JPRS 68741

8 March 1977

USSR

TRANSLATIONS ON USSR SCIENCE AND TECHNOLOGY
BIOMEDICAL SCIENCES
No. 2

20000215 108

U. S. JOINT PUBLICATIONS RESEARCH SERVICE

Reproduced From
Best Available Copy

DISTRIBUTION STATEMENT A
Approved for Public Release
Distribution Unlimited

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U. S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service, Springfield, Virginia 22151. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

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 68741	2.	3. Recipient's Accession No.
4. Title and Subtitle TRANSLATIONS ON USSR SCIENCE AND TECHNOLOGY BIOMEDICAL SCIENCES No. 2			5. Report Date 8 March 1977 6.
7. Author(s)			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			

16. Abstracts

The report contains information on aerospace medicine, agrotechnology, bionics and bioacoustics, biochemistry, biophysics, environmental and ecological problems, food technology, microbiology, epidemiology and immunology, marine biology, military medicine, physiology, public health, toxicology, radiobiology, veterinary medicine, behavioral science, human engineering, psychology, psychiatry and related fields, and scientists and scientific organizations in biomedical fields.

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

USSR	Medicine
Aerospace Medicine	Microbiology
Agrotechnology	Physiology
Biology	Psychology/Psychiatry
Botany	Public Health
Epidemiology/Immunology	Radiobiology
Human Engineering	Toxicology
Marine Biology	Veterinary Medicine

17b. Identifiers/Open-Ended Terms

17c. COSATI Field/Group 2, 5E, 5J, 6, 8A

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
Unlimited Availability Sold by NTIS Springfield, Virginia 22151	UNCLASSIFIED	43
	20. Security Class (This Page) UNCLASSIFIED	22. Price PC A03

FORM NTIS-35 (REV. 3-72) THIS FORM MAY BE REPRODUCED USCOMM-DC 14952-P72

JPRS 68741

8 March 1977

TRANSLATIONS ON USSR SCIENCE AND TECHNOLOGY
BIOMEDICAL SCIENCES

No. 2

CONTENTS PAGE

CARDIOVASCULAR DISEASES

Briefs
Conference of Cardiologists 1

MARINE BIOLOGY

Briefs
New Floating Institute 2

MARINE MAMMALS

Briefs
School for Dolphins 3

PARAPSYCHOLOGY

Commentary on a Lecture on Parapsychology Delivered by E. K. Naumov
(S. Kuznetsov; SOVETSKAYA MOLDAVIYA, 15 Dec 76)..... 4

PSYCHOLOGY

Self-Control a Dialog Between Two Physicians on the Effects of Emotions on Human Health
(SOVETSKAYA ROSSIYA, 4 Jan 77)..... 10

Engineers Learn Art of Communication
(R. Mavlyutov, G. Aleksandrov; PRAVDA, 10 Dec 76).... 13

Boris Fedorovich Lomov
(I. Strakhov; UCHITEL'SKAYA GAZETA, 27 Jan 77)..... 17

CONTENTS (Continued) Page

PUBLIC HEALTH

Plenary Session of Trade Union City Committee
(V. Rakhmanov; STROITEL'NAYA GAZETA, 14 Nov 76).... 22

SCIENTISTS AND SCIENTIFIC ORGANIZATIONS

USSR Minister of Health in Georgia
(ZARYA VOSTOKA, 5 Nov 76)..... 24

Health and Economics
(Z. Aymanbetov; KAZAKHSTANSKAYA PRAVDA, 14 Nov 76). 26

Prospects of Acupuncture
(Viktoriya Kramova: SOVETSKAYA MOLDAVIA,
16 Dec 76)..... 28

Phytotron Test in Odessa
(A. Bogma; PRAVDA, 21 Dec 76)..... 30

Genes in Harness--Largest Phytotron in Country Is in
Operation in Odessa
(A. Knop; NEDELEYA, Jan 77)..... 33

Development of the Medical Industry
(EKONOMICHESKAYA GAZETA, Oct 76)..... 36

CARDIOVASCULAR DISEASES

BRIEFS

CONFERENCE OF CARDIOLOGISTS--Kaunas. Yesterday the first conference of Lithuanian cardiologists ended. The reports on the system of treatment of patients with myocardial infarction developed by Kaunas' cardiologists aroused the special interest of the participants. This system significantly increases the effectiveness of treatment of this serious disease. The percentage of people able to work after they had suffered myocardial infarction increased up to 90-94 percent. The Kaunas cardiologists carrying out research on the heart ischemia according to the program of the World Health Organization cited additional characteristics of symptoms of the preinfarctional state. They are of great practical value for disease prophylaxis. [Text] [Riga SOVETSKAYA LATVIYA in Russian 13 Nov 76 p 4] 8861

CSO: 1870

MARINE BIOLOGY

BRIEFS

NEW FLOATING INSTITUTE--Riga, 11 Nov. (LATINFORM Correspondent). The ship "Professor Vodyanitski", a new floating scientific research institute docked at the pier of the seaside station. The captain of the ship, B. M. Buromenski, told our correspondent the following: "Our ship bearing the name of the famous Soviet hydrobiologist, the corresponding member of the Ukrainian Academy of Science B. A. Vodyanitski, was built in the Finnish city Turku. The ship was built with the aim of carrying out research work in the field of marine biology. With this purpose in mind ten labs and a computer center were placed on board the ship as well as an ocean winch capable of exploring the water in the ocean down to a depth of 7,000 meters. On its first trip the new floating institute Professor Vodyanitski will sail to the north-eastern and central parts of the Atlantic ocean, where it will accomplish a great scientific research work. [Text] [Riga SOVETSKAYA LATVIYA in Russian 12 Nov 76 p 4] 8861

CSO: 1870

BRIEFS

SCHOOL FOR DOLPHINS--Every day the stands of the dolphin arena in Batumi are full of spectators. They are attracted by the unusual scene: following the commands given by the trainers the dolphins play "basketball" (throw the ball into the net), pick up the objects which have been thrown into the water, tow a rubber boat, carry a man on their backs around the pool. All this is not merely a circus attraction. The specialists research how the dolphins can be useful to man. They perform difficult tricks, they are known for their special affection for their trainers. When for example a female dolphin, Masha, got sick she swam up to receive shots administered by the veterinarians. The scientists consider the dolphins able to work as rescuers, guides showing the way to the sunken vessels. But of course this is a matter for the future. The scientific workers of the dolphin arena are now researching the problem whether dolphins can be trained to find fish schools, hold them till the fishing boats come and then drive them into the fishing nets. In the near future two dolphins, Moriyak and Botsman, the most talented pets will be released into the sea. This experiment will be carried out on board a scientific research vessel. [Text] [Minsk SOVETSKAYA BELORUSSIYA in Russian 10 Nov 76 p 4] 8861

CSO: 1870

PARAPSYCHOLOGY

COMMENTARY ON A LECTURE ON PARAPSYCHOLOGY DELIVERED BY E. K. NAUMOV

Kishinev SOVETSKAYA MOLDAVIYA in Russian 15 Dec 76 pp 3-4

[Article by Prof S. Kuznetsov, Doctor of Biological Sciences, head of the laboratory of diagnostics and prognostics of functional states, Institute of Experimental Zoology and Physiology, Moldavian Academy of Sciences: "In the Murky Waters of 'Miracles'"]

[Text] Tens of thousands of students, workers and kolkhoz farmers of Moldavia daily fill numerous auditoriums, advancing their ideological and general education and learning about the latest advances in science and technology. Lectures delivered by international reviewers, scientists and specialists working in the major scientific research centers of our country are very popular and well received. Such individuals are welcomed with hospitality and cordiality.

A warm welcome was also given in several organizations of Kishinev to E. K. Naumov, corresponding member of the International Association of Parapsychologists, who arrived from Moscow and delivered several lectures for the inhabitants of this city. However, those who came to these lectures left the auditorium in bewilderment: What was this, a game, charlatanism, or was there a rational kernel in all they had heard and seen?

Let us consider, together, the content and basic tenets of the lecture of E. K. Naumov, and let us determine what is the actual relationship of science to the issue raised, and what is the true image of the lecturing parapsychologist.

