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20 December 1976

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SCIENTIFIC AFFAIRS  
No. 531

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## BULGARIA

### EMINENT PSYCHOTHERAPIST INTERVIEWED

Sofia ANTENI in Bulgarian 22 Oct 76 p 3

[Interview with Dr Dincho Traykov by Antoniya Atanascheva: "The Healing Power of the Word"]

[Text] In our electronic and space age, many people call in question the healing power of psychotherapy. Even among medical specialists there is a certain distrust of psychological methods of treatment. It springs most likely from the fact that in many cases the results of the employment of psychotherapeutic methods go beyond our ideas of reality.

But one thing is certain. Technology and automation will not replace the healing word of the physician, and accumulated clinical experience is the best argument against skepticism.

At the International Congress on Psychotherapy which was held in Czechoslovakia in November 1975, the paper presented by our compatriot Candidate of Medical Sciences Dr Dincho Traykov on "The History of Psychotherapy in Bulgaria" elicited special interest. Two films drawing on the therapeutic practice of Bulgarian psychotherapists were also shown.

The white corridors of the white hospital take me to the psychotherapy room where I shall find Dr Traykov. It is animated here, but quiet. Nurse Violeta Khristova gives me a white overall and while we are waiting tells me, "In the 22 years I have been working with Dr Traykov he has always been attentive and sympathetic. Patients often tell me, 'Nurse, what a man the doctor is! He takes our trouble so to heart. Our spirits come back so quickly!'"

Indeed, in many functional neuropsychic illnesses drug therapy alone is not effective enough, and at the same time is more expensive. In these circumstances, psychotherapy comes to our aid. Its annals as a science date from the middle of the past century. To my first question Dr Traykov gave the following explanation.

[Traykov] Psychotherapy is a scientifically grounded system of verbal therapeutic influence (the suggestion of thoughts, feelings and convictions in the waking state or in the state of hypnotic sleep) brought to bear on all divisions of higher nervous activity and through it on all functions of the organism as well, including the psyche and internal organs.

When the last patient leaves, a bright autumn night descends on the city. After this day spent in the psychotherapy room, it is hard for me to ask questions. I have the feeling that I am under examination. Grasping my embarrassment, Dr Traykov starts the conversation.

[Traykov] I have been working in the area of neurology since 1954, and since my specialization in 1963 I have devoted myself entirely to psychotherapy, this important and promising division of medicine. The illnesses I treat most often are neuroses, hypertensive disease, ulcer and bronchial asthma.

[Question] What methods of psychotherapy are employed in medicine?

[Traykov] Psychotherapy at present has more than 40 methods of acting therapeutically on a patient's psyche. All these methods can be included in two basic forms of treatment: well-founded persuasive therapeutic influence brought to bear on the psyche of the patient in the waking state and methods of verbal suggestion in the state of hypnotic sleep.

If All Operations Could Be a Stroll in a Rose-Garden

[Question] What is the physiological nature of hypnosis? (I ask a question that is still controversial.)

[Traykov] Hypnosis began to be disengaged from the veil of secrecy in the 1870s and to be included in the sphere of natural phenomena. Pavlov's doctrine of hypnosis revealed its basic mechanism, namely, that it is a partial sleep of variable depth. By means of hypnosis, functional associations are created in the cortex that reinforce the influence of the word.

[Question] Your bloodless and painless operations elicited unquestionable interest at the International Congress on Psychotherapy. What are the advantages of psychoanesthesia?

[Traykov] Almost every patient fears an operation. There are even those who prefer death to the surgeon's knife. But hypnosis eliminates the patient's fear, shuts out all feeling of pain and significantly exsanguinates the operative field. Hypnosis is especially useful in patients who are allergic to any kind of anesthetic. . . .

[SIYKA DIMITROVA] When Dr Traykov suggested to me that I have an operation under psychoanesthesia, I readily agreed, all the more so as the operation

I was facing on my nasal cavity is very painful and a lot of blood is lost. They put a white overall on me and Dr Traykov put me into a state of hypnosis. For several days he suggested to me that I was strolling in a rose-garden and during the operation I had the feeling that I was picking roses.

"When we perceive rhythm and melody through our hearing, our mental mood changes accordingly." -- Aristotle

Music exerts a stronger influence on man's emotional and psychological world than do words. The healing power of music has been recognized by many people. For example, back in ancient Italy singing was included in methods of therapy. With unconcealed pride Dr Traykov showed me a small room paneled with pale green soundproofing material

[Traykov] For a year and a half now music therapy has been one of the methods of treatment that we employ in the newly opened psychotherapy room of our hospital. The choice of music from the preclassics was made by specialists. In the course of music therapy we select a group of six patients suffering from neuroses. The course consists of 15 sessions lasting up to an hour and a half daily.

