultant assistance to the chairs of social sciences of medical VUZ's in the USSR and other socialist countries, as well as to scientists working on methodological problems of medicine and public health.

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Chair of West European Languages (12 Baltiyskaya Street, Moscow, 125315; headed by Docent YE. A. KOLEN'KO, candidate of Philological Sciences)

This chair was founded in 1946, and it is an educational scientific institution attached to the Presidium of USSR AMS.

The chair trains graduate students and scientists preparing dissertations, who are from the scientific research institutes of the Academy in the area of minimum requirements for tests in English, German and French; it holds classes in conversational English, German and French, and offers a second foreign language after the graduate minimum requirements have been met.

The chair implements candidatorial and entrance exams for graduate studies, as well as other forms of testing knowledge of foreign languages.

The main objective of scientific-methodological work done on this chair is to intensify and rationalize the educational process, which follows primarily the educational and methodological aids prepared by instructors on the chair. The chair has developed a method of accelerated instruction in reading and translation of English, German and French scientific literature dealing with medical specialties.

There is a "linguaphone" office and speech laboratory to intensify the learning process.

* * *

Main Library (8 Baltiyskaya Street, Moscow, 125315; director: G.I. BAKHIREVA)

The main library of the USSR AMS, founded in 1944, is one of the large specialized medical libraries in our country. It stocks more than 600,000 Soviet and foreign works (books and journals, dissertations and author abstracts of dissertations). The stock consists mainly of biomedical literature: books on anatomy, histology, general and special pathology, surgery, oncology, neurology, psychiatry, pharmacology, toxicology, microbiology, epidemiology, general and special hygiene, and other branches of medicine, as well as biology, biochemistry, physics, chemistry and physical chemistry. There is a considerable stock of literature dealing with sociopolitical, economic and philosophical questions.



A reading room

An average of 20,000 books and more than 500 periodicals (227 foreign and 286 domestic) are received annually by the library.

The library services 2,000 readers annually: Presidium of USSR AMS, scientific teams of institutes in the system of the Academy and USSR Ministry of Health, as well as other medical workers. On the average, over 140,000 books and periodicals are checked out each year; an interlibrary subscription service implements transfers to all cities in the country.

There are two reading rooms in the library that can accommodate 100 people; one of them has a stock of foreign periodicals covering the last 10 years that can be used freely. Each week, the library arranges information days demonstrating all new books received that week.

The reference part of the library has a good stock of reference materials. It consists of published reference, bibliographic and abstract editions, and a system of catalogues and card files. Alphabetically and subject listed catalogues reflect comprehensively all of the literature in the library.

The bibliographic section of the library takes care of and regularly updates bibliographic card files on problem topics that are worked on in the system of Academy institutions. Much of the work deals with literature searches on problems of adopting new technology in medicine, methods of using cybernetics and electronic computers, use of ultrasound and various synthetic materials in medicine.

There is a bibliographic card file, entitled "Science," on technological progress in medicine, forecasting, scientific and methodological problems. There are over 10,000 cards in the file entitled "Dialectical Materialism in Biology and Medicine" (which was started in 1960). There are comprehensive card files on the following subjects: "History of Russian and Soviet Medicine" (started in 1950, with 80,000 cards now); "Russian Medical Scientists and Biologists"; "Works Authored by Full and Corresponding Members of USSR AMS," including extensive material in Russian and other languages (over 100,000 listings).

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Department of Scientific and Experimental Medical Cinematography
(8 Baltiyskaya Street, Moscow, 125315; headed by S. G. KOMM)

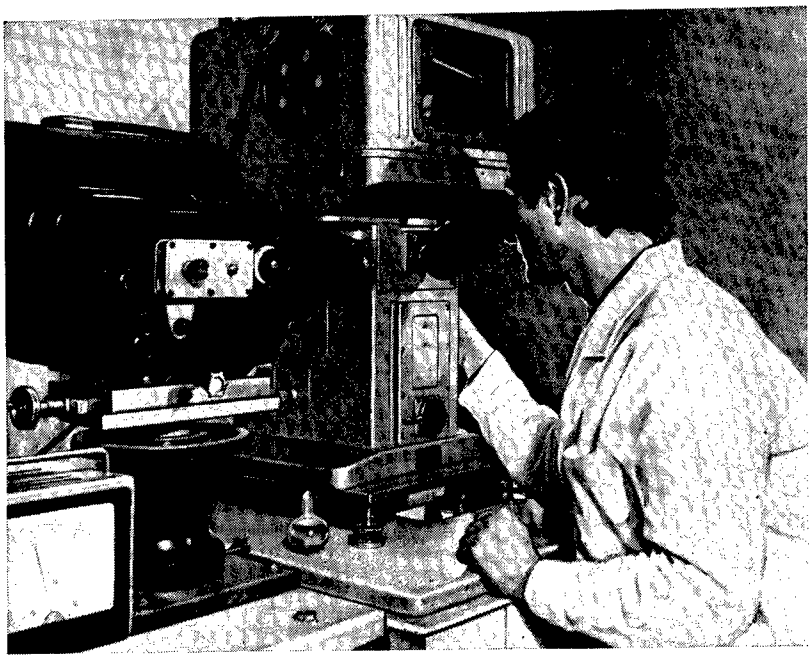
This department, which was founded in 1945, works in conjunction with scientific research institutions of the Academy.

Its work is concentrated in the following directions: use of latest types of special cinematography in scientific research in theoretical and clinical medicine; keeping regular film records of scientific activities of clinics and laboratories of the Academy (filming experiments difficult to repeat, new diagnostic and therapeutic methods, rare clinical cases, scientific expeditions, etc.); production of scientific and documentary films dealing with the principal problems of experimental and clinical medicine; restoration and production of duplicates of valuable films about outstanding representatives of Soviet medicine and public health.

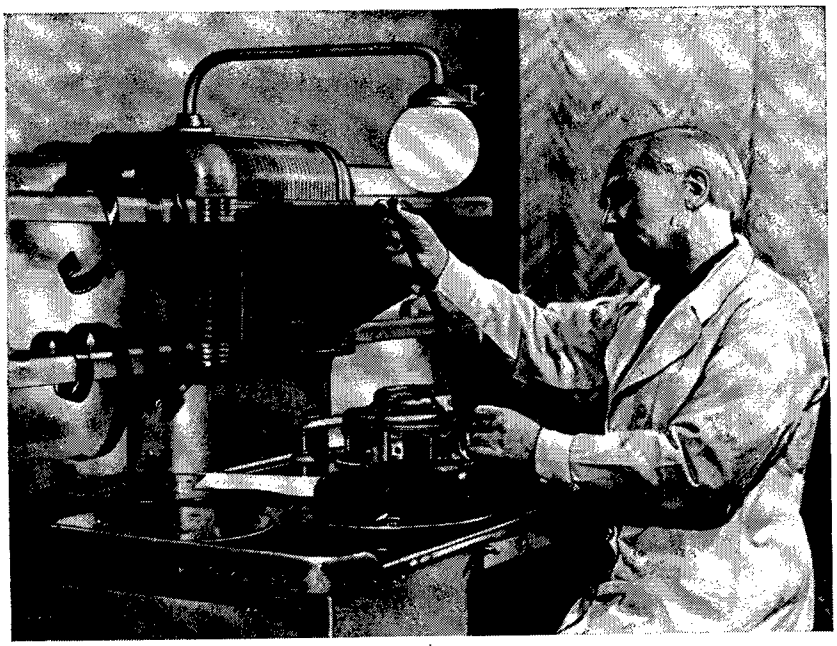
The staff of this department develops and makes wide use of the latest types of cinematography (microcinematogray, high-speed cinematography and color cinematography, roentgenocinematography, etc.) which enable the researcher to examine objects that are ordinarily inaccessible to him, to analyze processes and phenomena dynamically recorded on film, with the ability to slow them down or speed them up.

A number of data have been obtained by Academy scientists, with the help of special cinematographic techniques, which are of great theoretical and practical importance. In the field of microbiology, microcinematography and high-speed photography were used to study the patterns of formation of L forms of bacteria, distinctions of their growth and development, as well as morphological distinctions of different species of mycoplasma; the mechanisms of formation of drug-resistant forms of bacteria and effects of a number of antibiotics and sulfanilamids on colibacilli have been demonstrated; the distinctions of cytopathic action of adenoviruses on cells have been defined, and it was established that this effect can be blocked with immune sera.

In the field of oncology, cinematography helps establish the typical qualitative and quantitative differences in locomotion of normal and tumor cells, changes in locomotion under the influence of various carcinogens, and distinctions of cell interaction in mixed cultures. Cinematography has gained broad use as well in the study of the effects of chemopreparations on tumor cells.



MBN-11 device for microcinematography with inverted microscope



Analysis of film records at film-cutting table

Cinematographic records of function of natural and artifical cardiac valves made it possible to conduct a comparative analysis thereof, to evaluate various valve models and outline the routes for perfecting them. Roentgenocinematography of blood flow in the heart and great vessels was used to study the distinctions of hemodynamic disturbances in the presence of some diseases, as well as motor activity of the digestive tract of man under normal conditions, in the presence of various pathological states and under the influence of some pharmacological agents.

In the years of existence of this section, much work has been done with regard to filmed records of scientific research done in the institutes of the Academy: valuable experiments that are difficult to repeat, many new diagnostic and therapeutic techniques, rare clinical cases, as well as the work of scientific expeditions.

The section has produced about 150 films (with sound and mostly in color) dealing with physiology, microbiology, epidemiology, oncology, therapeutics, surgery, pediatrics and other branches of medical science. These films are shown to wide circles of the scientific and medical community of our country and abroad.

Much work was done by the section to restore and produce duplicates of valuable films on the life and activities of outstanding representatives of Soviet medicine, and to build up a library of documentaries about I. P. Pavlov, N. N. Burdenko, A. D. Speranskiy, A. V. Vishnevskiy and others.

* * *

Central Design Office and Experimental Plant (14 So-yanka, Moscow, 109240; chief: YU. S. ININ, chief designer)

The Central Design Office (CDO) and experimental plant were established in 1960. Its tasks include the following: scientific research and experimental design work and development of new methods of investigation and measurement on the basis of the latest advances of science and technology; development, design and production of instruments for medical and biomedical investigations, as well as experimental models and small series of electronic, electron optical and mechanical instruments; methodological and technical assistance to engineering groups in the scientific institutions of the Academy.

The Design Office conducts its work in two directions: physiological instrument building, chiefly to record and analyze action currents of the living organism using elements of analogue and digital computer technology; biochemical instrument building, which refers to instruments for spectral and luminescence analysis, liquid chromatography instruments.

The CDO is manned by 260 people, including 163 technical engineering workers.

The staff of the CDO has been awarded 16 author certificates by the Committee for Inventions attached to the USSR Council of Ministers. The main committee

of VDNKH [Exhibition of Achievements of the National Economy of USSR] has awarded 2 certificates of honor, 2 first class and 1 second class certificate to the staff of the CDO; 74 VDNKH medals were awarded to CDO staff members.

Experimental Production Workshops

There are five experimental production workshops within the Academy system, the annual volume of work of which is estimated at almost one million rubles. These workshops implement centralized repair and technical servicing of medical equipment in the scientific research institutions of the Academy. Development and production of small series of new medical instruments take up a considerable place in the activities of these shops.