The lecture deals with problems of parapsychology, which has been discussed in some way or other for about 100 years already. In spite of the long history of parapsychology, the lecturer did not cite any data, in his 5-hour lecture, from the scientific literature to provide a materialistic interpretation to the many "miracles"; he merely limits himself to data that give "food for thought." The lights are turned off and there is alternate screening of short films and slides, with "commentaries" by the lecturer, at whose instigation the lecture was staged in an atmosphere of mystery and mysteriousness, anxiety and bewilderment. Everything was presented in such a manner as to imply that there are no unsolved problems in parapsychology, only "bright" success.

In the first part of his lecture, E. K. Naumov demonstrates a few parts from a Soviet popular science movie, in which several people are shown with phenomenal capacity for solving a briefly examined written problem rapidly, driving a car blindfolded and changing their functional capabilities in a state of hypnosis, as if to lull the vigilant audience. However, as scientists have proven, these phenomena have no bearing on parapsychology. They can be explained on the basis of known psychoneurological mechanisms of the brain.

After the audience took in the first part of the lecture as something that goes without saying, there was screening of a film about the Czech, Robert Pavlita who, in the opinion of the lecturer, is the inventor of a "psychotronic generator" that can be charged with human psychic energy. At the will of its inventor, this "energy" can be used to perform specific mechanical work and magnetize wood. While screening the film, the lecturer provides the most superficial explanation for the effects observed, limiting himself to citation of the enthused reactions of specialists who are not working in this field and foreign reporters who have a great passion for various sensational events. But there is no mention in the lecturer's commentary of the works of Soviet and foreign scientists who have long since investigated the effects of R. Pavlita and provided an exhaustive, scientific, materialistic explanation for them.

For example, Professor A. Kitaygorodskiy made a special study of the experiments of R. Pavlita and established, in particular, that the magnetization of a matchstick was the result of adhesion of iron particles while it was being inserted in the orifice of the "psychotronic generator." Anyone can reproduce this effect by rubbing the match against a piece of iron.

The speaker did not even mention that the movement of a "light wing on a needle" effect is reproduced under laboratory conditions. The explanation for this phenomenon is the presence of air movement, invisible to the eye, due to specific arm movements by the experimenter.

In the opinion of the speaker, the most vivid experiment demonstrating that, according to the views of R. Pavlita, some form of psychic energy can indeed be transferred involves a stopping flap [or wing] installed on the rotating axis of a small motor. For greater convincingness, the experiment is conducted in a small box with a glass top. However, this experiment too can be well reproduced if an electric table lamp is turned on and placed in front of the box, instead of a person. It has been proven that, as a result of heating one side of the box by the warmth of the human body or a lamp (by only 2-3 degrees), convection air flows develop in it and they can be seen well if some smoke is let into the box. The movements of these currents are sufficient to eliminate the friction of the flap against the axis of the motor, and as a result it can stop or even begin to turn in the opposite direction. You can imagine the disservice to the audience rendered by E. K. Naumov by omitting any mention of the scientific explanations for the demonstrated experiments, which are no doubt known to the speaker.

Although E. K. Naumov is well aware of the fraudulence of the so-called experiments of N. S. Kulagina, which were exposed as far back as 1967, he brings them

up also. As can be seen from the displayed film, N. S. Kulagina moves various metal, plastic, wood and leather objects only in a straight line, toward herself, supposedly by means of certain mysterious fluids without regard for Newton's laws. In the past, a competent commission of scientists from the Institute of Metrology (Leningrad) established, using a particularly sensitive iron probe, that "there was a magnet under the clothing of N. S. Kulagina that enabled her to perform various manipulations."

It is common knowledge that, in the course of vital activity, muscles and nerves generate electricity. As a result, an electromagnetic field is formed around the human and animal body, and it can be measured and described with appropriate instruments. However, it has been estimated that the voltage of such a field is so negligible that it cannot, in fact, move even an object weighing one gram (versus the objects of up to 0.5 kg, as maintained by E. K. Naumov).

For those who wish to know everything about N. S. Kulagina, let us recall that the procurator of Leningrad, S. Ye. Solov'yev, one of the authors of the book, "Along Invisible Tracks," described her as follows: "Ninel' Sergeyevna Kulagina adopted the procedures of her precursors to a greater extent than all previous frauds." At the time, she was tried and punished for her swindles.

The lecture of E. K. Naumov is full of sensationalism about the Dutch "clairvoyant," (Zh. Kruaa'ye) who supposedly can locate killed children; about the "magic wand" which, in the hands of particularly gifted people, can detect underground deposits or water sources. Without delving into deep analysis of these phenomena, let us mention that this "magic" effect had also been tested by science and, according to specialists, they are referable more to the ranks of pure quackery and fraud than parapsychology.

There was also room in the lecture for the story about the unique skills of a certain Urie Geller and a Japanese boy who are able to bend various metal objects (spoons, forks, keys, etc.) by virtue of their "psi energy." But, of course, E. K. Naumov knows that, U. Geller had been asked by reporters on the journal, Spiegel (FRG) to demonstrate his "skills" to professional magicians. U. Geller categorically refused. The reporters gave objects he had bent to the State Scientific Laboratory for Testing Materials (West Berlin). The expert conclusion stated: "... There are traces of mercuric and nitric acids at the bending point of the fork made of cupronickel. and they had been applied to the spot (the weakest point of the fork) a few minutes earlier. The break passes through the vulnerable point." And the spoons submitted to the experts were "bent in the most fraudulent manner, by means of mechanical force."

It had been repeatedly indicated in Soviet and foreign scientific literature that, for the last 90-95 years, during which many experiments were conducted dealing with telepathy, clarvoyance, telekinesis, "proskopii" [?], extrasensory perception and other parapsychological phenomena, these experiments did not yield a single reliable, reproducible result.

Instead of shedding comprehensive light on the actual situation, E. K. Naumov uses movies and slides of no scientific value. The speaker does not explain or expose what he is screening; on the contrary, he advocates it. In essence, this is not a popular lecture on parapsychology, it is propaganda of mysticism.

Thus, in "proving" the existence of psychogenic energy capable of performing the above-described miracles, the lecturer demonstrates a number of slides showing that when a person is photographed the film presumably shows various objects or images, and not his face, and they refer to what is in the mind of the photographed subject.

In this instance, to explain the observed phenomena, the speaker artificially refers to the Kirlian effect, known in physics, which, as we know, is due to high frequency current rather than some mysterious psychogenic energy.

This method of proving the truth of a postulated statement reminds us of a well-known parable. Once upon a time, a nature lover expressed the view that butterflies can see with "ocelli" (pair of pigmented spots) situated on the wings of these insects. The following experiment was conducted to prove this: two butterflies were taken, and the wings were removed from one, the other remaining intact. When attempting to catch them in a net, the first butterfly did not move, while the second one, of course, flew away.

On the basis of this experiment, the "meticulous" experiment concluded that the first butterfly did not fly away because it did not see the danger, while the second one flew away because it saw the net approaching it. This is how the nature lover "proved" the validity of his statement.

E. K. Naumov offers similar evidence. In the part of his lecture where he considers medical problems of parapsychology, he demonstrates a few slides illustrating how a cataract is removed from the eye in a rather clumsy and unceremonious way, using something like a kitchen knife. Then follow some frames from an amateur movie about some particularly gifted Philippinoes performing the most complex surgical operations without taking a prior history or making an exact diagnosis, without anesthesia or any special instruments. Let us recall that such horror films are often used in western propaganda to enhance the psychological effect on the audience.

The film and the speaker try to convince the audience that sterilization of the hands and operating room is achieved as a result of concentrated reading of sacred books. We then see how several operations to remove tumors, adenoma, thyroid, hemorrhoids, vertebral disks and varicose veins are"performed"with the hands, "blindly." As the speaker explains, there is separation not only of the skin, subcutaneous cellular tissue, peritoneal muscles, but of the tumor as well ... from surrounding tissue under the influence of the special "energy" emitted from the surgeon's finger tips. Under the influence of this same "energy," all of the above-mentioned tissues are reunited, layer by layer, instantaneously, and after a most serious operation the patient immediately gets up and is absolutely healthy. The fantastic demonstration reaches a point when there is demonstration of performance of a most intricate operation on the spinal cord in 3 minutes, using the same method, after which the patient, who had not walked for about 10 years, got up and walked away unassisted.