One of the latest innovations in the area of psychotherapy is family therapy. Treatment is conducted with all members of the patient's family through the creation of a healthful microclimate in the family. In general, psychotherapy has a worthy place in the therapeutic practice of physicians of all specialties. Therefore it became indispensable to organize a modern psychotherapy clinic in the capital. This was justified, considering the social functions of psychotherapy.

At present in Bulgaria, treatment by psychotherapy and electric sleep is conducted in the psychiatric clinic in Varna and in the balneosanatorium in Narechen, but group therapy only in Vurshets and Bankya. But is the viewpoint correct that psychotherapy takes place only in sanatoriums?

Twentieth-century dynamics cause just about an epidemic of neuroses -- one of the commonest mental illnesses. Often, however, the great social significance of undiagnosed neuroses is neglected. We have, to such a degree, become used to irascibility and irritability -- in stores, in the street or in restaurants, and to quarrels and arguments at home or at work that we perceive them as something entirely natural. That is why many people do not seek the help of a physician, regard these symptoms as a normal consequence of the tension of our life, and do not understand or know that they can be helped.

When we speak of the social functions of psychotherapy, we cannot help mentioning its prophylactic and educational role. Psychotherapeutic methods are employed successfully to control alcoholism and narcotics addiction. They are an effective means of treating sexual disorders.

Unfortunately these facts are not assessed with the necessary seriousness. At one of the recent sessions of the Scientific Society of Neurologists, Psychiatrists and Psychologists the decision was made to introduce music therapy as a mass method of treatment in hospitals. But for the present this decision remains in the minutes of the session. There are psychotherapy clinics in the Soviet Union, however. There are such also in West Germany, Italy, Sweden. . . . Interesting forms of prophylactic group psychotherapy are employed in Czechoslovakia; parental discussion groups talk about the problems of education; marriage-counseling rooms have prevented many divorces; and "Budeshte" [Future] clubs bring together young people who have problems in the family or school, and help them find a friend and their way in life.

Two patients were waiting in the psychotherapy room -- Soneta, a girl with warm brown eyes, and Darina Andreeva, a teacher of English. Smiling happily, Soneta began to sing an old Russian song; she already speaks fluently, without painful stammering. And Darina Andreeva expressed her gratitude. For them, Dr Traykov was "the best-loved physician, the most humane person."

A smile restored, a song revived, a family saved -- how hard it is to find a worthy reward for love of life regained!

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## BULGARIA

### NEW WATER-TREATMENT METHOD USED BY ATOMIC POWER STATIONS

Sofia ZEMEDEL'SKO ZNAME in Bulgarian 14 Oct 76 p 1

[BTA dispatch from Varna, 13 October 1976: "Original Bulgarian Technology -- Best-Treated Water in Europe for Atomic Power Plants"]

[Text] The developmental work of the staff headed by Senior Science Associate Dobrevski, which created a new technology of water preparation for atomic power stations, is at the highest level. The best-treated water for atomic power stations in Europe has been obtained, and from heavily polluted water at that. A number of countries are showing interest in this original, already patented Bulgarian technology. It has found successful practical application at the Kozloduy Atomic Power Station, our pioneer in atomic power engineering.

Lowering the harmful pollutants in the water used for cooling the heated surfaces in power plants is of especially great significance for atomic power capacity because corrosive processes here lead not only to a reduction of efficiency, but also to more grievous consequences.

"Bulgaria specializes, within CEMA, in the development of water-treatment systems for atomic power plants," emphasizes the head of the scientific research directorate of Energoproekt [Scientific Research, Design and Planning Institute of Power Construction] Senior Science Associate Atanas Georgiev.

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## BULGARIA

### BULGARIAN-MADE INSTRUMENTS INSTALLED ON SOVIET SPACESHIPS

Sofia RABOTNICHESKO DELO in Bulgarian 16 Oct 76 p 1

[Article by Professor Dimitur Mishev, deputy chairman of Bulgarian Astronautical Society: "Bright Prospects -- Bulgarian Equipment Aloft Again in Space"]

[Text] We have already come to take for granted that every flight of the spaceship "Soyuz" will contribute new pioneering results. The raptures of scientists over the unique results obtained by "Soyuz-21" and "Soyuz-22" have not yet subsided and already a new manned spaceship, "Soyuz-23," is aloft conducting experiments of a purely earth-oriented character. The purpose is to continue what was started several years ago and, above all, technologies and methods of producing materials that are unique in their qualities. These are experiments bringing nearer the time of the development of a number of technologies and production processes in space which are impossible or disadvantageous under conditions on earth -- a time when, in addition to the tremendous energies obtained in space and sent to earth, metals, semiconductors, crystals and many other things unique in their properties will be produced.