* * *

Laboratory Animal Vivariums

The USSR Academy of Medical Sciences has three vivariums where laboratory animals are bred; two of them are in Moscow Oblast and one in Leningrad Oblast. They supply not only Academy institutes and laboratories, but medical institutions of Moscow and Leningrad.

The vivariums of the Academy are the largest facilities in the country to breed laboratory animals. Their overall output is up to 5 million animals per year. They are self-supporting and they deliver animals to the consumers.

Central Laboratory Animal Vivarium (Kryukovo Station, Solnechnogorskiy Rayon, Moscow Oblast)

This vivarium was opened in 1957. It is comprised of four production departments: "Kryukovo," "Lytkino," "Planernaya" and "Svetlyye Gory."

Each year, the vivarium departments deliver the following quantities of animals to scientific research institutions: 45,000-47,000 chinchilla rabbits, 80,000-85,000 Holland breed guinea pigs, 350,000-370,000 inbred laboratory rats and 2.5-2.6 million inbred laboratory mice.

In 1972, the vivarium began to breed English beagles as laboratory dogs, and laboratory cats with controllable biological indices.

"Stolbovaya" Laboratory Animal Vivarium (Stolbovaya Station, Chekhovskiy Rayon, Moscow Oblast)

This vivarium was opened in 1957 in the facilities of the experimental base of the Institute of Poliomyelitis and Viral Encephalitis of USSR AMS. Its annual output constitutes up to 400,000 laboratory mice and hybrids thereof, up to 100,000 rats, 10,000-12,000 Syrian hamsters and 5,000-6,000 cotton rats.

Primarily inbred laboratory mice are bred in this vivarium (their conventional names are: A, AHK, BALB, CBA, C57B, CC57B, CC57, C3H and DBA), as well as inbred mouse and rat hybrids (conventionally named "Anqist" [?--August?], and populations of Wistar rats.

"Rappolovo" Laboratory Animal Vivarium (Rappolovo, Vsevolzhskiy Rayon, Leningrad Oblast)

This vivarium was founded in 1957 in the facilities of the experimental base of the Institute of Experimental Medicine, USSR AMS. Each year, this vivarium delivers the following species of laboratory animals to medical scientific research institutions of Leningrad: up to 20,000 chinchilla rabbits, 18,000-20,000 Dutch breed guinea pigs, up to 200,000 inbred laboratory rats, 1 million inbred laboratory mice, 12,000-14,000 Syrian hamsters, up to 130,000 inbred mice referable to 9 strains [lines](conventionally designated as AKP, BALB, CBA, CC57B, CC57W, C3H, C3HA, C57B, DBA) and up to 15,000 Wistar rats.

MEMBERS OF THE USSR ACADEMY OF MEDICAL SCIENCES (1944-1975)

Full Members (Academicians) of USSR AMS:

ABRIKOSOV, Aleksey Ivanovich (1875-1955), pathological anatomy, elected 14 November 1944, DBMS*; academician of USSR AS [Academy of Sciences], Hero of Socialist Labor, USSR State Prize winner; vice president (1944-1948) and member of Presidium of USSR AMS (1948-1950).

ADO, Andrey Dmitriyevich (born 1909), pathological physiology and allergology, elected 7 May 1965, DBMS.

ALEKSANYAN, Arto Bogdanovich (1892-1971), epidemiology, elected 29 January 1960, DHME.*

ANDZHAPARIDZE, Otar Georgiyevich (born 1920), virology, elected 21 November 1975, DHME.

ANICHKOV, Nikolay Nikolayevich (1885-1964), pathological anatomy, elected 14 November 1944, DBMS; academician of USSR AS, USSR State Prize winner; president of USSR AMS (1946-1953).

ANICHKOV, Sergey Viktorovich (born 1892), pharmacology, elected 3 November 1950, DBMS; Hero of Socialist Labor, USSR State Prize winner.

ANOKHIN, Petr Kuz'mich (1898-1974), physiology, elected 30 October 1975, DBMS; academician of USSR AS, Lenin Prize winner; member of Presidium of USSR AMS (1948-1950).

ANTELAVA, Nikolay Vardanovich (1893-1970), surgery, elected 1 November 1963, DCM*; Lenin Prize winner.

ARINKIN, Mihail Innokent'yevich (1876-1948), therapeutics, elected 30 October 1945, DCM; USSR State Prize winner.

ARISTOVSKIY, Vyacheslav Mihaylovich (1882-1950), microbiology, elected 31 October 1945, DHME.

ARKHANGEL'SKIY, Boris Aleksandrovich (1890-1954), obstetrics and gynecology, elected 30 October 1945, DCM.

*Abbreviations used throughout this list refer to department of which the individual is or was a member: DCM--Department of Clinical Medicine; DBMS--Department of Biomedical Sciences; DHME--Department of Hygiene, Microbiology and Epidemiology.

ARUTYUNOV, Aleksandr Ivanovich (1904-1975), neurosurgery, elected 4 February 1967, DCM; Hero of Socialist Labor; academician secretary of DCM of USSR AMS (1968-1969).

AVTSYN, Aleksandr Pavlovich (born 1908), pathological anatomy, elected 7 May 1965, DBMS.

BAGDASAROV, Andrey Arkad'yevich (1897-1961), therapeutics, elected 20 April 1957, DCM; twice winner of USSR State Prize.

BAKULEV, Aleksandr Nikolayevich (1890-1967), surgery, elected 27 December 1948, DCM; academician of USSR AS, Hero of Socialist Labor, Lenin and USSR State prize winner; president of USSR AMS (1953-1960).

BARANOV, Vasiliy Gavrilovich (born 1898), endocrinology, elected 29 January 1960, DCM.

BAROYAN, Oganes Vagarshakovich (born 1906), epidemiology, elected 7 May 1965, DHME.

BEKHTEREVA, Natal'ya Petrovna (born 1924), physiology, elected 21 November 1975, DBMS; corresponding member of USSR AS.

BEKLEMISHEV, Vladimir Nikolayevich (1890-1962), zoology, elected 31 October 1945, DHME; twice winner of USSR State Prize.

BERITASHVILI, Ivano Solomonovich (1885-1974), physiology, elected 14 December 1944, DBMS; academician of USSR and Georgian AS, Hero of Socialist Labor, USSR State Prize winner.

BILIBIN, Aleksandr Fedorovich (born 1897), infectious diseases, elected 28 January 1960, DCM.

BIRYUKOV, Dmitriy Andreyevich (1904-1969), physiology, elected 3 February 1962, DBMS.

BISYARINA, Valentina Pavlovna (born 1912), pediatrics, elected 6 June 1969, DCM; Siberian Branch of USSR AMS.

BLOKHIN, Nikolay Nikolayevich (born 1912), oncology and surgery, elected 29 January 1960, DCM; Hero of Socialist Labor; president of USSR AMS (1960-1963), member of Presidium of USSR AMS since 1972.

BOGOLEPOV, Nikolay Kirillovich (born 1900), neuropathology, elected 6 February 1969, DCM; Hero of Socialist Labor, USSR State Prize winner.

BOGOMOLETS, Aleksandr Aleksandrovich (1881-1946), pathological physiology, elected 14 November 1944, DBMS; academician of USSR and Ukrainian AS, president of Ukrainian AS, USSR State Prize winner; member of Presidium of USSR AMS (1944-1946).

BOGUSH, Lev Konstantinovich (born 1905), surgery of pulmonary tuberculosis, elected 1 November 1963, DCM; Lenin and USSR State prize winner.

BRAUNSHTEYN, Aleksandr Yevseyevich (born 1902), biochemistry, elected 30 October 1945, DBMS; academician of USSR AS, Hero of Socialist Labor, USSR State Prize winner.

BRAYTSEV, Vasiliy Romanovich (1878-1964), surgery, elected 30 October 1945, DCM.

BUNIN, Konstantin Vladimirovich (born 1912), infectious diseases, elected 28 February 1974, DCM.

BURDENKO, Nikolay Nilovich (1876-1946), neurosurgery, elected 14 November 1944, DCM; academician of USSR AS, Hero of Socialist Labor, USSR State Prize winner; first president and founder of USSR AMS (1944-1946), member of Presidium of AMS (1946).

BURGASOV, Petr Nikolayevich (born 1915), epidemiology, elected 28 February 1974, DHME.

BYKOV, Konstantin Mikhaylovich (1886-1959), physiology, elected 14 November 1944, DBMS; academician of USSR AS, USSR State Prize winner.

CHACHAVA, Konstantin Vladimirovich (born 1919), obstetrics and gynecology, elected 28 February 1974, DCM; USSR State Prize winner.

CHAGIN, Konstantin Petrovich (born 1913), parasitology, elected 28 February 1974, DHME.

CHAZOV, Yevgeniy Ivanovich (born 1929), therapeutics, elected 30 June 1971, DCM; USSR State Prize winner; member of Presidium of USSR AMS since 1972.

CHEBOTAREV, Dmitriy Fedorovich (born 1908), therapeutics, elected 1 March 1966, DCM.

CHERKES, Aleksandr Il'ich (1894-1974), pharmacology and toxicology, elected 29 January 1960, DBMS.

CHERNIGOVSKIY, Vladimir Nikolayevich (born 1907), physiology, elected 3 November 1950, DBMS; academician of USSR AS; member of Presidium (1950-1953) and vice president of USSR AMS (1953-1957).

CHERNORUTSKIY, Mihail Vasil'yevich (1884-1957), therapeutics, elected 30 October 1945, DCM.

CHERNUKH, Aleksey Mikhaylovich (born 1916), pathological physiology, elected 30 June 1971, DBMS; member of Presidium since 1972 and vice president of USSR AMS since 1974.

CHIRKOVSKIY, Vasiliy Vasil'yevich (1874-1956), ophthalmology, elected 30 October 1945, DCM; USSR State Prize winner.

CHUMAKOV, Mikhail Petrovich (born 1909), virology, elected 29 January 1960, DHME; Lenin and USSR State prize winner.

DAVIDENKOV, Sergey Nikolayevich (1880-1968), neuropathology, elected 30 October 1945, DCM.

DAVYDOVSKIY, Ippolit Vasil'yevich (1887-1968), pathological anatomy, elected 14 November 1944, DBMS; Hero of Socialist Labor, Lenin Prize winner; vice president (1946-1960) and member of Presidium of USSR AMS (1944-1946 and 1953-1957).

DEBOV, Sergey Sergeyevich (born 1919), biochemistry, elected 30 June 1971, DBMS.

DOMBROVSKAYA, Yuliya Fominichna (born 1891), pediatrics, elected 12 December 1953; Lenin Prize winner [DCM].

DOYNIKOV, Boris Semenovich (1879-1948), neuropathology, elected 14 November 1944, DCM.

DZHANELIDZE, Yustin Yulianovich (1883-1950), surgery, elected 14 November 1944, DCM; Hero of Socialist Labor, USSR State Prize winner; member of Presidium of USSR AMS (1944-1946).

ENGEL'GARDT, Vladimir Aleksandrovich (born 1894), biochemistry, elected 14 November 1944, DBMS; academician of USSR AS, Hero of Socialist Labor, USSR State Prize winner.

FEDOROV, Lev Nikolayevich (1891-1952), physiology, elected 27 December 1948, DBMS; member of Presidium of USSR AMS (1948).