These questionable features of the film are offered as a scientific fact illustrating the major advances of medicine based on the principles of parapsychology. It can be stated with complete certainty that only an individual without an elementary conception of physiology and anatomy, totally unfamiliar with the advances of modern medicine, could believe the mythical story of the speaker.

We know that a scientific fact is a phenomenon or pattern of movement in the material world which we can learn about and reproduce many times, provided certain conditions are met. The chance observation of an unusual event is merely the first step of learning. The subsequent route toward expounding theory involves construction of a working hypothesis and scrupulous scientific testing thereof. In practice, as shown by the history of science, this is the mandatory route for all those who have new ideas, if they want their ideas to be accepted by the scientific community.

But the lecture of E. K. Naumov is not based on scientific facts; it is based on a number of fallacious data completely exposed by science, which the lecturer presents as the advances of parapsychology. Whether E. K. Naumov likes it or not, objectively he is advocating fideism and idealism, mysticism and ignorance, everything that is alien to our materialistic-scientific views, our ideological convictions. This is attributable, in part, to the fact that the "lecture" of E. K. Naumov on parapsychology had not been approved by any scientific-methodological council called upon to perform this duty. Yet this statute concerning lecturing activity is mandatory for him, as an individual who did not complete his higher education (E. K. Naumov attended Moscow Institute of Physical Culture and was expelled for nonachievement).

To complete his portrait, let us mention that the fraudulence of E. K. Naumov is evident in all areas of his "activity." He works as a laboratory technician at the Institute of Standardization and Control of Medical and Biological Preparations, but claims to be a senior scientist at one of the specialized central institutes. He was hired as a laboratory technician at the request and insistence of one of the Moscow rayispolkoms, where he had been registered, until recently, as a sponger ["parasite"]. E. K. Naumov has been the object of public criticism more than once for his pseudoscientific activities (see the article, "Corresponding Member of Mythical Sciences," in KOMSOMOL'SKAYA PRAVDA, 26 Sep 75); there has been court action against him, and he served a sentence in prison.

The format of the lecture of E. K. Naumov is obviously aimed at people who are not familiar with the reality and essence of parapsychological sensations. However, right after the lecture, we could hear members of the audience stating that they witnessed a strange mixture of questionable movies and slides with categorical statements, curious events with mysticism and scholastics, rare observations with disregard for the laws of nature, reports of advances in public health with a disrespectful attitude toward medical science, and oratorial resourcefulness with gross infraction of the ethics of a speaker.

The residents of Kishinev discerned the quality and value of E. K. Naumov's information about parapsychology. The thirst for knowledge about the world and its essence must be quenched by a pure and life-giving spring of true science.

10,657
CSO: 1870

PSYCHOLOGY

SELF-CONTROL A DIALOG BETWEEN TWO PHYSICIANS ON THE EFFECTS OF EMOTIONS ON HUMAN HEALTH

Moscow SOVETSKAYA ROSSIYA in Russian 4 Jan 77 p 4

[Moderator: Doctor V. Nikolayev]

[Text] A few days ago, the medical community of our country celebrated the 200th anniversary of the department of normal physiology, First Moscow Medical Institute imeni I. M. Sechenov. Extensive scientific research has been conducted for two whole centuries! But we shall address ourselves to the present.

A scientific pedagogical complex was founded in Moscow, consisting of the Institute of Normal Physiology imeni P. K. Anokhin, USSR Academy of Medical Sciences, and the above-mentioned department. The study of all the basic elements that provide health to man and increase his resistance to deleterious environmental factors is the main direction of their joint research. In particular, much attention is given to the role of emotions in vital activity of the organism. The correspondent of SOVETSKAYA ROSSIYA asked the administrator of the complex, Professor Konstantin Viktorovich Sudakov, to answer a few questions about this.

[Question] Why is it that there has been such an increase in interest in the study of the influence of emotions on human health expressly in our times?

[Answer] Life itself has advanced this problem to the fore. At the present time, for example, much is also said and written about the high death rate due to cardiovascular diseases. There are some who even tend to believe that the heart and vessels of modern man have become less sturdy and reliable. But this is far from the truth. One of the chief causes of pathology thereof is impairment of the most refined mechanisms of function of the brain, its molecular chemical reactions, which collect and store everything man experiences in his lifetime. Prolonged negative emotions are particularly harmful. They lead to functional impairment of mental activity known by the name of neurosis.

[Question] What are the most frequent causes of neurosis?

[Answer] One of them is prolonged performance of several different jobs simultaneously without adhering to an optimum work pace and without providing breaks to rest. As a result, excitations constantly occur in the brain, it becomes, so to speak, continuously "feverish." This is how neurosis gradually develops, causing involvement of the heart and vessels in some people, digestive disorders in others, and impairment of normal function of endocrine glands in others yet, etc.

[Question] Are nervous system distinctions significant to onset of neurosis?

[Answer] Unquestionably. Let us assume that an individual with a weak nervous system undertakes a difficult task and wants to fulfill it at all costs. Of course, this is laudible, but he should also take into consideration his actual capabilities and nervous system resources. Anyone who fails to take this into consideration soon becomes quick-tempered and irritable, with appearance of a feeling of constant anxiety, depression and insomnia. As a result, the energy and functional resources of the nervous system are severely depleted in time, there is a malfunction of defense mechanisms, and this not infrequently evolves into a cardiovascular accident. Not only emotional stress, but so-called anxiety, anticipation and expectation of some sort of unpleasantness have a devastating effect on health. It has been proven in animal experiments that arterial pressure rises not only in response to a direct algesiogenic stimulus, but also when the warning signal of such a stimulus is delivered. And with stimulation of brain cells that directly control negative emotions, animals with the weak type of nervous system develop myocardial infarction within 3-4 hours.

[Question] More recently we have seen reports in the press of cases of cardiovascular accident among sports fans after viewing the tensest hockey and soccer matches. To what can this be attributed?

[Answer] At the tensest moments of a match, many biologically active substances appear in the blood of the fans, under the influence of emotions, and intensive muscular work is required to break down these substances. Since this does not happen, they are excessively stored in the body and could elicit a sharp increase in heart rate and significant elevation of blood pressure. As a result, an infarction or hypertensive crisis can occur among those suffering from diseases of the heart and vessels. This happens particularly often among fans who smoke constantly, or else reinforce themselves with a generous swig of liquor every time a point is scored or lost.

[Question] It would appear then that emotions, which are feelings that obtained maximum development in man alone, also stand in the way of his health?

[Answer] I should not want the reader to reach such a conclusion. For we have been dealing primarily with the devastating effect on man of negative emotions or prolonged emotional tension. But, even in these cases,

one can avoid the adverse consequences of negative emotions by establishing a specific regimen, and if the times of maximum tension alternate with phsyical and mental relaxation, quiet and complete [satisfactory] rest.

And with reference to positive emotions, joy, for example, a man could truly perform miracles in such a state! A good mood increases productivity of work, helps set records in sports and aids in recovery from illness. It has been observed that cheerful people, optimists, are generally sick less often and seek out medical attention less often.

And what deeds a man becomes capable of performing when he is enveloped with such a joyous feeling as love! Just think of the immortal lines given to the world by Hafiz, Petrarch, Pushkin.... And the marvelous "Symphonie Fantastique" by Berlioz, composed in honor of the outstanding dramatic actress, H. Smithson, whom he loved, can be justifiably considered a hymn to love.

[Question] From what you have said we can conclude that each man should strive to have more positive emotions and less negative ones in his life. What should be done for this?