The entire Soviet space program once more brilliantly confirms that space research today means not only a large capital investment, but also foresight, for the funds that have been invested right now are being recouped many fold and prospects for the future are bright.

The People's Republic of Bulgaria became the 18th space power on the United Nations list following Bulgarian science's successful takeoff into space with the launching on board the "Interkosmos-8" in 1972 of equipment designed and developed at the Central Space Research Laboratory of the Bulgarian Academy of Sciences. The exceptionally valuable information that was obtained was interpreted by Bulgarian scientists, important contributions were made to space science and the accumulated experience made possible the development of still more highly improved equipment. This went aloft on board the satellites "Interkosmos-12" and "Interkosmos-14" and on the heavy geophysical rocket "Vertikal-3."

The heavy geophysical rocket "Vertikal-4" has now been launched. It differs in principle from "Vertikal-3" in respect of the elevation at which experiments are conducted. Whereas for "Vertikal-3" the maximum elevation was 500 kilometers, for "Vertikal-4" it is over 1500 kilometers. This accounts for the distinctive features of the equipment that has been developed in our country and for the much greater sensitivity and significantly improved indices of the service equipment.

The purpose of the "P2R" instrument installed on the "Vertikal-4" is to measure electron concentration and electron temperature and to measure the concentration and temperature of positive ions. The apparatus is so designed as to make it possible to obtain a greater cross-section of the atmosphere at an elevation with greater purity of experiment due to the increased distance between the container and the rocket carrier.

It can be said right now that by the precise operation of the Bulgarian equipment exceptionally valuable information has been obtained, which at the moment is being analyzed and will doubtless contribute important new scientific results.

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## BULGARIA

### NEW TELEPHONE SETS DESCRIBED

Sofia RABOTNICHESKO DELO in Bulgarian 15 Oct 76 p 4

[Article by Zhelez Subotinov: "'Imefon' ['Name Phone'] -- New Telephone Sets"]

[Text] Two items on the product list of the Belogradchik Telephone Plant are already eliciting warranted interest in our country and abroad. They are modern push-button sets -- the only ones that are series-manufactured in the socialist countries. Developed by the section for the application of MOS-integrated circuits in communications equipment of the Microelectronics Institute in Sofia, they are inferior in nothing to the models of the most advanced firms.

The first model (TA-420), functionally, is an entirely new telephone. The old mechanical dial has been replaced by push-buttons, with which dialing of the desired number is accomplished considerably more rapidly, practically and without error. If the desired number is busy, redialing is accomplished by pressing only one push-button since the set has already stored the digits.

The other model is the AN-10 "Imefon." In addition to improved dialing, it also has an electronic memory in which the numbers of the 30 most frequently called subscribers are stored. To make a connection with any of these, one has only to press the appropriate key.

"The idea of creating such telephones is not new, but it did not become feasible until the development of microelectronics," says Science Associate, Engineer Petur Dimitrov, head of the inventor team. "The institute has developed a very successful MOS-integrated-circuit technology with a high degree of integration. In the TA-420 there is only one circuit containing about 1500 transistors, and in the 'Imefon' five, four of them performing the role of storage, and one, specially designed with more than 2000 elements, controls all the processes in the set."

The specialists are now trying to expand the storage capabilities of both models. Soon their miniature memory will store 20-digit numbers, which will make them very convenient not only for long-distance, but also for international automatic telephone calls.

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## 'INFORMATYKA' FEATURES ARTICLES ON CZECHOSLOVAK COMPUTER SCIENCE

## Charges for Operating JS EMC

Warsaw INFORMATYKA in Polish No 5, 1976 p 27

[Text] The January issue of MECHANIZACE A AUTOMATIZACE ADMINISTRATIVY contained interesting information concerning charges for operating JS EMC [Uniform System of Electronic Digital Computers] in Czechoslovakia. These charges, confirmed in May of last year by the Czechoslovak Federal Office for Costs in Resolution No 1763/05/75, are for three JS EMC computer models, namely the YeS 1021, YeS 1030 and YeS 1040. These charges, given in Czechoslovak korunas (Kcs) per hour of computer operating time, vary in accordance with computer configuration (see the table).