FEDOROV, Nikolay Aleksandrovich (born 1904), pathological physiology, elected 1 November 1963, DBMS; academician secretary of DBMS since 1968.

FILATOV, Antonin Nikolayevich (1902-1974), surgery, elected 1 March 1966, DCM.

FILATOV, Vladimir Petrovich (1875-1956), ophthalmology, elected 14 November 1944, DCM; academician of USSR AS, Hero of Socialist Labor, USSR State Prize winner.

FILIMONOV, Ivan Nikolayevich (1890-1966), neuropathology, elected 29 January 1960, DCM.

FRENKEL', Zakhariy Grigor'yevich (1869-1970), industrial hygiene and public health organization, elected 31 October 1945, DHME.

FRONTSHTEYN, Rikhard Mikhaylovich (1882-1949), urology, elected 28 October 1946, DCM.

GAMALEYA, Nikolay Fedorovich (1859-1949), microbiology, elected 31 October 1945, DHME.

GARSHIN, Vladimir Georgiyevich (1887-1956), pathological anatomy, elected 30 October 1945, DBMS.

GAUZE, Georgiy Frantsevich (born 1910), microbiology and antibiotics, elected 30 June 1971, DHME; USSR State Prize winner.

GILYAROVSKIY, Vasiliy Alekseyevich (1875-1959), psychiatry, elected 14 November 1944, DCM.

GIRGOLAV, Semen Semenovich (1881-1957), surgery, elected 14 November 1944, DCM; USSR State Prize winner.

GLAZUNOV, Mikhail Fedorovich (1896-1967), pathological anatomy, elected 29 January 1960, DBMS.

GOLIKOV, Sergey Nikolayevich (born 1919), pharmacology and toxicology, elected 30 June 1971, DBMS; USSR State Prize winner.

GOREV, Nikolay Nikolayevich (born 1900), pathological physiology, elected 12 December 1953, DBMS.

GORIZONTOV, Petr Dmitriyevich (born 1902), pathological physiology and radiobiology, elected 3 February 1962, DBMS; Lenin Prize winner.

GRASHCHENKOV, Nikolay Ivanovich (1901-1965), neuropathology, elected 14 November 1944, DCM; corresponding member of USSR AS, academician of Belorussian AS; member of Presidium of USSR AMS (1945-1946).

GRINSHTEYN, Aleksandr Mikhaylovich (1881-1959), neuropathology, elected 30 October 1945, DCM.

GROMASHEVSKIY, Lev Vasil'yevich (born 1887), epidemiology, elected 14 November 1944, DHME, Hero of Socialist Labor.

GUREVICH, Mikhail Osipovich (1878-1953), psychiatry, elected 14 November 1944, DCM.

IGNATOV, Nikolay Konstantinovich (1870-1951), hygiene, elected 31 October 1945, DHME.

IL'IN, Vitaliy Sergeyevich (born 1904), biochemistry, elected 1 March 1966, DBMS.

IOFFE, Vladimir Il'ich (born 1898), microbiology and immunology, elected 6 February 1969, DHME.

ISAKOV, Yuriy Fedorovich (born 1923), pediatric surgery, elected 21 November 1975, DCM.

IVANOV, Il'ya Il'ich (born 1904), biochemistry, elected 28 January 1974, DBMS.

IVANOV, Vadim Nikolayevich (1892-1962), therapeutics, elected 12 December 1953, DCM; academician of Ukrainian AS, USSR State Prize winner.

IVANOV-SMOLENSKIY, Anatoliy Georgiyevich (born 1895), pathological physiology, elected 3 November 1950, DBMS; USSR State Prize winner; vice president of USSR AMS (1950-1951).

KARASIK, Vladimir Moiseyevich (1894-1964), pharmacology and toxicology, elected 29 January 1960, DBMS.

KARPOV, Sergey Petrovich (born 1903), microbiology and epidemiology, elected 28 February 1974, DHME.

KASSIRSKIY, Iosif Abramovich (1898-1971), therapeutics and hematology, elected 1 November 1963, DCM.

KAZNACHEYEV, Vlail' Petrovich (born 1924), therapeutics, elected 30 November 1971, DCM; administrator (chairman) of Siberian Branch of USSR AMS; member of Presidium of USSR AMS since 1972.

KERBIKOV, Oleg Vasil'yevich (1907-1965), psychiatry, elected 3 February 1962, DCM; member of Presidium of USSR AMS (1962-1963), chief scientific secretary of USSR AMS (1963-1965).

KHLOPIN, Nikolay Grigor'yevich (1897-1961), histology, elected 30 October 1945, DBMS; USSR State Prize winner.

KHOROSHKO, Vasiliy Konstantinovich (1881-1949), neuropathology, elected 30 October 1945, DCM.

KHOTSYANOV, Lev Kipriyanovich (born 1889), industrial hygiene, elected 29 January 1960, DHME.

KLIMOV, Anatoliy Nikolayevich (born 1920), biochemistry, elected 21 November 1975, DBMS.

KLOSOVSKIY, Boris Nikodimovich (born 1898), morphology and pathophysiology of the brain, elected 3 February 1962, DBMS; USSR State Prize winner.

KOLESNIKOV, Ivan Stepanovich (born 1901), surgery, elected 30 November 1971, DCM; Lenin Prize winner.

KOLESOV, Anatoliy Panteleymonovich (born 1924), surgery, elected 28 February 1974, DCM.

KOMAKHIDZE, Mamiya Esedovich (born 1906), surgery, elected 30 June 1971, DCM.

KONOVALOV, Nikolay Vasil'yevich (1900-1966), neuropathology, elected 3 November 1950, DCM; Lenin Prize winner; vice president of USSR AMS (1950-1953).

KORNEV, Petr Georgiyevich (1883-1974), surgery, elected 14 November 1944, DCM; Lenin and USSR State prize winner.

KOROLEV, Boris Alekseyevich (born 1909), surgery, elected 6 February 1969, DCM.

KOSYAKOV, Pavel Nikolayevich (born 1905), immunology, elected 28 February 1974, DHME.

KOVANOV, Vladimir Vasil'yevich (born 1909), operative surgery and topographic anatomy, elected 1 November 1963, DCM; vice president of USSR AMS since 1966.

KRASNOBAYEV, Timofey Petrovich (1865-1952), surgery, elected 30 October 1945, DCM; USSR State Prize winner.

KRASNOGORSKIY, Nikolay Ivanovich (1882-1961), pediatrics, elected 30 October 1945, DCM; USSR State Prize winner.

KRASNOV, Mikhail Mikhaylovich (born 1929), ophthalmology, elected 21 November 1975, DCM; USSR State Prize winner.

KRAYEVSKIY, Nikolay Aleksandrovich (born 1905), pathological anatomy, elected 29 January 1960, DBMS; Lenin Prize winner; academician secretary of DBMS of USSR AMS (1960-1962).

KROTKOV, Fedor Grigor'yevich (born 1896), hygiene, elected 14 November 1944, DHME; Hero of Socialist Labor, academician secretary of DHME (1944-1950), vice president of USSR AMS (1953-1957).

KRYMOV, Aleksey Petrovich (1872-1954), surgery, elected 30 October 1945, DCM.

KRYUKOV, Andrian Nikolayevich (1878-1952), therapeutics, elected 28 January 1948, DCM.

KUPALOV, Petr Stepanovich (1888-1964), physiology, elected 28 October 1946, DBMS.

KUPRIYANOV, Petr Andreyevich (1893-1963), surgery, elected 14 November 1944, DCM; Hero of Socialist Labor, Lenin Prize winner; vice president of USSR AMS (1944-1950).

KUPRIYANOV, Vasiliy Vasil'yevich (born 1912), anatomy, elected 28 February 1974, DBMS.

KUVSHINNIKOV, Petr Afanas'yevich (1889-1954), hygiene, elected 31 October 1945, DHME.

KUZIN, Mikhail Il'ich (born 1916), surgery, elected 21 November 1975, DCM.

LANG, Georgiy Fedorovich (1875-1948), therapeutics, elected 30 October 1945, DCM; USSR State Prize winner.

LAPIN, Boris Arkad'yevich (born 1921), comparative pathology, elected 28 February 1974, DBMS.

LARIONOV, Leonid Fedorovich (1902-1973), experimental oncology and chemotherapy, elected 6 February 1969, DBMS; USSR State Prize winner.

LAVROV, Boris Aleksandrovich (1884-1975), vitaminology, elected 31 October 1945, DHME.

LEBEDINSKIY, Andrey Vladimirovich (1902-1965), biophysics, elected 29 January 1960, DBMS.

LEPESHINSKAYA, Ol'ga Borisovna (1871-1963), biology, elected 3 November 1950, DBMS; USSR State Prize winner.

LEPORSKIY, Nikolay Ivanovich (1877-1952), therapeutics, elected 14 November 1944, DCM; USSR State Prize winner.

LETAVET, Avgust Andreyevich (born 1893), hygiene, elected 3 November 1950, DHME; Lenin and USSR State prize winner; academician secretary of DHME (1957-1960).

LOPATKIN, Nikolay Alekseyevich (born 1924), urology, elected 28 February 1974; USSR State Prize winner.

LOPUKHIN, Yuriy Mikhaylovich (born 1924), topographic anatomy and experimental surgery, elected 30 June 1971, DCM; USSR State Prize winner.

LUKOMSKIY, Pavel Yevgen'yevich (1899-1974), therapeutics, elected 1 November 1963, DCM; Hero of Socialist Labor, USSR State Prize winner; member of Presidium of USSR AMS (1966-1968).

MAGNITSKIY, Andrey Nikolayevich (1892-1951), physiology, elected 3 November 1950, DBMS.

MALAYA, Lyubov' Trofimovna (born 1917), therapeutics, elected 28 February 1974, DCM.

MALINOVSKIY, Mikhail Sergeyevich (born 1880), obstetrics and gynecology, elected 14 November 1944, DCM; Hero of Socialist Labor; vice president of USSR AMS (1944-1946).

MAN'KOVSKIY, Boris Nikitich (1883-1962), neuropathology, elected 14 November 1944, DCM.

MARDASHEV, Sergey Rufovich (1906-1974), biochemistry, elected 19 May 1957, DBMS; Hero of Socialist Labor, USSR State Prize winner; academician secretary of DBMS (1962-1963), vice president of USSR AMS (1963-1974).

MARZEYEV, Aleksandr Nikitich (1883-1956), hygiene, elected 14 November 1944, DHME.

MASLOV, Mikhail Stepanovich (1885-1961), pediatrics, elected 14 November 1944, DCM.

MEDVED', Lev Ivanovich (born 1905), industrial hygiene in agriculture, elected 6 February 1969, DHME.

MEL'NIKOV, Aleksandr Vasil'yevich (1889-1959), surgery, elected 27 December 1948, DCM.

MINKH, Aleksey Alekseyevich (born 1904), hygiene, elected 6 February 1969, DHME.

MIROTVORTSEV, Sergey Romanovich (1878-1949), surgery, elected 30 October 1945, DCM.

MOLCHANOV, Nikolay Semenovich (1899-1972), therapeutics, elected 29 January 1960, DCM; Hero of Socialist Labor.

MOLCHANOV, Vasiliy Ivanovich (1868-1959), pediatrics, elected 30 October 1945, DCM.

MOROZOV, Georgiy Vasil'yevich (born 1920), psychiatry, elected 21 November 1975, DCM.