[Answer] Academician P. K. Anokhin believed that to prevent negative emotions it is very important to learn to apply intelligence and logic, which eliminates the very possibility of appearance of a negative emotion. He interpreted this problem quite broadly, as a problem of continous intellectual enrichment of every individual, as extensive educational [upbringing] work, a fight for a standard of emotions that should begin in infancy. One should instill optimism and joy of living, respect for other people from the very earliest years, as well as teach the child to control manifestations of selfishness, and cowardice, rather than disregard these aspects. In brief, one must deal with emotional upbringing. And this also applies to adults.

One should not allow negative emotions to take hold for any length of time, they must not be taken "close to heart"; one should learn to distract them, by engaging in some favorite activity, physical exercise, excursions and trips, active recreation, visit museums, exhibits, etc. All of these recommendations have been tried and tested: we know of quite a few people who remained healthy, withstood emotional stress by heeding such advice, even after experiencing the most acute conflict situations. To learn to control one's emotions and to be in control of oneself is not only a real task, it is a practically mandatory one.

10,657
CSO: 1870

PSYCHOLOGY

ENGINEERS LEARN ART OF COMMUNICATION

Moscow PRAVDA in Russian 10 Dec 76 p 3

[Article by Professor R. Mavlyutov, Aviation Institute Rector, and Assistant Professor G. Aleksandrov, Chairman, Department of Engineering Psychology and Pedagogics: "What Can We Give to the People?"]

[Text] Discussing the qualification level of higher school graduates--our students, we usually concentrate our attention on the quality of their special training. The young person's mastery of engineering knowledge and the extent to which it corresponds to today's and tomorrow's production needs are issues causing concern among educators and institutions of higher education. Such concern is both natural and proper.

Nevertheless when we talk with young engineers gaining their first experience at work and with their supervisors, we find that novices experience the greatest difficulties not due to a lack of technical knowledge but rather in elementary communication with people at work. An inability to clearly formulate one's thoughts, penetrate into the complex, interwoven fabric of mutual relationships, and understand the concealed psychological causes behind some particular mistake of a subordinate often leads to annoying frustration and an embarrassing sense of helplessness.

This happens because, as a rule, our graduates are entirely unfamiliar with the fundamentals of pedagogics, psychology, and production organization. Meanwhile the demand for this sort of knowledge is continually growing--in the shop, in the design office, and in the administrative sphere.

Management of any collective requires comprehension of the personal traits of people and consideration of relationships arising among them in different forms of joint activity. More and more often the engineer must also act as an educator in the production collective, holding lessons with trainees, with workers of schools of progressive experience, and with students in the political education system.

How do we impart the fine art of analyzing human relations to the VUZ graduate, trained in the dry logic of electronic or mechanical interactions? What are the keys to the door of pedagogical skill?

Many are the ways. Our institute has created a department of engineering psychology and pedagogics.

Now every student attends a course of lectures and seminars and does practical assignments in a special 50-hour program. First he is acquainted with the concept of personality, with the world of mental phenomena, and with the fundamentals of education and self-education. Our instructors describe to the future specialist the leadership qualities he must possess and the way he can develop them. In other words the principal topic is the fundamentals of general and engineering psychology.

Another group of problems pertains to development of a mature production collective. Students must master the methods of social psychology. They study the "science" of human relationships in joint activity and gain an impression on the role of the leader, of the influence of his authority and working style on human relations in the collective. Special emphasis is placed on tutorship, a very important problem.

Finally, much attention is devoted to the theory and practice of teaching workmen under the conditions of production. The future engineer must have a full mastery of the art of preparing and conducting lessons--selecting the material competently, scheduling the training time, choosing optimum educational methods and procedures, and using technical resources.

How, within the framework of a relatively short course, can we solve such complex problems? Experience shows that what is most important is to lay a sound theoretical foundation. Relying on it, the student and then the young specialist would be able to independently glean any additional specific knowledge he may need. The most important thing is to generate interest, to develop a taste for utilizing psychological and pedagogical methods in daily work.

For this purpose our general institute department studies, together with other scientific collectives, the content of production practice, and course and especially diploma planning. We try to see that engineering pscyhology and pedagogics become an inherent part of the student's creativity, promoting high professionalism. We are presently preparing a number of new special courses such as "Psychological Problems of Automated Control Systems," "Methods for Analyzing the Production Collective," "Psychological Problems in the Engineer's Creative Activity," and others. Each of these courses is designed to lead the young person in the most consistent way to a precise understanding of his social role in the swiftly developing world of technology, and to teach him to build relationships with people.

But the department does not restrict its activity to just narrow, special tasks alone. The ability to learn has ceased to be a "personal secret"; it has transformed into an entire science. Today it permeates through literally all aspects of the daily work of every specialist. Not only the personal fate of the graduate but also the success of the collective depends on the speed with which our graduate can orient himself within the growing

current of scientific-technical and social information and on his capability for grasping what is most important in a task and finding the optimum solution. For this reason the institute has been offering the experimental course "Scientific Fundamentals of the Mental Work of Students" for 3 years.

At the same time, psychologists are participating more and more actively in sociopolitical training for students. We are trying to strengthen the pedagogical content of this training and teach the future specialist not only to handle the material expertly during a lecture or report but also to take account of the interests of the listeners, to competently control their attention.

Such a training program requires a broad scientific base and continually stronger ties between professors and instructors on one hand and production on the other. New forms of creative cooperation between the VUZ and the enterprise have passed their test at the institute as a supplement to business contracts and agreements on scientific-technical cooperation. The institute is upgrading the qualifications of plant engineers and conducting teaching seminars for foremen, assisting them in gaining an understanding of the complex psychological-pedagogical problems of managing a modern collective.

In turn, workers of the country's affiliated enterprises are helping us to build a model of the specialist's activity, on the basis of which we will improve the educational process. The benefit of joint effort is obvious. Already today, this close alliance with production is permitting us to enrich the training courses, bring them in line with the actual needs of the national economy, and nurture the practical abilities and skills of working with people in the students.

There is one more important problem that should not be left unexplored. For the most part, VUZ instructors do not have an education in pedagogics. The assumption is that they can gain the skills of teaching in their practical work. However, this approach is associated with unavoidable losses, such as when a talented researcher is sometimes unable to communicate the essence of his viewpoints and projects to the students.

For this reason we have been offering seminars for 4 years in which the skills of the educators are continually honed--both those of the novices and the old guard, to include the VUZ, school, and department executives. Typically, many departments now devote very serious attention to qualitative analysis of the training process. This analysis is being conducted successively and purposefully on the basis of research on specific lessons. The "Teacher's Methodological Book Collection," which is being created at the VUZ, is of considerable assistance in this regard.

Experience shows that the path we have chosen doubtlessly promotes development of the qualities of an organizer and manager of modern production in the future specialists, having a good knowledge of not only the engineering

aspect but also the fundamentals of the "process" of human relationships.

Without a doubt, all of this is just the first steps. However, we feel that the experience we have accumulated in giving a course on engineering psychology and pedagogics can be beneficial to other technical VUZ's in the country.

11004
CSO: 1870

PSYCHOLOGY

BORIS FEDOROVICH LOMOV

Moscow UCHITEL'SKAYA GAZETA in Russian 27 Jan 77 p 2

/Article by I. Strakhov: "A Search That Has No End"/

/Text/ It semmed so simple and easy to get in to see Boris Fedorovich Lomov, the director of the Institute of Psychology of the USSR Academy of Sciences. He welcomed me as if we had been acquainted for 100 years. That gave me an idea: why not write about the intercourse? I was well aware that the scientist had long been interested in this problem...

All the same, this Viktor is a remarkable fellow. Reserved, nicknamed by his comrades "a thing in itself" (sometimes you are only staggered by student nicknames), he became completely different in company. After such encounters the girls found him "interesting," while one of the lads, after slapping Viktor on the shoulder, would be envious: "Why is it that people hide their talents?"

Boris Lomov scrutinized his university comrade for a long time. A future psychologist, he got no rest from the thought: when people are together, why does their behavior change? True, not always for the better. But intercourse necessarily leaves an imprint on the habits, views and even the character of a person.

Here is Viktor. What internal mainspring drove him? Why did this demure person become talkative, witty and cheerful?

Once Boris asked his fellow-members of the course to recall... the disposition of the audience at Leningrad University. They were astounded--why? What is the difficulty here? Having listened to the lads, Boris said: "Now here you have made a mistake. Let us recall again, but together." The students interrupted each other, each tried to prove that he was right. Boris did not interfere. How interesting it was to look at the faces of friends, to observe the argument in which the truth arose before his eyes.

When all had left, Boris worked late to reconstruct in the minutest details the behavior of his "subjects." And they, walking along the evening streets, recalled not without a smile: "That Lomov is an eccentric! He is always coming up with something."

After successfully completing the university and starting his post-graduate studies, the "eccentric" Lomov would again return to his experiments. Only now, of course, not at home.

The problem of intercourse occupies him more and more. With amazement Lomov will discover that psychologists pass it over. True, they have used this term, but they regard intercourse only as a personal factor of human activity.

Is this really true? Lomov has time and again been convinced that together people can create miracles. But how do you prove this? For this you need experience and precise calculations. And he is undertaking them.

Quite often you have heard the objections: do you need, they say, such proof? Yes, I do, the sceptic Lomov was convinced. We do not know the mechanism of human intercourse well, consequently we cannot control it.

Take, for example, two people drawing a diagram of the Palace Square of Leningrad. They make many mistakes. The next step is to have the subjects draw the diagram together. Helping each other and mutually guiding the course of their thoughts, in the end they reconstruct on paper the exact plan. Thus, Lomov explained: the accuracy and completeness of topographic representations under the conditions of intercourse are greater than under the conditions of individual human activity.

He discovered even more interesting things when he tested the memory of people. Let us "peep" for a moment into the laboratory. Two people are reproducing from memory the text of "Yevgeniy Onegin."

A. And then he read Adam Smith and was a political economist....

B. I do not think that is it. There is no word "politekonom" /political economist/, all the more so in Pushkin.

A. I also feel that something is wrong... But what is it?

B. He probably was some kind of economist... And was... some kind of economist...

A. And was a scholarly economist?

B. It seems to be profound.

A. That's it! And was a profound economist. He could judge about...

And they now continue together:

How the government gets rich,
And on what to live, and why
He has no need for gold,
When... he has ta-ta ta-ta.

A. Then further is some kind of product...

B. Perhaps, direct... I don't remember.

A. Simple?

B. It may be.

At last they both reproduce this part of the line precisely: "When he has a simple product."

In the past they also tested the memory. The "classical" test looked like this: a person was asked to read some poem. As a rule, he only remembered the beginning or end precisely. In return, he became hopelessly mixed up in the middle, substituted some words for others, and then arbitrarily interpreted entire pieces of the poem.

It is not at all that way when they remember "as a duet." Here Lomov "discerned" the changing of roles (someone always leads), mutual correction, and a joint search for individual words and phrases, in the process of which hypotheses striking in their originality are advanced.

Now Boris Fedorovich is "examining" two evening schoolboys. They are remembering the part of the text which speaks about the childhood years of Yevgeniy Onegin.

Sasha: At first mama looked after him,
Then the old man replaced her,
The child, of course, was dear.

Volodya: No, something is wrong here. Aha! This is it: "The child was 'rezov' /playful/, but dear."

Sasha: 'Rezov'? There is no such word.

Volodya: But this is the 19th century... I remember precisely that "the child was playful, but dear."

Boris Fedorovich with amazement notices in children an inquisitive mind and imagination. Neither tries to amaze the other with his knowledge and intellect. On the contrary, by gestures, mimicry and word each tries as hard as possible to help his comrade. These, incidentally, are the features that are most visible in intercourse.

Sasha: Well, OK... perhaps it is "playful"... Only here at the beginning it does not seem right with the old man... Later on, true, there is a "miserable old man" who took Onegin to the Summer Garden.

Volodya: There is some foreign word there... senor? Old man-senor? No, it's "old man-monsieur"... and not mama, but madame...

At last they correctly reproduce the text:

Sasha: At first madame took care of him.

Volodya: Then monsieur replaced her.

Sasha: The child was playful, but dear.

Afterwards they remembered together almost all of "Yevgeniy Onegin," although before this they admitted to Boris Fedorovich that they did not remember Pushkin's poetry too well. What happened?

At the time Lomov himself could not answer. He understood only one thing: he had seen what he had not seen before. No, here it was not a matter of the simple adjustment of the memory. Everything is much more complicated. He would listen to the tape recording over and over again. He would again weight the thousands of "pros" and "cons." Yes, of course, it is not the automatic adjustment of the memory. It is as if a "joint fund of memory" is being formed anew.

Together people above all remember what their memory has firmly retained. Then the words and phrases assume the role of distinctive "building scaffolds." Even later so-called moments of recognition emerge, which give impetus to humam memory.

Sasha was not sure that the work "rezov" existed in Pushkin. Volodya tries to convince him that there was such a word. And in the end Sasha "extracts" from the storehouse of his memory this word. For previously he had memorized Pushkin's poem, which means all the words of the text were certainly imprinted in his brain. Intercourse helps to remember, it would seem, what has been irretrievable forgotten. That is the secret.

Experiment followed experiment. Boris Fedorovich would spend more than one sleepless night before he would obtain grain by grain new data on the psychology of man. In intercourse people were revealed to him in their best light. True, at times someone would himself be amazed by how much his brain had retained. One middle-aged man in a joyful outburst admitted somehow to Lomov: "My dear, do you know what you have done? You have helped me to see myself!"

What had Lomov proven?

That the potentials of man are more fully revealed in intercourse. In past years as well as now individual functions of man have been and are being studied. We have already become quite familiar with how the organism reacts to events occurring around it, how the brain operates, how the psyche is developing at that moment. But... all this was studied outside of man's contact with other people.

Among the people they correctly say: two heads are better than one. Lomov demonstrated this scientifically. The results of his research will make it possible to determine the proper behavior under any conditions of life and work. They are of great importance in the raising and educating of children. But what about the control of production? The laws of intercourse are also in effect here. One thing is unquestionable: it is very important to know the mechanism of human intercourse.

...The years would pass. Boris Fedorovich Lomov would become a prominent scholar in the area of general, educational and engineering psychology. He would be elected corresponding member of the USSR Academy of Sciences and the USSR Academy of Pedagogic Sciences. Lomov is the president of the USSR Society of Psychologists and vice-president of the International Council of the Psychological Sciences. He was the first in our country to found a new science--engineering psychology.

On the basis of his theory psychologists have made great advances in this area. They are widely known in our country and abroad. These achievements, in particular, helped to set up the unified transportation system of Moscow and to improve the supply of power to the republics of Transcaucasia and the major industrial regions of the Russian Federation. For several years Boris Fedorovich and the staff workers of his institute have been working on the development of a programmed system of control of the power unification of the Urals. The incorporation of the recommednations of the psychologists, according to preliminary estimates, will produce an annual savings of about 500,000 rubles.

And what about the problem of intercourse? The scholar is searching even today. In a search that probably has no end.

7807
CSO: 1870

PUBLIC HEALTH

PLENARY SESSION OF TRADE UNION CITY COMMITTEE

Moscow STROITEL'NAYA GAZETA in Russian 14 Nov 76 p 2

[Article by V. Rakhmanov]

[Text] A plenary session of the City Committee of the trade union representing construction workers and industrial building materials manufacturers took place in Moscow. The chairman of the City Committee N. Sotskov gave a report on the increasing importance of trade unions and economic organizations at construction sites, industrial enterprises and design institutes for a further improvement of work safety in the light of the decisions adopted at the 25th Congress of the CPSU.

The participants of the session noted in their reports and speeches that in accordance with the decision of the 24th and 25th Congresses of the CPSU, and the 15th Congress of the trade unions of the USSR, the trade union and economic organizations of their industry have implemented some measures for further improvement of working conditions and reduction of occupational injuries.

Within the period of the past five-year plan, 370,000 sq.m. of floor space of various sanitary facilities were built, the number of canteens was increased so that they can now accommodate by 10,500 customers more than before, the builders were better supplied with uniforms.

A total of 7,700 work teams of the capital are already following the example of the Hero of Socialist Labor A. Basov who calls for "highly efficient work without injuries or accidents".