MOROZOV, Mikhail Akimovich (1879-1964), microbiology, elected 31 October 1945, DHME; USSR State Prize winner.

MUKHADZE, Grigoriy Mikhaylovich (1879-1948), surgery, elected 14 November 1944, DCM; academician of Georgian AS.

MYASNIKOV, Aleksandr Leonidovich (1899-1965), therapeutics, elected 28 January 1948, DCM; academician secretary of DCM, USSR AMS (1948-1953).

MYSH, Vladimir Mikhaylovich (1873-1947), surgery, elected 30 November 1945, DCM.

NASONOV, Dmitriy Nikolayevich (1895-1957), histology, elected 30 October 1945, DBMS; USSR State Prize winner.

NAVROTSKIY, Vasiliy Korneyevich (1897-1975), industrial hygiene, elected 29 January 1960, DHME.

NEGOVSKIY, Vladimir Aleksandrovich (born 1909), pathological physiology, elected 21 November 1975, DBMS; twice winner of USSR State Prize.

NESTEROV, Anatoliy Innokent'yevich (born 1895), therapeutics, elected 3 November 1951, DCM; Hero of Socialist Labor, Lenin and USSR State prize winner; academician secretary of USSR AMS (1950-1953), vice president of USSR AMS (1953-1957).

NIKOLAYEV, Anatoliy Petrovich (1896-1972), obstetrics and gynecology, elected 14 May 1952, DCM; USSR State Prize winner.

NISEVICH, Nina Ivanovna (born 1911), pediatrics, elected 28 February 1974, DCM.

NOVOSEL'SKIY, Sergey Aleksandrovich (1872-1953), hygiene, elected 31 October 1945, DHME.

OGANESYAN, Leon Andreyevich (1885-1970), therapeutics, elected 14 November 1944, DCM; academician of Armenian AS.

ORBELI, Leon Abgarovich (1882-1958), physiology, elected 14 November 1944, DBMS; academician of USSR AS; USSR State Prize winner; member of Presidium of USSR AMS (1944-1946).

OREKHOVICH, Vasiliy Nikolayevich (born 1905), biochemistry, elected 12 December 1953, DBMS; member of Presidium of USSR AMS (1953-1957), academician secretary of DBMS (1957-1960), vice president of USSR AMS (1960-1963).

OSIPOV, Viktor Petrovich (1871-1947), psychiatry, elected 14 November 1944, DCM; corresponding member of USSR AS.

OZERETSKIY, Nikolay Ivanovich (1893-1955), psychiatry, elected 27 December 1948, DCM; member of Presidium of USSR AMS (1948-1950).

PALLADIN, Aleksandr Vladimirovich (1885-1972), biochemistry, elected 14 November 1944, DBMS; academician of USSR and Ukrainian AS, Hero of Socialist Labor; member of Presidium of USSR AMS (1946-1948).

PARIN, Vasiliy Vasil'yevich (1903-1971), physiology, elected 14 November 1944, DBMS; academician of USSR AS; academician secretary of USSR AMS (1944-1947; 1957-1960), member of Presidium (1960-1962), vice president of USSR AMS (1963-1966).

PARNAS, Yakub Oskarovich (1884-1949), biochemistry, elected 14 November 1944, DBMS; USSR State Prize winner.

PAVLOV, Aleksandr Sergeyevich (born 1920), radiology, elected 30 June 1971, DCM.

PAVLOVSKIY, Yevgeniy Nikanorovich (1884-1965), zoology and parasitology, elected 14 November 1944, DHME; academician of USSR AS, Hero of Socialist Labor and twice winner of USSR State Prize.

PERSIANINOV, Leonid Semenovich (born 1908), obstetrics and gynecology, elected 7 May 1965, DCM; USSR State Prize winner.

PETROV, Boris Aleksandrovich (1898-1973), surgery, elected 1 March 1966, DCM; USSR State Prize winner.

PETROV, Ioakim Romanovich (1893-1970), pathological physiology, elected 29 January 1960, DBMS.

PETROV, Nikolay Nikolayevich (1876-1964), oncology, elected 14 November 1944, DCM; corresponding member of USSR AS, Hero of Socialist Labor, Lenin and USSR State prize winner.

PETROV-MASLAKOV, Mikhail Andreyevich (born 1896), obstetrics and gynecology, elected 6 February 1969, DCM.

PETROVSKIY, Boris Vasil'yevich (born 1908), surgery, elected 19 April 1957, DCM; academician of USSR AS, Hero of Socialist Labor, Lenin and USSR State prize winner.

PLANEL'YES, Khuan Khuanovich (1900-1972), experimental microbiology and chemotherapy, elected 6 February 1969, DHME.

PODVYSTOSKAYA, Ol'ga Nikolayevna (1884-1958), dermatovenereology, elected 14 November 1944, DCM; corresponding member of USSR AS.

POKROVSKIY, Aleksey Alekseyevich (born 1916), biochemistry, elected 6 February 1969, DHME; USSR State Prize winner; member of Presidium of USSR AMS since 1972.

POLENOV, Andrey L'vovich (1871-1947), neurosurgery, elected 30 October 1945, DCM; USSR State Prize winner.

POPOV, Yevgeniy Alekseyevich (1899-1961), psychiatry, elected 20 April 1957, DCM.

PREOBRAZHENSKIY, Boris Sergeyevich (1892-1970), otorhinolaryngology, elected 30 October 1945, DCM; Hero of Socialist Labor.

PREOBRAZHENSKIY, Nikolay Aleksandrovich (born 1918), otorhinolaryngology, elected 21 November 1975, DCM; Lenin Prize winner.

PRIOROV, Nikolay Nikolayevich (1885-1961), orthopedics and traumatology, elected 20 April 1957, DCM.

PUCHKOVSKAYA, Nadezhda Aleksandrovna (born 1908), ophthalmology, elected 30 June 1971, DCM; Hero of Socialist Labor.

RAZENKOV, Ivan Petrovich (1888-1954), physiology, elected 14 November 1944, DBMS; State Prize winner; academician secretary of DBMS (1944-1948), vice president (1948-1950) and member of Presidium of USSR AMS (1950-1953).

ROMODANOV, Andrey Petrovich (born 1920), neurosurgery, elected 28 February 1974, DCM; member of Presidium of USSR AMS since 1972.

ROZHANSKIY, Nikolay Appolinar'yevich (1884-1957), physiology, elected 30 October 1945, DBMS.

RUCHKOVSKIY, Sergey Nikiforovich (1888-1967), epidemiology, elected 28 October 1946, DHME.

RUDNEV, Georgiy Pavlovich (1899-1970), infectious diseases, elected 12 December 1953, DCM; academician secretary of DCM (1953-1957), member of Presidium of USSR AMS (1960-1962).

RUFANOV, Ivan Gur'yevich (1884-1964), surgery, elected 14 November 1944, DCM; academician secretary of DCM USSR AMS (1946-1948).

RYAZANOV, Vladimir Aleksandrovich (1903-1968), hygiene, elected 7 May 1965, DHME; academician secretary of DHME (1964-1966).

RYBAKOV, Anatoliy Ivanovich (born 1917), stomatology, elected 21 November 1975, DCM.

SANOTSKIY, Vladimir Antonovich (1890-1965), pharmacology and toxicology, elected 1 November 1963, DBMS.

SARADZHISHVILI, Petr Mikhaylovich (born 1894), neuropathology, elected 1 November 1963, DCM.

SARKISOV, Semen Aleksandrovich (1895-1971), neuropathology, elected 28 January 1948, DCM; academician secretary of USSR AMS (1947-1950, 1965-1966); member of Presidium of USSR AMS (1950-1953, 1957-1960, 1962-1966).

SAVEL'YEV, Viktor Sergeyevich (born 1928), surgery, elected 28 February 1974, DCM; USSR State Prize winner.

SAVINYKH, Andrey Grigor'yevich (1888-1963), surgery, elected 14 November 1944, DCM; USSR State Prize winner.

SAVITSKIY, Aleksandr Ivanovich (1887-1973), surgery and oncology, elected 29 January 1960, DCM; Hero of Socialist Labor.

SAVITSKIY, Nikolay Nikolayevich (born 1892), therapeutics and toxicology, elected 19 April 1957 [DCM]; USSR State Prize winner.

SEMASHKO, Nikolay Aleksandrovich (1874-1949), hygiene, elected 14 November 1944, DHME; academician of RSFSR Academy of Pedagogical Sciences; member of Presidium of USSR AMS (1945-1948).

SEPP, Yevgeniy Konstantinovich (1878-1957), neuropathology, elected 14 November 1944, DCM.

SEREBROV, Aleksandr Ivanovich (born 1895), oncology and gynecology, elected 19 June 1957, DCM.

SERGIYEV, Petr Grigor'yevich (1893-1973), parasitology and virology, elected 14 November 1944, DHME; Hero of Socialist Labor, twice winner of USSR State Prize; member of Presidium of USSR AMS (1946-1948), academician secretary of DHME (1953-1957), vice president of USSR AMS (1957-1960).

SEVERIN, Sergey Yevgen'yevich (born 1901), biochemistry, elected 27 December 1948, DBMS; academician of USSR AS, Hero of Socialist Labor; academician secretary of DBMS USSR AMS (1948-1957).

SHABAD, Leon Manusovich (born 1902), experimental oncology and pathological anatomy, elected 3 February 1962, DBMS.

SHAMOV, Vladimir Nikolayevich (1882-1962), surgery, elected 30 October 1945, DCM; Lenin Prize winner.

SHEVKUNENKO, Viktor Nikolayevich (1872-1952), operative surgery and topographic anatomy, elected 14 November 1944, DCM; USSR State Prize winner.

SHIROKOGOROV, Ivan Ivanovich (1869-1946), pathological anatomy, elected 14 November 1944, DBMS.

SHMELEV, Nikolay Andreyevich (born 1899), therapeutics and phthisiology, elected 3 February 1962, DCM; member of Presidium of USSR AMS (1968-1972).

SHMIDT, Yevgeniy Vladimirovich (born 1905), neuropathology, elected 1 November 1963, DCM; Hero of Socialist Labor, USSR State Prize winner; member of Presidium of USSR AMS (1964-1966).

SHTERN, Lina Solomonovna (1878-1968), physiology, elected 14 November 1944, DBMS; academician of USSR AS, USSR State Prize winner.

SIDORENKO, Gennadiy Ivanovich (born 1926), general and municipal hygiene, elected 21 November 1975, DHME.

SIROTONIN, Nikolay Nikolayevich (born 1896), pathological physiology, elected 19 April 1957, DBMS; corresponding member of Ukrainian AS.

SKROBANSKIY, Konstantin Klement'yevich (1873-1946), obstetrics and gynecology, elected 14 November 1944, DCM.

SKRYABIN, Konstantin Ivanovich (1878-1972), helminthology and general parasitology, elected 14 November 1944, DHME; academician of USSR AS and All-Union Academy of Agricultural Sciences imeni Lenin, Hero of Socialist Labor, Lenin Prize winner and twice winner of USSR State Prize.

SKVORTSOV, Mikhail Aleksandrovich (1876-1963), pathological anatomy, elected 30 October 1945, DBMS.

SKVORTSOV, Vladislav Irinarkhovich (1879-1963), pathological anatomy, elected 30 October 1945, DBMS.

SMIRNOV, Yefim Ivanovich (born 1904), public health organization and hygiene, elected 27 December 1948, DHME; member of Presidium of USSR AMS (1957-1960).

SMOL'YANNIKOV, Anatoliy Vladimirovich (born 1913), pathological anatomy, elected 21 November 1975, DBMS.

SMORODINTSEV, Anatoliy Aleksandrovich (born 1901), virology, elected 1 March 1966, DHME; Lenin and USSR State prize winner.

SNEZHNEVSKIY, Andrey Vladimirovich (born 1904), psychiatry, elected 3 February 1962, DCM; Hero of Socialist Labor; academician secretary of DCM, USSR AMS in 1966-1968 and since 1969.

SOKOLOVA-PONOMAREVA, Ol'ga Dmitriyevna (1888-1966), pediatrics, elected 29 January 1960, DCM.

SOLOV'YEV, Mikhail Nikolayevich (born 1886), epidemiology, elected 31 October 1945, DHME.

SOLOV'YEV, Valentin Dmitriyevich (born 1907), virology, elected 4 February 1967, DHME; USSR State Prize winner; academician secretary of DHME since 1968.

SPERANSKIY, Aleksandr Dmitriyevich (1888-1961), pathological physiology, elected 14 November 1944, DBMS; USSR State Prize winner.

SPERANSKIY, Georgiy Nesterovich (1873-1969), pediatrics, elected 14 November 1944, DCM; corresponding member of USSR AS, Hero of Socialist Labor, Lenin Prize winner; member of Presidium of USSR AMS (1946-1948).

STRASHUN, Il'ya Davydovich (1892-1967), hygiene, elected 14 November 1944, DHME.

STRAZHESKO, Nikolay Dmitriyevich (1876-1952), therapeutics, elected 14 November 1944, DCM; academician of USSR AS, Hero of Socialist Labor.

STRUCHKOV, Viktor Ivanovich (born 1907), surgery, elected 7 May 1965 [DCM]; Lenin and USSR State prize winner; chief scientific secretary of USSR AMS since 1966.

STRUKOV, Anatoliy Ivanovich (born 1901), pathological anatomy, elected 1 March 1966, DBMS; Hero of Socialist Labor, Lenin Prize winner; academician secretary of DBMS (1966-1968).

STUDENIKIN, Mitrofan Yakovlevich (born 1923), pediatrics, elected 21 November 1975, DCM.

SYSIN, Aleksey Nikolayevich (1879-1956), hygiene, elected 14 November 1944, DHME; academician secretary of DHME, USSR AMS (1950-1953).

TAREYEV, Yevgeniy Mikhaylovich (born 1895), therapeutics, elected 27 December 1948 [DCM]; Hero of Socialist Labor, Lenin and USSR State prize winner.

TERNOVSKIY, Vasiliy Nikolayevich (born 1888), anatomy and history of medicine, elected 14 November 1944, DBMS.

TIMAKOV, Vladimir Dmitriyevich (born 1905), microbiology, elected 14 May 1952, DHME; academician of USSR AS, Hero of Socialist Labor, Lenin and USSR State prize winner; academician secretary of USSR AMS (1953-1957), vice president (1957-1963) and president of USSR AMS since 1968.

TIMOFEYEVSKIY, Aleksandr Dmitriyevich (born 1887), pathological physiology and experimental oncology, elected 30 October 1945, DBMS; corresponding member of Ukrainian AS, USSR State Prize winner.

TONKOV, Vladimir Nikolayevich (1872-1954), anatomy, elected 14 November 1944, DBMS.

TOPCHIBASHEV, Mustafa Agabek-ogly (born 1895), surgery, elected 29 January 1960, DCM; academician of Azerbaydzhan AS, Hero of Socialist Labor, USSR State Prize winner.

TOROPTSEV, Innokentiy Vasil'yevich (born 1907), pathological anatomy, elected 6 February 1969, DBMS.

TROITSKIY, Viktor Leont'yevich (1897-1962), microbiology, elected 29 January 1960, DHME.

TSEKHNOVITSER, Mark Moiseyevich (1900-1945), microbiology, elected 14 November 1944, DHME.

TURN, Aleksandr Fedorovich (1894-1974), pediatrics, elected 14 May 1952, DCM; Lenin Prize winner.

TUSHINSKIY, Mikhail Dmitriyevich (1882-1962), therapeutics and infectious diseases, elected 30 October 1945, DCM.

VASILENKO, Vladimir Kharitonovich (born 1897), therapeutics, elected 14 November 1944, DCM; Hero of Socialist Labor; member of Presidium of USSR AMS (1950-1953), academician secretary of DCM, USSR AMS (1957-1966).

VERSHILOVA, Pelageya Al'bertovna (born 1904), microbiology, elected 30 June 1971, DHME.

VERSHININ, Nikolay Vasil'yevich (1867-1951), pharmacology, elected 30 October 1945, DBMS.

VESELKIN, Petr Nikolayevich (born 1904), pathological physiology, elected 6 February 1969, DBMS.

VINOGRADOV, Vladimir Nikitich (1882-1964), therapeutics, elected 14 November 1944, DCM; Hero of Socialist Labor, USSR State Prize winner.

VISHNEVSKIY, Aleksandr Aleksandrovich (1906-1975), surgery, elected 19 April 1957, DCM; Hero of Socialist Labor, Lenin and USSR State prize winner.

VISHNEVSKIY, Aleksandr Vasil'yevich (1874-1948), surgery, elected 30 October 1945, DCM; USSR State Prize winner.

VLADIMIROV, Georgiy Yefimovich (1901-1960), biochemistry, elected 29 January 1960, DBMS.

VOLKOV, Mstislav Vasil'yevich (born 1923), traumatology and orthopedics, elected 30 June 1971 [DCM]; USSR State Prize winner; member of Presidium of USSR AMS since 1972.

VOTCHAL, Boris Yevgen'yevich (1895-1971), therapeutics, elected 6 February 1969, DCM.

VOVSI, Miron Semenovich (1897-1960), therapeutics, elected 27 November 1948, DCM.

VOYACHEK, Vladimir Ignat'yevich (1876-1971), otorhinolaryngology, elected 14 November 1944, DCM; Hero of Socialist Labor.

VYGODCHIKOV, Grigoriy Vasil'yevich (born 1899), microbiology, elected 14 December 1953, DHME; academician secretary of DHME (1960-1964 and 1966-1968).

YABLOKOV, Dmitriy Dmitriyevich (born 1896), therapeutics, elected 7 May 1965, DCM; USSR State Prize winner.

YANUSHKEVICHUS, Zigmas Ippolitovich (born 1911), therapeutics, elected 4 February 1967, DCM; academician of Lithuanian AS, USSR State Prize winner.

YASINOVSKIY, Mikhail Aleksandrovich (1899-1972), therapeutics, elected 1 November 1963, DCM.

YEGOROV, Boris Grigor'yevich (1892-1972), neurosurgery, elected 12 December 1953, DCM; academician secretary of DCM, USSR AMS (1957-1960).

YERMOL'YEVA, Zinaida Vissarionovna (1898-1974), microbiology and antibiotics, elected 1 November 1963, DHME; USSR State Prize winner.

YUDAYEV, Nikolay Alekseyevich (born 1913), biochemistry, elected 7 May 1965, DBMS.

YUDIN, Sergey Sergeyevich (1891-1954), surgery, elected 14 November 1944, DCM; Lenin Prize winner and twice winner of USSR State Prize.

YURENEV, Pavel Nikolayevich (1908-1974), therapeutics, elected 28 February 1974, DCM; USSR State Prize winner.

ZAKUSOV, Vasiliy Vasil'yevich (born 1903), pharmacology, elected 14 May 1952, DBMS; academician secretary of DBMS, USSR AMS (1964-1966).

ZAVARZIN, Aleksey Alekseyevich (1886-1945), histology, elected 14 November 1944, DBMS; USSR State Prize winner.

ZBARSKIY, Boris Il'ich (1885-1954), biochemistry, elected 14 November 1944, DBMS; USSR State Prize winner; member of Presidium of USSR AMS (1945-1948).

ZDRODOVSKIY, Pavel Feliksovich (born 1890), microbiology and immunology, elected 31 October 1945, DHME; Hero of Socialist Labor, Lenin and USSR State prize winner.

ZEDGENIDZE, Georgiy Artem'yevich (born 1902), roentgenology and radiology, elected 29 January 1960, DCM.

ZELENIN, Vladimir Filippovich (1881-1968), therapeutics, elected 14 November 1944, DCM; academician secretary of DCM, USSR AMS (1944-1946).

ZHDANOV, Dmitriy Arkad'yevich (1908-1971), normal anatomy, elected 1 March 1966, DBMS; USSR State Prize winner; member of Presidium of USSR AMS (1966-1971).

ZHDANOV, Viktor Mikhaylovich (born 1914), virology, elected 29 January 1960, DHME; chief scientific secretary of Presidium of USSR AMS (1960-1963).

ZHUKOV-VEREZHNIKOV, Nikolay Nikolayevich (born 1908), immunology and microbiology, elected 27 December 1948, DHME; USSR State Prize winner; vice president of USSR AMS (1950-1953).

ZIL'BER, Lev Aleksandrovich (1894-1966), microbiology, elected 31 October 1945, DHME; twice winner of USSR State Prize.

ZURABASHVILI, Avlipiy Davidovich (born 1902), psychiatry, elected 29 January 1960, DCM; academician of Georgian AS.

Corresponding Members:

ABULADZE, Kalenik Sardionovich (1897-1972), physiology, elected 14 May 1952, DBMS.

ADRIANOV, Oleg Sergeyevich (born 1923), physiology, elected 21 November 1975, DBMS.

AKHUNBAYEV, Isa Konoyevich (1908-1975), surgery, elected 27 December 1948, DCM; Academician of Kirgiz AS.

AKHUTIN, Mikhail Nikiforovich (1898-1948), surgery, elected 30 October 1945, DCM.

ALEKSANDROV, Nikolay Nikolayevich (born 1917), oncology, elected 28 February 1974, DCM.

ALYMOV, Andrey Yakovlevich (1893-1965), epidemiology, elected 28 October 1946, DHME.

AMOSOV, Nikolay Mikhaylovich (born 1913), surgery, elected 30 May 1961, DCM; academician of Ukrainian AS, Hero of Socialist Labor, Lenin Prize winner.

ANTONOV, Ignatiy Petrovich (born 1922), neuropathology, elected 28 February 1974, DCM.

ARAPOV, Dmitriy Alekseyevich (born 1897), surgery, elected 12 December 1953; USSR State Prize winner.

ARKHANGEL'SKIY, Vitaliy Nikolayevich (1897-1973), ophthalmology, elected 3 November 1950, DCM.

ARUTYUNYAN, Levon Asaturovich (1903-1973), general hygiene, elected 30 May 1961, DHME.

ASKERKHANOV, Rashid Pashayevich (born 1920), surgery, elected 28 February 1974, DCM.

ATAKHANOV, Ergash Isabayevich (1914-1967), therapeutics, elected 30 May 1961, DCM; corresponding member of Uzbek AS.

AVDEYEV, Mikhail Ivanovich (born 1901), forensic medicine, elected 19 April 1957, DBMS.

BABAYANTS, Ruben Ambartsumovich (1889-1962), hygiene, elected 31 October 1945, DHME.