All these measures have allowed to decrease industrial injuries in the construction organizations of the capital by 36 percent.

Along with these facts there are serious shortcomings in the process of creating safe work conditions. At some construction sites the standards of safe work conditions for operating machines and mechanisms are seriously

violated, safety railings in dangerous zones are not installed, work areas are cluttered and storage of materials and structural units is unsatisfactory.

The session has adopted a decision obliging the managers of construction sites and organizations, as well as trade unions, to provide regular improvement of work safety, to prevent injuries on the job and to intensify the struggle against the violators of work discipline.

8861
CSO: 1870

SCIENTISTS AND SCIENTIFIC ORGANIZATIONS

USSR MINISTER OF HEALTH IN GEORGIA

Tbilisi ZARYA VOSTOKA in Russian 5 Nov 76 p 1

[Article of the Georgian Information Agency: "Familiarization With the Public Health of Georgia"]

[Text] For several days, the USSR minister of public health, Academician B. V. Petrovskiy, was in Georgia. He became familiar with the state of affairs of public health and the work of the general medical institutions in the republic.

Comrade B. Petrovskiy participated in the work of the enlarged board of the Georgian Ministry of Public Health. He noted definite shifts in the organization of medical aid to the population and in the state of general medical work in the republic health institutions. He also pointed out still existing shortcomings in this area, and took up the tasks of the Georgian medical workers in the area of carrying out the decisions of the 25th CPSU Congress.

The USSR minister of public health visited the Scientific Research Institute for Experimental and Clinical Surgery Under the Georgian Ministry of Public Health. He noted the positive work of the institute, and pointed to the necessity of strengthening activities in the area of improving surgical procedures for illnesses of the cardiovascular system.

Academician B. Petrovskiy made a trip to Borzhomi, where he visited a number of health resorts, he investigated the situation of medical aid to the vacationers, and met with the leaders of the local party and soviet organizations.

The Tbilisi gorkom organized a meeting of Academician B. Petrovskiy with the medical activists of the city and the leading party and soviet workers. He gave a report on the successes of Soviet public health and on the tasks of the nation's medical workers to further improve the preventive, diagnostic and therapeutic methods for various illnesses, and to carry out the grandiose plans of the 25th CPSU Congress.

The minister stressed that as a result of the nation's economic level which has significantly grown during the Ninth Five-Year Plan, new opportunities have appeared to improve public health work. Soviet public health today possesses a more modern material and technical base, many new large complexes

of hospitals, polyclinics, out-patient clinics, sanitation-epidemiological stations, and other facilities. The medical as well as other industrial sectors are producing modern medical equipment and effective medicines. Many complex problems are being successfully solved in the nation in the area of eradicating and reducing the cases of certain severe illnesses.

Comrade Petrovskiy took up in detail the basic directions in which medical science should develop. Among them are: a study of the general morbidity patterns, the restoration and compensation for the disruption of functions, out-patient services for the population, and so forth. The physicians should devote particular attention to the further development of research in the area of molecular biology and molecular genetics, the procedures for the prevention, diagnosis and treatment of allergic diseases, the study of the problems of viruses and genetics of micro-organisms, the synthesis of new antitumoral, cardiovascular, hormonal and other drugs, the scientific basis of social hygiene, the hygiene of labor and population points, and to improve the methods for combatting diseases of the cardiovascular system such as hypertension, atherosclerosis, and ischemic heart disease. It is essential to develop various directions in surgery, traumatology, urology, resuscitation, anesthesiology, and so forth.

Comrade B. Petrovskiy answered the questions of the activists attending the meeting.

Participating in the work of the activists were comrades P. Gilashvili, T. Menteshashvili, Z. Pataridze, V. Siradze, O. Cherkeziya, the chairman of the executive committee of the Tbilisi City Soviet, B. Lobzhanidze, and the secretaries of the Tbilisi gorkom, N. Gurgenidze and N. Gabuniya.

The USSR minister of public health, Academician B. Petrovskiy was received by the first secretary of the Central Committee of the Georgian Communist Party, E. Shevardnadze.

During the talk, urgent questions were discussed related to a further improvement in public health in the republic as well as the tasks of the Georgian public health workers.

Participating in the conversation were comrades P. Gilashvili, Z. Pataridze, V. Siradze, O. Cherkeziya, and the Georgian minister of public health, I. Zeginidze.

10272
CSO: 1870

SCIENTISTS AND SCIENTIFIC ORGANIZATIONS

HEALTH AND ECONOMICS

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 14 Nov 76 p 2

[Article by economist Z. Aymanbetov: "Health and Economics"]

[Text] In our nation, the maximum possible allocations are given for the development of public health. During various years, from 6.3 to 6.7 percent of the allocations in the state budget has gone for these purposes. Public health expenditures, in comparison with 1940, have risen by more than 11-fold in the USSR, and by over 23-fold for Kazakhstan.

Such rapid growth in our republic is due, in the first place, to the fact that the initial level was low, and secondly, the productive forces are developing more rapidly here than in the nation as a whole.

But how are the allocated funds being used and what is the economic effectiveness of public health?

The socialist public health system, without directly creating material products of labor, at the same time contributes to the reproduction of the labor force, and to increasing the active working life of the Soviet people. In other words, the activities of the public health workers create the necessary conditions and prerequisites for a growth of the product of social labor and national income. N. G. Chernyshevskiy said that "the labor of a doctor is actually the most productive labor: in protecting or restoring health, the doctor restores to society all those forces which would have been lost without his care."

It has been estimated that as a result of the carrying out of special measures by the public health bodies, major economic benefits have been obtained from preventing loss due to sickness, death or disablement from many forms of illnesses. For example, the difference between the amounts of expenditures on eradicating polio in the USSR and on lowering the morbidity rate for diptheria, on the one hand, and the gain from the prevented loss by them on the other, is 5.7 billion rubles, that is, for each ruble of expenditures, an economic effect of 42 rubles was obtained. The following data show what an economic effect can be obtained as a result of improving medical services for the population. A reduction of just one day for the time each worker is out on a medical certificate could lead to increasing national income by 535 million rubles a year and reduce the expenditures under the social security budget by 205 million rubles.

The 25th CPSU Congress reemphasized the necessity to raise the scientific level of planning and the thorough economic soundness of the plans and economic decisions which should be based on real calculations, consider the prospects of scientific and technical progress, and provide for the rapid introduction and development of modern scientific and technical achievements.

In light of the Congress Decisions, the responsibility is raised not only for the economic service but also for leaders of the public health subdivisions and institutions and chief physicians of the general medical institutions for working out the public health plans on a scientific basis and studying the specific economics of public health.

At present, there is the urgent problem of simplifying and improving the planning of public health expenditures, broadening the rights of the medical institution leaders, and freeing them of petty interference from above.

During the year, at many medical facilities, excess funds arise for individual items of the estimate, while for others there is an acute shortage of funds. However, the institutions do not have the right, without the permission of superior bodies, to spend the surpluses which have formed under certain items for covering the shortage in others. Such a procedure delays the prompt solving of individual questions, and often leads to the irrational use of allocations.

The elimination of such control would also aid in the efficient and economic expenditure of state funds.

In a number of the Union republics, an experiment is being continued, the aim of which is to grant greater independence to the leaders of the public health institutions and to broaden their rights in the planning and financing, as well as in creating a material incentive for the workers.

This experiment is being strictly supervised and checked in order that economic considerations do not obstruct the basic aim of continuously improving the medical aid to the population.

Unfortunately, this important experiment is not being carried out in Kazakhstan, although we certainly have the necessary capabilities for this. We must start at two or three institutions located in Alma-Ata and Karaganda, in periodically summing up the results for each such institution with a compulsory expert evaluation of the quality of medical aid provided to the population under the new operating conditions.

Up to the present, a generally accepted procedure has not been worked out for determining the economic effectiveness of public health. The calculations of this sort, of course, are difficult, but they are possible, if one considers the influence and relationship of the socioeconomic and medical factors.

The duty of the leaders of the medical institutions is to possess knowledge in the area of scientific planning and the economics of public health in order to provide the necessary generalization of the demographic data, and to make a profound analysis of the quantitative and qualitative indicators.