BAIROV, Girey Aliyevich (born 1922), pediatric surgery, elected 1 November 1963, DCM.

BAKSHEYEV, Nikolay Sergeyevich (1911-1974), obstetrics and gynecology, elected 1 March 1966, DCM.

BANAYTIS, Stanislav Iosifovich (1899-1954), surgery, elected 3 November 1950, DCM; academician of Lithuanian AS.

BARON, Mikhail Arkad'yevich (1904-1974), histology, elected 27 December 1948, DBMS.

BATKIS, Grigoriy Abramovich (1895-1960), hygiene, elected 31 October 1945, DHME.

BELEN'KIY, Maks L'vovich (1911-1965), pharmacology, elected 29 January 1960, DBMS.

BELENKOV, Nikita Yur'yevich (born 1917), physiology, elected 6 February 1969, DBMS.

BELOSHAPKO, Pavel Andreyevich (1893-1960), obstetrics and gynecology, elected 19 April 1957, DCM.

BELOUSOV, Vladimir Aleksandrovich (1895-1971), pediatrics, elected 19 April 1957, DCM.

BELYAKOV, Vitaliy Dmitriyevich (born 1912), epidemiology, elected 30 April 1971, DHME.

BELYAYEV, Igor' Ippolitovich (born 1910), general and municipal hygiene, elected 6 February 1969, DHME.

BEREZIN, Ivano Filippovich (born 1896), surgery, elected 29 January 1960 [DCM].

BERNSHTEYN, Nikolay Aleksandrovich (1896-1966), physiology, elected 29 October 1946, DBMS; USSR State Prize winner.

BLOKHINA, Irina Nikolayevna (born 1921), microbiology, elected 21 November 1975, DBMS.

BOCHKOV, Nikolay Pavlovich (born 1931), medical genetics, elected 30 June 1971, DBMS.

BOGDANOV, Fedor Rodionovich (1900-1973), orthopedics and traumatology, elected 13 May 1952, DCM.

BOGDANOV, Ivan Luk'yanovich (born 1903), infectious diseases, elected 12 December 1953, DCM.

BOGOVSKIY, Pavel Aleksandrovich (born 1919), experimental oncology, elected 7 May 1955, DBMS.

BOLDYREV, Tikhon Yefimovich (born 1900), epidemiology, elected 28 December 1948, DHME.

BONDAR', Zinaida Adamovna (born 1907), therapeutics, elected 6 February 1969, DCM.

BORODIN, Yuriy Ivanovich (born 1929), anatomy, elected 21 November 1975, DBMS; Siberian Branch of USSR AMS.

BREDIKIS, Yurgis Yuozo (born 1929), medical electronics, elected 6 February 1969, DCM.

BURAKOVSKIY, Vladimir Ivanovich (born 1922), cardiovascular surgery, elected 20 August 1971, DCM; USSR State Prize winner.

BURTNIYEK, Ernest Martinovich (1898-1958), therapeutics, elected 12 December 1953, DCM.

CHAGIN, Konstantin Petrovich (born 1913), parasitology, elected 28 February 1974, DHME.

CHAKLIN, Vasiliy Dmitriyevich (born 1892), orthopedics and traumatology, elected 30 October 1945, DCM.

CHERKINSKIY, Samuil Naumovich (born 1897), hygiene, elected 30 October 1945, DHME.

CHISTOVICH, Aleksey Nikolayevich (1905-1970), pathological anatomy, elected 30 May 1961, DBMS.

DANILENKO, Mikhail Vasil'yevich (born 1918), surgery, elected 21 November 1975, DCM.

DAVIDENKOVA, Yevgeniya Fedorovna (born 1902), medical genetics, elected 1 November 1963, DCM.

DEMIN, Aristarkh Aleksandrovich (born 1918), therapeutics, elected 28 February 1974, DCM; Siberian Branch of USSR AMS.

DERKACH, Vasiliy Stepanovich (1894-1975), microbiology, elected 30 October 1945, DHME.

DERYAPA, Nikolay Romanovich (born 1923), therapeutics, elected 21 November 1975, DCM; Siberian Branch of USSR AMS.

DOBROKHOTOVA, Aleksandra Ivanovna (1884-1958), pediatrics, elected 14 May 1952, DCM.

DOLETSKIY, Stanislav Yakovlevich (born 1919), pediatric surgery, elected 21 November 1975, DCM.

DOLGO-SABUROV, Boris Alekseyevich (1900-1960), anatomy, elected 30 October 1945, DBMS.

DOMARADSKIY, Igor' Valerianovich (born 1925), microbiology, elected 6 February 1969, DHME.

DUL'TSIN, Mark Solomonovich (1904-1969), hematology, elected 7 May 1965, DCM; USSR State Prize winner.

DZHAVAD-ZADE, Mir-Mamed Dzhavad ogly (born 1927), urology, elected 28 February 1974, DCM.

FANARDZHYAN, Varfolomey Artem'yevich (born 1898), roentgenology, elected 29 January 1960, DCM; academician of Armenian AS.

FIGURNOV, Konstantin Mikhaylovich (1887-1961), obstetrics and gynecology, elected 28 October 1946, DCM.

FILIPPOVICH, Artemiy Nikitich (1901-1961), infectious diseases, elected 29 January 1960, DCM.

FRANK, Gleb Mikhaylovich (born 1904), biophysics, elected 30 October 1945, DBMS; academician of USSR AS, twice winner of USSR State Prize.

GALANIN, Nikolay Fedorovich (1893-1969), hygiene, elected 28 October 1946, DHME.

GASILIN, Vladimir Sergeyevich (born 1929), therapeutics, elected 21 November 1974, DCM.

GAVRILOV, Oleg Konstantinovich (born 1922), hematology and blood transfusion, elected 28 February 1974, DCM.

GEORGIU, Natal'ya Konstantinovna (born 1914), pediatric surgery, elected 30 June 1971, DCM.

GINETSINSKIY, Aleksandr Grigor'yevich (1895-1962), physiology, elected 28 October 1946, DBMS.

GUKASYAN, Aram Grigor'yevich (1901-1972), therapeutics, elected 7 May 1965, DCM.

GUL'KEVICH, Yuliy Valentinovich (1905-1974), pathological anatomy, elected 6 February 1969, DBMS.

IL'IN, Leonid Andreyevich (born 1928), radiation hygiene, elected 28 February 1974, DHME.

ISLAMBEKOV, Radzhat Kaplanovich (born 1925), clinical endocrinology, elected 6 February 1969, DCM; Lenin Prize winner.

KALNBERZ, Viktor Konstantinovich (born 1928), traumatology and orthopedics, elected 6 February 1969, DCM.

KALYUZHNYY, Denis Nikolayevich (born 1900), municipal hygiene, elected 30 June 1961, DHME.

KANEP, Vil'gel'm Vil'gel'movich (born 1923), social hygiene and public health organization, elected 28 February 1974, DHME.

KARAKULOV, Ishanbay Karakulovich (born 1909), epidemiology, elected 30 May 1961, DHME; corresponding member of Kazakh AS.

KASATKIN, Nikolay Ivanovich (born 1903), physiology, elected 14 May 1952, DBMS.

KHAKIMOVA, Sof'ya Khafizovna (born 1924), obstetrics and gynecology, elected 6 February 1969, DCM.

KHANANASHVILI, Mikhail Mikhaylovich (born 1928), physiology, elected 30 June 1971, DBMS.

KHARKEVICH, Dmitriy Aleksandrovich (born 1927), pharmacology and toxicology, elected 4 February 1967, DBMS.

KHECHINASHVILI, Semen Nikolayevich (born 1919), otorhinolaryngology, elected 1 November 1963, DCM; Lenin Prize winner.

KHODUKIN, Nikolay Ivanovich (1896-1957), epidemiology, elected 31 October 1945, DHME; corresponding member Uzbek AS.

KHOKHOL, Yelena Nikolayevna (1897-1964), pediatrics, elected 12 December 1953, DCM.

KHOLDIN, Semen Abramovich (1896-1974), oncology and surgery, elected 19 April 1957, DCM.

KHROMOV-BORISOV, Nikolay Vasil'yevich (born 1905), drug chemistry, elected 30 May 1961, DBMS.

KIBYAKOV, Aleksey Vasil'yevich (born 1899), physiology, elected 27 December 1948, DBMS.

KIPSHIDZE, Nodar Nikolayevich (born 1923), therapeutics, elected 21 November 1975, DCM.

KISLYAK, Natal'ya Sergeyevna (born 1926), pediatrics, elected 28 February 1974, DCM.

KLYUYEVA, Nina Georgiyevna (1899-1971), microbiology, elected 31 October 1945, DHME.

KNORRE, Aleksey Georgiyevich (born 1914), embryology, elected 4 February 1967, DBMS.

KOCHERGIN, Ivan Georgiyevich (born 1903), surgery, elected 14 May 1952, DCM.

KOCHETKOV, Nikolay Konstantinovich (born 1915), chemistry of natural and biologically active compounds, elected 19 April 1957, DBMS; corresponding member of USSR AS.

KOLOSOV, Nikolay Grigor'yevich (born 1897), neurohistology, elected 30 October 1945, DBMS; corresponding member of USSR AS.

KOMAROV, Fedor Ivanovich (born 1920), therapeutics, elected 28 February 1974, DCM.

KONOVALOV, Aleksandr Nikolayevich (born 1933), neurosurgery, elected 28 February 1974, DCM.

KORZH, Aleksey Aleksandrovich (born 1924), traumatology and orthopedics, elected 4 February 1967, DCM.

KOZHEVNIKOV, Petr Vasil'yevich (1898-1969), dermatovenereology, elected 28 October 1946, DCM.

KRAKOVSKIY, Nikolay Ivanovich (born 1903), surgery, elected 7 May 1965, DCM; State Prize winner.

KRAVKOV, Sergey Vasil'yevich (1893-1951), physiology, elected 28 October 1946, DBMS.

KRESTOVNIKOV, Aleksey Nikolayevich (1885-1955), physiology, elected 12 December 1953, DBMS.

KRYZHANOVSKIY, Georgiy Nikolayevich (born 1922), pathological physiology, elected 30 June 1971, DBMS.

KULAGIN, Viktor Konstantinovich (born 1923), pathological physiology, elected 28 February 1974, DBMS.

KUNDIYEV, Yuriy Il'ich (born 1927), industrial hygiene and occupational pathology, elected 28 February 1974, DHME.

KURASHOV, Sergey Vladimirovich (1910-1965), public health organization and social hygiene, elected 7 May 1965, DHME.

KURSHAKOV, Nikolay Aleksandrovich (1886-1973), therapeutics, elected 12 December 1953, DCM.

LASHAS, Vlados Laurinasovich (1892-1966), physiology, elected 27 December 1948, DBMS.

LATYSHEV, Nikolay Ivanovich (1886-1951), parasitology, elected 3 November 1950, DHME.

LAZARENKO, Fedor Mikhaylovich (1888-1953), histology, elected 28 October 1946, CBMS.

LIDSKIY, Arkadiy Timofeyevich (1890-1973), surgery, elected 30 October 1945, DCM.

LIKHACHEV, Andrey Gavrilovich (born 1899), otorhinolaryngology, elected 1 November 1963, DCM.

LIMBERT, Aleksandr Aleksandrovich (1894-1974), surgery, elected 30 October 1945, DCM; USSR State Prize winner.

LISITSYN, Yuriy Pavlovich (born 1928), social hygiene and public health organization, elected 21 November 1975, DHME.

LITVINOV, Nikolay Nikolayevich (1893-1974), hygiene, elected 29 January 1960, DHME.

LOGINOV, Anatoliy Sergeyevich (born 1924), therapeutics, elected 21 November 1975, DCM.

L'VOV, Dmitriy Konstantinovich (born 1931), virology, elected 21 November 1975, DHME.

MAKAROV, Petr Vasil'yevich (1905-1967), histology, elected 3 November 1950, DBMS.

MAKSIMENKOV, Aleksey Nikolayevich (1906-1968), operative surgery and topographic anatomy, elected 28 October 1946, DCM; USSR State Prize winner.

MAKSUMOV, Dzhalal Nasyrovich (born 1920), radiology, elected 6 February 1969, DCM.

MALINOVSKIY, Nikolay Nikodimovich (born 1921), surgery, elected 28 February 1974, DCM.

MARSHAK, Moisey Yefimovich (born 1894), physiology, elected 19 April 1957, DBMS.

MARUASHVILI, Georgiy Levonovich (born 1910), parasitology and tropical medicine, elected 29 January 1960, DHME.

MASHKOVSKIY, Mikhail Davydovich (born 1908), pharmacology, elected 30 May 1961, DBMS.

MAYEVSKIY, Mikhail Mikhaylovich (born 1894), microbiology and experimental oncology, elected 3 November 1950, DHME; USSR State Prize winner.

MAZAYEV, Pavel Nikolayevich (born 1902), roentgenology, elected 1 November 1963, DCM.

MEGRABYAN, Andronik Ambartsumovich (born 1904), psychiatry, elected 1 November 1963, DCM.

MERKULOV, Ivan Iosifovich (born 1897), ophthalmology, elected 28 October 1946, DCM.

MESHALKIN, Yevgeniy Nikolayevich (born 1916), cardiovascular surgery, elected 28 February 1974, DCM; Siberian Branch of USSR AMS; Hero of Socialist Labor, Lenin Prize winner.

MIRRAKHIMOV, Mirsaid Mirkhamidovich (born 1927), therapeutics, elected 6 February 1969, DCM.

MISYUK, Nikolay Semenovich (born 1919), neuropathology, elected 6 February 1969, DCM.

MOGILEVCHIK, Zakhar Kuz'mich (1895-1975), hygiene, elected 14 December 1953, DHME.

MOGIL'NITSKIY, Boris Nesterovich (1882-1955), pathological anatomy, elected 14 May 1952, DBMS.

MOLCHANOVA, Ol'ga Pavlovna (1886-1975), physiology, elected 3 November 1950, DBMS.

MOLOKANOV, Konstantin Pavlovich (born 1904), occupational pathology and roentgenology, elected 7 May 1965, DCM.

MOROZKIN, Nikolay Ivanovich (1893-1966), infectious diseases, elected 19 April 1957, DCM.

MOROZOV, Viktor Mikhaylovich (born 1907), psychiatry, elected 4 February 1967, DCM.

MOSHKOV, Valentin Nikolayevich (born 1903), therapeutic physical culture, elected 29 April 1957, DCM.

MOSHKOVSKIY, Shabsay Davidovich (born 1895), parasitology and epidemiology, elected 28 October 1946, DHME.

MUSABAYEV, Isak Kurbanovich (born 1910), infectious diseases, elected 30 May 1961, DCM; academician of Uzbek AS.

NAMAZOVA, Adiliya Avaz-kyzy (born 1926), pediatrics, elected 30 June 1971, DCM.

NAPALKOV, Nikolay Pavlovich (born 1932), experimental oncology, elected 21 November 1975, DCM.

NASONOVA, Valentina Aleksandrovna (born 1923), rheumatology, elected 28 February 1974, DCM.

NATADZE, Georgiy Mikhaylovich (1892-1965), hygiene, elected 28 December 1948, DHME.

NAVASHIN, Sergey Mikhaylovich (born 1924), antibiotics, elected 21 November 1975, DBMS.

NEYFAKH, Solomon Abramovich (born 1909), biochemistry and biochemical genetics, elected 1 November 1963, DBMS.

NIKIFOROV, Vladimir Nikolayevich (born 1919), infectious diseases, elected 21 November 1975, DCM.

NIKOLAYEV, Mikhail Petrovich (1893-1949), pharmacology, elected 30 October 1945, DBMS.

NOSOV, Sergey Dmitriyevich (born 1902), pediatrics, elected 1 November 1963, DCM.

NOVACHENKO, Nikolay Petrovich (1898-1966), orthopedics and traumatology, elected 20 April 1957, DCM.

NOVIKOVA, Lyudmila Alekseyevna (born 1901), oncology and gynecology, elected 30 June 1961, DCM.

OBROSOV, Aleksey Nikolayevich (born 1895), physiotherapy, elected 19 April 1957, DCM.

OGNEV, Boris Vladimirovich (born 1901), surgery, elected 28 October 1946, DCM.

OLSUF'YEV, Nikolay Grigor'yevich (born 1905), microbiology and parasitology, elected 19 April 1957, DHME.

OSTROVERKHOV, Georgiy Yefimovich (born 1904), operative surgery and topographic anatomy, elected 4 February 1967, DCM.

PANKOV, Yuriy Aleksandrovich (born 1930), experimental endocrinology, elected 28 February 1974, DBMS.

PAVLOV, Sergey Timofeyevich (1897-1971), dermatovenereology, elected 3 November 1950, DCM.

PERSHIN, Grigoriy Nikolayevich (born 1908), pharmacology and chemotherapy, elected 30 May 1961, DBMS; USSR State Prize winner.

PETRISHCHEVA, Polina Andreyevna (1899-1973), parasitology, elected 28 October 1946, DHME; USSR State Prize winner.

PETROV, Boris Dmitriyevich (born 1904), hygiene and history of medicine, elected 6 February 1969, DHME.

PETROV, Rem Viktorovich (born 1930), immunogenetics, elected 28 February 1974, DBMS.

POD"YAPOL'SKAYA, Varvara Petrovna (1892-1975), helminthology, elected 14 December 1953, DHME.

POKROVSKIY, Valentin Ivanovich (born 1929), infectious diseases, elected 30 June 1971, DCM.

PORTUGALOV, Viktor Valentinovich (born 1909), histochemistry, elected 1 November 1963, DBMS; USSR State Prize winner.

PROKOF'YEVA-BEL'GOVSKAYA, Aleksandra Alekseyevna (born 1903), experimental genetics, elected 7 May 1965, DBMS.

PROZOROV, Aleksandr Yevgrafovich (1889-1952), roentgenology, elected 28 October 1946, DCM.

PUCHKOVSKIY, Sergey Nikiforovich (1888-1967), epidemiology, elected 28 October 1946, DHME.

PUL'KIS, Vladimir Antonovich (1890-1970), hygiene, elected 14 May 1952, DHME.

PYTEL', Anton Yakovlevich (born 1902), urology, elected 1 November 1963, DCM.

RAKHMANOV, Viktor Aleksandrovich (1901-1969), dermatovenereology, elected 19 April 1957, DCM.

RAKOV, Aleksandr Ivanovich (1902-1972), surgery and oncology, elected 21 January 1960, DCM.

RAVICH-SHCHERBO, Vladimir Antonovich (1890-1955), therapeutics and phthisiology, elected 28 October 1946, DCM.

RAZDOL'SKIY, Ivan Yakovlevich (1890-1962), neuropathology, elected 28 October 1946, DCM.

ROGOZIN, Isaak Iosifovich (1900-1973), epidemiology, elected 31 October 1945, DHME; USSR State Prize winner.

ROKHLIN, Dmitriy Gerasimovich (born 1895), roentgenology and radiology, elected 28 October 1946, DCM.

RUCHKOVSKIY, Sergey Nikiforovich (1888-1967), epidemiology, elected 28 October 1946, DHME.

RUSINOV, Vladimir Sergeyevich (born 1903), physiology, elected 3 November 1950, DBMS.

RYSS, Simon Mikhaylovich (1896-1968), therapeutics, elected 29 January 1960, DCM.

SAARMA, Yuriy Martynovich (born 1921), psychiatry, elected 28 February 1974, DCM.

SAMARIN, Nikolay Nikolayevich (1888-1954), surgery, elected 28 October 1946, DCM.

SAMOYLOV, Aleksandr Filippovich (born 1897), ophthalmology, elected 30 October 1945, DCM.

SAMSONOV, Mikhail Andreyevich (born 1918), therapeutic nutrition, elected 21 November 1975, DCM.

SEDOV, Konstantin Rafailovich (born 1918), therapeutics, elected 28 February 1974, DCM; deputy director of Siberian Branch of USSR AMS.

SERDYUKOVSKAYA, Galina Nikolayevna (born 1921), child and adolescent hygiene, elected 21 November 1975, DHME.

SERENKO, Aleksandr Fedorovich (born 1916), social hygiene and public health organization, elected 6 February 1969, DHME.

SERGIYEVSKIY, Mikhail Vasil'yevich (born 1898), physiology, elected 14 May 1952, DBMS.

SEROV, Viktor Viktorovich (born 1924), pathological anatomy, elected 21 November 1975, DBMS.

SHABANOV, Aleksandr Nikolayevich (born 1904), surgery, elected 6 February 1969, DCM.

SHAKHBAZYAN, Gayk Khachaturovich (born 1896), industrial hygiene, elected 19 April 1957, DHME.

SHAMSIYEV, Sayfi Shamsiyevich (born 1914), pediatrics, elected 28 February 1974, DCM.

SHAPOSHNIKOV, Oleg Konstantinovich (born 1920), dermatovenereology, elected 28 February 1974, DCM.

SHAPOT, Vladimir Sergeyevich (born 1909), biochemistry, elected 7 May 1965, DBMS.

SHARMANOV, Turegel'dy Sharmanovich (born 1930), hygiene of nutrition, elected 21 November 1975, DHME.

SHCHELKUNOV, Serafim Ivanovich (born 1904), histology, elected 12 December 1953, DBMS.

SHCHELOVANOV, Nikolay Matveyevich (born 1892), physiology and pediatrics, elected 28 October 1946, DCM.

SHCHUKAREV, Konstantin Aleksandrovich (1894-1954), therapeutics, elected 14 May 1952, DCM.

SHEBANIV, Filipp Vasil'yevich (born 1897), phthisiology, elected 29 January 1960, DCM.

SHITSKOVA, Anastasiya Pavlovna (born 1919), general and municipal hygiene, elected 28 February 1974, DHME.

SHKHVATSABAYA, Igor' Konstantinovich (born 1928), therapeutics, elected 28 February 1974, DCM.

SHMIDT, Aleksandr Aleksandrovich (born 1892), biochemistry, elected 29 January 1960, DBMS; academician of Latvian AS.

SHUBLADZE, Antonina Konstantinovna (born 1909), virology, elected 4 February 1967, DHME; USSR State Prize winner.

SHUVALOVA, Yevgeniya Petrovna (born 1918), infectious diseases, elected 30 June 1971, DCM.

SKAVRONSKAYA, Adelina-Viktoriya Genrikhovna (born 1922), microbiology, elected 21 November 1975, DHME.

SMIRNOV, Aleksandr Ivanovich (born 1887), physiology, elected 3 October 1950, DBMS.