10272
CSO: 1870

SCIENTISTS AND SCIENTIFIC ORGANIZATIONS

PROSPECTS OF ACUPUNCTURE

Kishinev SOVETSKAYA MOLDAVIA in Russian 16 Dec 76 p 4

[Article by Viktoriya Kramova (NOVOSTI)]

[Text] As I entered an old house on one of the streets in the heart of Moscow, I thought to myself: "It is better for me to try it for myself and then tell others about it." The recently founded Scientific Research Institute of Reflexotherapy (acupuncutre) took occupancy here. A referral from the rayon polyclinic for consultation and treatment of chronic plexitis (inflammation of the cervicobrachial nerve) served as my pass to the polyclinic department of this institute.

I did not hear the traditional question, "What is your complaint?" in the diagnostic office. Instead, the physician asked me to hold a metal rod connected by a cord to a small electronic instrument. He began to pass another rod slowly over my ear. Suddenly, the instrument buzzed and the pointer of a microammeter darted over the dial. "This is where your pain is," the physician said as he drew his hand over the actually sensitive spot. "It is plexitis. Here is a referral for two sesssions of acupuncture."

His diagnosis coincided with the one indicated in the referral. But, in order to make this diagnosis at the rayon polyclinic, they made me turn my neck for a long time, and pressed down on it to detect the inflamed nerve. How much simpler was this procedure!

I asked the director, Professor Ruben Durinyan, a neurophysiologist, to tell me about the work done at the new institute and principles of acupuncture.

"The practice of acupuncture, more than 500 years old, confirms the functional relationship between different parts of the skin and specific diseases," he said. "We know of about 700 biologically active, or acupuncture, points on the human body. Some are related to internal organs, others, to the neuromuscular system. All are hypersensitive to environmental factors. It has been established that electrical resistance of the skin is lower in these points than in other areas. It is particularly low at the points related to a pathological organ or muscle. This is why instruments can be used to determine not only the location of active points, but the nature of disease. A good therapeutic response can be obtained by treating the appropriate points."

I became convinced of the latter through my own experience. It turned out that one session of acupuncture was enough to relieve the pain. And it took a few minutes. As a rule, numerous physiotherapeutic procedures and drugs to alleviate pain are prescribed when there is exacerbation of the disease.

As I learned, acupuncture is presently used with success in the treatment of diseases that do not always respond to medical ["therapeutic"] methods. They include bronchial asthma, migraine, shortage of milk in nursing mothers. A few sessions of acupuncture are helpful to an individual subject to stress, in restoring sleep and removing nervous tension. It can be used to break the smoking habit and to treat hypertension.

As Professor Durinyan stated, the use of electrical stimulation of several points on the body and ear [concha] for anesthesia in surgical practice is one of the important achievements. Surgeons use this method when it is necessary for the patient to remain conscious and the use of chemical anesthetics is undesirable (for example, in caesarean section). More than 20 years have passed since acupuncture was accepted by Soviet public health. There are now acupuncture offices in a number of polyclinics and hospitals, and the specialists manning them are trained at institutes for advanced training of physicians. There are groups dealing with the study of acupuncture problems in different cities of our country. Physiologists, clinicians, biophysicists, mathematicians and specialists in the field of electronic engineering are involved in such studies.

"Our institute," Professor Durinyan stated, "must become a scientific and methodological center implementing the practice of acupuncture in different branches of medicine, as well as a center for the study of theoretical bases of acupuncture and problems of pain. True recognition of promising treatment methods can be obtained only on a firm scientific basis."

This new research center in Moscow concentrates on the study of physiological bases of acupuncture and biophysical characteristics of active points on the body. Such an approach promises to disclose new prospects for acupuncture.

10,657
CSO: 1870

SCIENTISTS AND SCIENTIFIC ORGANIZATIONS

PHYTOTRON TEST IN ODESSA

Moscow PRAVDA in Russian 21 Dec 76 p 6

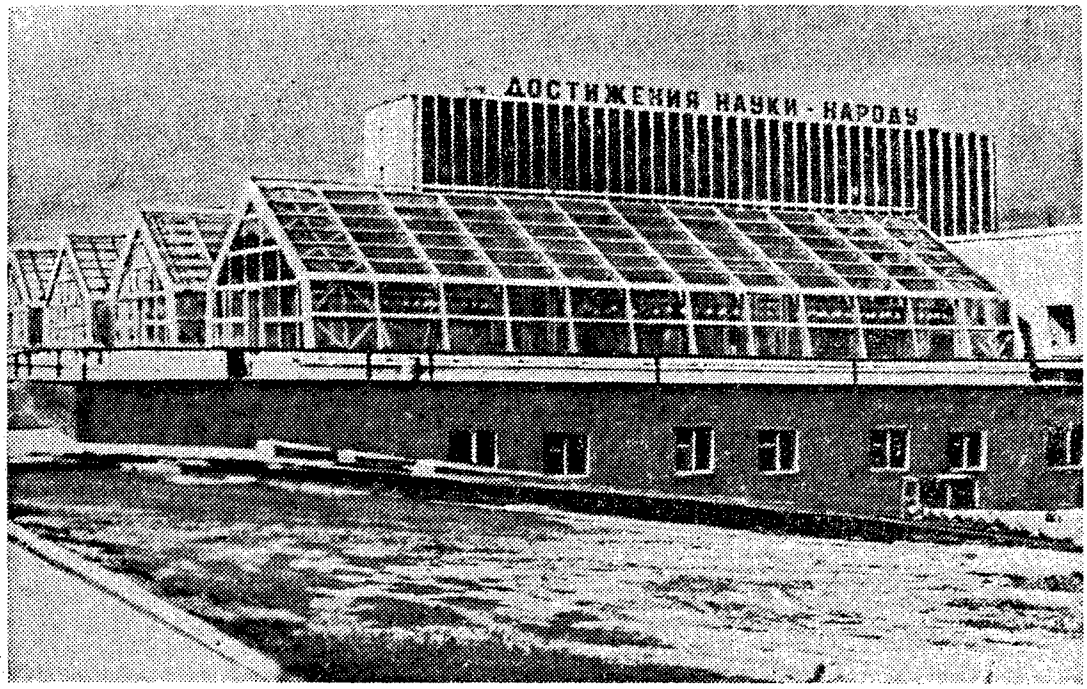
/Article by Correspondent A. Bogma/

/Text/ The first line of the largest phytotron (artificial climate station) in the country has been put into operation at the All-Union Scientific Research Genetic Selection Institute in these pre-New Year's days. Soviet scientists now have the opportunity to reduce several times the work required to develop new high-yield and hardy varieties of different farm crops.

An avenue of poplars, intersecting the vast premises of the institute on the southwestern outskirts of the hero-city leads along Ovidnopol'skaya road to the Odessa phytotron. Here, neighboring the main building, where laboratories and sections have been operating for 2 years, have risen imposing, reinforced concrete and greenhouse installations.

We are passing through the halls, corridors, greenhouses, control rooms, along interlocking pipes and ducts, past panel cabinets and different instruments. The set-up of the Odessa phytotron includes almost 2000 m^2 of greenhouses, climatic chambers and frost chambers. It contains powerful installations which can be used to change the external environment of plants and which are employed here to test humidity, temperature and gas composition of the soil and the rate of air movement.

Wheat and other cereal grasses will be tested for resistance to dry winds, dust storms and droughts. For example, regulated temperatures in chambers of the artificial climate station range from minus 40 degrees to plus 40 degrees and each of the 19 units of the block of conditioned greenhouses will begin to produce up to 40,000 m^3 of air per hour. All of these complicated processes are controlled by electronic systems which the Kiev NII /Scientific Research Institute of Automatics/ is introducing here.



The largest phytotron in the country. Telephoto by I. Pavlenko (TASS)

"The ancient dream of scientists," said Hero of Socialist Labor Academician VASKhNIL /All-Union Academy of Agricultural Sciences imeni V.I. Lenin/ F.G. Kirichenko, "is to achieve the cultivation of several selection crops in a year. This greatly accelerates research associated with production of vigorous and hard wheats, winter-hardy barleys and other crops. With the start-up of the phytotron, this dream is being realized. We may now reduce the time of development of new varieties 2-3-fold. This, you know, is extremely important in order to penetrate the secrets of the ear (of grain) and, in the final analysis, fulfill, more successfully, the tasks outlined by decree of the Central Committee of the CPSU and the Council of Ministers of the USSR, "Measures for Further Improvement of Selection and Seed Growing of Grain and Oil-Producing Crops and Grasses." "

The complex of major artificial climate stations will not only serve to increase yields, it is also becoming a reliable base for collaboration of scientists of sister states who are members of the Council of Economic Assistance. In fact, the Odessa Institute contains a coordination center which provides assistance to specialists from socialist countries jointly to solve problems of genetics, selection, seed-growing and improvement of grain quality.

The command is heard, "Start the studies in the frost chambers."

Red and green signals are flashing. Complex experiments on the selection of the most frost-resistant forms of grain crops are beginning with F.G. Kirichenko, Hero of Socialist Labor and P.F. Garkaviy and other scientists participating in the project. The first tender shoots are sprouting in the tests at low temperatures. The artificial climate station is in operation.

From the handful of grain of the new variety, selectors already foresee boundless supplies of grain with golden, ripe ears glistening in the sun. They envision steppe cornfields extending from the phytotron to the far horizon.

2791
CSO: 1870

SCIENTISTS AND SCIENTIFIC ORGANIZATIONS

GENES IN HARNESS--LARGEST PHYTOTRON IN COUNTRY IS IN OPERATION IN ODESSA

Moscow NEDELEYA in Russian No 3, Jan 77 pp 2-3

/Article by Supernumerary Correspondent of IZVESTIYA, A. Knop/

/Text/ The literal meaning of the word "phytotron" is "accelerator of plants." A phytotron has an artificial climate -- spacious greenhouses, metal chambers, conditioners, turbo-blowers and electronic technology. Here it is possible to have summer weather in winter and replace summer heat with a hard frost, to replace day with night, to raise a sukhovei (dry hot wind) during a complete calm and create drought in a rainy season. Such a "heavenly office" appeared recently at the All-Union Genetic-Selection Institute. Different varieties of wheat, barley and peas are being tested here. Development of a new variety usually requires 12-15 years. The phytotron reduces this period of time. With its use, it is possible to solve many problems of theory which have not been solved in selection practice.

Deputy director of the institute, Doctor of Agricultural Sciences Lev Konstantinovich Sechnyak, speaks about genes which transmit information from generation to generation of plants:

"In order to understand the genetic conditionality of plants, to understand how and precisely what genes affect these or those qualities of wheat, barley and other plants it is necessary to study hundreds of relationships."

Recently, a new method of evaluation of selection material by the use of so-called genetic markers was developed at the institute. I saw what this means in one of the institute's laboratories. Starch gel was placed in an ordinary glass pipe. A drop of protein extracted from a grain of wheat is added. An electric current is passed through the pipe. Electrophoresis, the transfer of ions, began. Streaks began to branch out gradually across

In the phytotron greenhouse it is Spring. Shown here are laboratory worker L. Gertsman and equipment adjuster V. Bazhora. Photo by: Tarana

the gel from the drop of protein. They differed in thicknesses and were found here individually and there in groups (blocks). "These are genetic markers" they explained to me.

It was found that electrophoresis of grains of different varieties produced specific combinations of stripes. Each variety has its own unique spectrum of markers. The stripes are "photography" of the work of genes. Scientists established the correlation between different blocks of markers and such qualities of plants as immunity or winter hardiness. In other words, the selection of the "parent" of a new variety will be facilitated henceforth and it will be possible to predict and program valuable qualities of plants.

The authors of the studies which specialists consider to be a great achievement in biochemical genetics include corresponding member of VASKhNIL /All-Union Academy of Agricultural Sciences imeni V.I. Lenin/ Alexey Alekseyevich Sozinov and candidate of agricultural sciences Fedor Aleksandrovich Poperelya. In addition to them, graduate students of the institute, Aleksandr Rybalko, Aleksandr Khokhlov and Vladimir Netsvetayev recently have joined the project. Thousands of grains of wheat have been evaluated by the electrophoresis method and now are being checked in the phytotron.

There is much that is new and unusual that is happening for the first time in the phytotron. The climatic chambers have capacities ranging from 24 m^3 to $\frac{1}{4}$ m^3. There will be a total of 64 chambers. I am looking through the window of one of these. The thermometer reading is 0 degrees. Inside it is autumn, the wheat and barley are passing through yarovization (vernalization). The complete freezing of the plants began exactly today.

Twenty-four resistors (levers) set on the control panel permit the setting of a temperature regime for each hour of the day.

When the phytotron is completely finished, the area of its greenhouses will exceed 2000 m^2. The first greenhouses are just being constructed. Each one is 24 m long and 12 m wide. It is spring in them today; peas are blossoming, grains are appearing on the wheat and barley. Mercury-arc bulbs of 1000 watts each tint the air an unusual lilac tone. Slightly weaker (400 watts) bulbs give off a yellow light. The bulbs permit the imitation of the brightest sunny day. The required humidity and gas composition of the air are maintained in the greenhouses.

Additional yields of selected barley are on the point of being obtained. Scientists performed experiments with tritikal, a hybrid of wheat and rye, with the final goal of increasing its yield. A new variety of sunflower "Odessa-63" was tested and accepted by the state committee. It is distinguished by its high productivity (in strain tests, it surpassed other varieties by 4-10 centners per hectare) and was immune to the dangerous Orobanche.

The artificial climate of the Odessa phytotron will be used by selectors from the sister socialist countries. You know the All-Union Genetic-Selection Institute is the coordination center of participant countries of SEV /Council for Mutual Economic Aid/ in the development of the theoretical bases of selection and farm crop seed growing. There is now being created in Odessa a gene bank where selection material from Bulgaria, Hungary, GDR, Poland and other countries are being preserved and tested.

2791
CSO: 1870

SCIENTISTS AND SCIENTIFIC ORGANIZATIONS

DEVELOPMENT OF THE MEDICAL INDUSTRY

Moscow EKONOMICHESKAYA GAZETA in Russian No 43, Oct 76, p 1

/Text/ Production output of the medical industry as determined by the Basic Trends of Development of the National Economy of the USSR for 1976-1980 provides for a 44-46 percent increase in the Tenth Five-Year Plan. This sector includes enterprises: chemical pharmaceutical, medical instrument making, equipment and instruments, medical plastic and glass products as well as sovkhozes for growing medicinal plants. The sector will produce more than 7000 denominations of items for use in medical care.

A 49 percent increase of output of chemical-pharmaceutical enterprises, a 46 percent increase of medical technology output and a 51 percent increase of production of vitamins are planned. In order to ensure the provision of medicinal plants to the medical industry and the public health service, a 1.6-fold increase of preparation of them is planned at sovkhozes of the All-Union Union "Soyuzlekrasprom."

There are plans for the development and utilization, in 1976-1980, of more than 200 new, highly-effective medicines for treatment of different diseases and of anti-virus, antibacteria and gerontological preparations. There are plans for the organization of industrial production of almost 400 articles of the new medical technology, including modern radio-electronic devices intended for diagnosis of some diseases and service to patients, original respiratory -- anesthesia devices, dental tools and apparatus, technical agents for lightening the work of medical workers and eyeglasses.

There will be a significant improvement in the efficiency of production and the quality of output. The increase of output of the medical industry is being planned basically as the result of technical re-equipment and renovation of operating enterprises. Measures will be implimented for further improvement of the qualities of medicaments and their functional properties.

The overall production of enterprises of the Ministry of the Medical Industry will increase 4.4-fold in 1980 over 1965. Fixed production capital will increase 4-fold.

Chart Captions

Increase of production of enterprises of the Ministry of the Medical Industry (1965 = 100 percent).

Increase of fixed production capital of enterprises of the Ministry of the Medical Industry (1965 = 100 percent).

2791
CSO: 1870

END