SMIRNOV, Leonid Iosifovich (1889-1955), pathological anatomy, elected 28 October 1946, DBMS.

SOBAKIN, Mikhail Alekseyevich (born 1917), physiology, elected 28 February 1974, DBMS; deputy director of Siberian Branch of USSR AMS.

SOLDATOV, Igor' Borisovich (born 1923), otorhinolaryngology, elected 6 February 1969, DCM.

SOLOV'YEV, Aleksandr Aleksandrovich (1893-1967), pathological morphology, elected 3 November 1950, DBMS.

SOLOV'YEV, Gleb Mikhaylovich (born 1928), surgery, elected 4 February 1967, DCM; USSR State Prize winner.

SPERANSKAYA, Yekaterina Nikolayevna (born 1899), endocrinology, elected 19 April 1957, DBMS.

SPERANSKIY, Ivan Ivanovich (1894-1960), therapeutics, elected 12 Decmeber 1953, DCM.

STRADYN', Paul Yanovich (1896-1958), surgery, elected 30 October 1945, DCM; academician of Latvian AS.

STRELIN, Gavriil Sergeyevich (born 1905), embryology and histology, elected 7 May 1965, DBMS.

SUDAKOV, Konstantin Viktorovich (born 1932), physiology, elected 21 November 1975, DBMS.

SVETLOV, Pavel Grigor'yevich (1892-1974), biology and embryology, elected 28 October 1946, DBMS; USSR State Prize winner.

TABOLIN, Vyacheslav Aleksandrovich (born 1926), pediatrics, elected 21 November 1975, DCM.

TAGER, Iosif L'vovich (born 1900), roentgenology, elected 7 May 1965, DCM; Hero of Socialist Labor.

TALYZIN, Fedor Fedorovich (born 1903), parasitology, elected 14 May 1952, DHME.

TARASENKO, Natal'ya Yuvenal'yevna (born 1911), hygiene, elected 4 February 1967, DHME; Lenin Prize winner.

TENTSOVA, Antonina Ivanovna (born 1922), biopharmacology, elected 21 November 1975, DBMS.

TERNOVSKIY, Sergey Dmitriyevich (1896-1960), children's surgery, elected 19 April 1957, DCM.

TIMOSHENKO, Leonid Vasil'yevich (born 1921), obstetrics and gynecology, elected 28 February 1974, DCM.

TRAPEZNIKOV, Nikolay Nikolayevich (born 1928), oncology, elected 28 February 1974, DCM.

TRET'YAKOV, Konstantin Nikolayevich (1892-1958), neuropathology, elected 30 October 1945, DCM.

TRIUMFOV, Aleksandr Viktorovich (1897-1963), neuropathology, elected 3 November 1951, DCM.

TSINZERLING, Vsevolod Dmitriyevich (1891-1960), pathological anatomy, elected 28 October 1946, DBMS.

TSULUKIDZE, Aleksandr Petrovich (1888-1967), urology, elected 30 October 1945, DCM; academician of Georgian AS.

UDINTSEV, Grigoriy Nikolayevich (born 1896), therapeutics, elected 30 October 1945, DCM; corresponding member of Kazakh AS.

UMIDOVA, Zul'fiya Ibragimovna (born 1897), therapeutics, elected 27 December 1948, DCM.

UNDRITS, Vil'gel'm Fomich (1891-1963), otorhinolaryngology, elected 28 October 1946, DCM.

VADI, Val'demar Madisovich (1891-1951), therapeutics, elected 30 October 1945, DCM.

VAL'DMAN, Artur Viktorovich (born 1924), pharmacology, elected 7 May 1965, DBMS.

VANTSYAN, Eduard Nikitich (born 1921), surgery, elected 21 November 1975, DCM.

VASIL'YEV, Leonid Leonidovich (1891-1966), physiology, elected 3 November 1950, DBMS.

VEDROV, Nikolay Simonovich (1891-1949), dermatovenereology, elected 30 October 1945, DCM.

VETOSHKIN, Sergey Ivanovich (1892-1955), hygiene, elected 14 December 1953, DHME.

VINOGRADOV, Nikolay Arkad'yevich (born 1910), hygiene and public health organization, elected 1 March 1966, DHME.

VLADOS, Kharlampiy Kharlampiyevich (1891-1953), therapeutics and hematology, elected 27 December 1948, DCM; USSR State Prize winner.

VOLKOVA, Ol'ga Vasil'yevna (born 1927), embryology, elected 28 February 1974, DBMS.

VORONTSOVA, Yelena Ivanovna (born 1913), hygiene, elected 30 April 1971, DHME; USSR State Prize winner.

VOROSHILOVA, Marina Konstantinovna (born 1922), virology, elected 6 February 1969, DHME.

VOTYAKOV, Veniamin Iosifovich (born 1921), virology, elected 30 April 1971, DHME; member of Presidium of USSR AMS since 1972.

VOYTKEVICH, Anatoliy Anatol'yevich (1908-1971), endocrinology, elected 29 January 1960, DBMS.

YAGUNOV, Sergey Alekseyevich (1893-1959), obstetrics and gynecology, elected 27 December 1948, DCM.

YEGOROV, Petr Ivanovich (1899-1967), therapeutics, elected 27 December 1948, DCM.

YELOLYAN, Ruben Osipovich (1894-1955), surgery, elected 28 October 1946, DCM.

YEROSHEVSKIY, Tikhon Ivanovich (born 1902), ophthalmology, elected 6 February 1969, DCM; Hero of Socialist Labor.

YEVDOKIMOV, Alesandr Ivanovich (1883-1974), stomatology, elected 19 April 1957, DCM; Hero of Socialist Labor.

ZAKHIDOV, Abdulla Zakhidovich (born 1910), hygiene, elected 30 June 1971, DHME.

ZAVODSKAYA, Irina Sergeyevna (born 1924), pharmacology, elected 21 November 1975, DBMS.

ZAYKO, Nikolay Nikiforovich (born 1908), pathological physiology, elected 6 February 1969, DBMS.

ZAZYBIN, Nikolay Ivanovich (born 1903), histology and embryology, elected 14 May 1952, DBMS.

ZBARSKIY, Il'ya Borisovich (born 1913), biochemistry, elected 1 November 1963, DBMS.

ZHUMATOV, Khamza Zhumatovich (1912-1972), virology, elected 30 May 1961, DHME; academician of Kazakh AS.

Foreign Members of USSR AMS (1961-1975)*

BABICS, Antal (born 1902; Department of Medical Sciences, Hungarian AS), urology, elected 1965, DCM.

BAUMANN, Rudolf (born 1911; director of Central Institute of Cardiovascular Regulation, GDR AS), therapeutics, elected 1974, DCM.

BRECELJ, Bogdan (born 1906; director of Orthopedic Clinic, Ljubljana, Yugoslavia), surgery, orthopedics and traumatology, elected 1963, DCM.

CANDAU, Marcelino Gomes (born 1911, Brazil), public health organization, elected 1968, DHME.

DE BAKEY, Michael (born 1908; president of Baylor College, United States), surgery, elected 1974, DCM.

DE CASTRO, Josue (1908-1973, Brazil; president of International Center for Development, Paris), hygiene, elected 1963, DHME.

DOGLOTTI, Achille Mario (1897-1966; director of surgical clinic at Turin University, Italy), surgery, elected 1962, DCM.

FRIBERG, Sten (born 1902; Carolinska Institute, Sweden), orthopedics and traumatology, elected 1967, DCM.

GOMORI, Pal (1905-1973; academician secretary of Department of Medical Sciences, Hungarian AS, director of Therapeutic Clinic), therapeutics, elected 1969, DCM.

HADDOW, Alexander (born 1907; director of Chester-Beatty Institute, London, England), experimental oncology, elected 1961, DBMS.

HOUSSAY, Bernardo (1887-1971; director of Institute of Biology and Experimental Medicine, Argentina), physiology, elected 1969, DBMS.

*The practice of electing foreign scientists to USSR AMS was begun in 1961.

HRBEK, Jaromir (born 1914; professor, faculty of general medicine, Palacky University, Olomouc, CSSR), neurology, elected 1969, DCM.

HUAN, Tsia Sy (born 1907; PRC AMS), surgery, elected 1961, DCM.

IKICH, Drago (born 1917); corresponding member of Yugoslavian Academy of Sciences and Arts, director of Institute of Immunology, Zagreb, Yugoslavia), immunology, elected 1975, DHME.

KACPZAK, Martin (1888-1968; professor of hygiene, Medical Academy, Warsaw, Poland), hygiene, elected 1961, DHME.

KHANOLKAR, Vasant Ramju (born 1895; Tata Memorial Institute, Bombay, India), pathological anatomy, elected 1961, DBMS.

KRAATZ, Helmut (born 1902, GDR AS), obstetrics and gynecology, elected 1963, DCM.

KURYLOWICZ, Wlodzimierz (born 1910; director of State Institute of Hygiene, Warsaw, Poland), microbiology, elected 1966, DHME.

LACASSAGNA, Antoine (1884-1971; Radium Institute, Paris University, France), radiology, elected 1962, DCM.

LEPINE, Pierre (born 1901; section supervisor, Pasteur Institute, France), virology, elected 1969, DHME.

LWOFF, André (born 1902; head of laboratory, Pasteur Institute, France), virology, elected 1967, DHME.

MALEYEV, Atanas Khristov (born 1917; head of Medical Academy, Bulgaria), therapeutics, elected 1974, DCM.

NICOLAU, Stefan (1896-1967; director of Institute of Infrabiology, Romania), microbiology, virology and immunology, elected 1961, DHME.

PRESNO ALBARRAN, Jose Antonio (born 1916; chief surgeon, Ministry of Health, Republic of Cuba), surgery, elected 1966, DCM.

PUKHLEV, Oleksi Romanov (born 1905; head of chair of internal diseases and therapeutics, Higher Medical Institute, Bulgaria), therapeutics, elected 1969, DCM.

RASKA, Karel (born 1909; Czechoslovakia; director of Department of Communicable Diseases, WHO), microbiology and epidemiology, elected 1961, DHME.

RAWINSKI, Ksavery (born 1904; head of chair of pediatric radiology, Medical Academy, Warsaw; academician of Polish AS), pediatrics, elected 1969, DCM.

ROSEN, Samuel (born 1897; professor at Columbia University, United States), otorhinolaryngology, elected 1966, DCM.

SISKA, Karol (born 1906; director of Institute of Experimental Surgery, Slovak AS, CSSR), surgery, elected 1969, DCM; foreign member of USSR AS.

STARY, Oldrzhikh (born 1914; CSSR Ministry of Health), neurology, elected 1967, DCM.

TASHEV, Tasho (born 1909; director of Hygiene Center, Bulgarian Medical Academy; director of Institute of Nutrition), therapeutics, elected 1975, DCM.

TON THAT TUNG (born 1912; director of Vietnamese-German Friendship Hospital, Hanoi, Vietnam), surgery, elected 1965, DCM.

UZUNOV, Georgi (1904-1971; vice president of Bulgarian AS), psychiatry, elected 1962, DCM.

VALLE, Rafael Moreno (Mexican Ministry of Health), orthopedics, elected 1965, DCM.

WHITE, Paul Dudley (1886-1973; director of cardiology clinic, Massachussetts General Hospital, United States), cardiology, elected 1961, DCM.

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