Computer model	Configuration				Charges in Kcs
	Main memory capacity	Number of printers	Number of tape memory units	Number of disk memory units	
YeS 1021	64k bits	1	4	4	1740.--
YeS 1021	64k bits	1	6	4	1800.--
YeS 1021	64k bits	2	8	4	1950.--
YeS 1030	256k bits	1	6	7*)	1400.--**)
YeS 1030	256k bits	1	6	6***)	2460.--
YeS 1030	256k bits	2	8	6	2610.--
YeS 1030	512k bits	2	6	6	2940.--
YeS 1040	512k bits	2	6	6	4170.--
YeS 1040	512k bits	2	8	6	4260.--
YeS 1040	512k bits	2	8	8	4350.--

Probable errors in published data: \*) should be 6; \*\*) should be 2400; \*\*\*) should be 7.

Additional hourly charges are made for Sunday and holiday computer operation times as follows:

Model YeS 1021 -- 87.50 Kcs  
Model YeS 1030 -- 91.50 and 99 Kcs  
Model YeS 1040 -- 121 Kcs

The general terms for the service charges are based on Resolution No 1894/05/72 and Decree No 80/1973 that were issued by the Federal Office for Costs.

The given resolution regarding charges went into effect 1 June 1975. With regard to the organizations, which until now have been billing in accordance with other regulations, the resolution went into effect 1 January 1976.

#### Computer Science in Czechoslovakia

Warsaw INFORMATYKA in Polish No 5, 1976 pp 33-34

[Article by Wladyslaw Klepacz]

[Text] The December 1975 issue of the Czechoslovak computer science magazine MECHANIZACE A AUTOMATIZACE ADMINISTRATIVY contains an article entitled "A Review of the Status and Development of Computer Technology in Czechoslovakia in 1974," authored by employees of the Federal Statistics Office. The article contains a great deal of statistical material, penetratingly and objectively annotated, including a number of conclusions concerning the organization of computer centers, computer technology applications, and utilization of facilities and personnel in that country.

From the article's numerical data, one learns of a very interesting concept concerning a conventional unit for computing power, called JVT (computer technology unit), used by Czechoslovak statisticians as an index that allows them, in a most objective manner, to investigate ongoing changes in the total potential of the computer inventory. In view of the increasing spread in the computing powers of various computer models, the statistical presentations and investigations conducted in many countries are difficult to compare. The publication of only the number of installed computers by some countries is often shocking, especially in this present period of rapidly increasing numbers, and does not reflect the actual total potential of their computing power. In some known statistics of this type, as, for example, the statistics issued semi-annually by DIEBOLD DEUTSCHLAND, the ever increasing differentiation of computer groups (without defining more accurately the criteria for such a division) is being used as a remedial measure, which, however, is only a half-measure and is received with a great deal of reservation. Without delving into the validity and accuracy of the criteria for the division and differentiation of computer computing power that has been accepted in Czechoslovakia, it is worthwhile to become familiar with the mentioned concept, which undoubtedly is a pioneer effort to solve this difficult problem.

The JVT unit of computing power corresponds to the computing power of a typical so-called category II, medium size computer. Such a computer has

a main memory capacity in excess of 512k bits and more than four tape memories or a disk memory unit.

In addition to the above group, six other groups of equipment having designated characteristics were defined, the computing power of which is derived by means of multiplication by an appropriate factor.

The conversion factors and technical characteristics of these groups of equipment are as follows:

1. Large computers (conversion factor 2.0)--main memory in excess of 1,024k bits; more than four tape memory units; and a disk memory.
2. Medium computers, category I (conversion factor 0.5)--256k to 512k bits of main memory; more than three tape memories or one disk memory unit.
3. Small computers (conversion factor 0.3)--remaining digital computer configurations.
4. Card computers (conversion factor 0.25).
5. Minicomputers (conversion factor 0.15).
6. Perforated card machines (conversion factor per tabulator 0.075).

The only comment pertaining to this division is the fact that the mini-computer group is not accurately defined. Considering the actual development of this group of equipment, many doubts arise because the vast majority of currently produced minicomputers can qualify for inclusion into the small computer group (less than 256k bits of main memory). This is a very serious problem because the conversion factors for these groups differ by 100 percent (minicomputers 0.15 and small computers 0.3).

Based on the above method for measuring computing power, it has been determined that the computing power for the full inventory of computing equipment installed in Czechoslovakia in 1974 is 483.23 JVT.

The above potential consists of 486 general purpose computers, 341 minicomputers, and 240 card computers for a total of 1,067 computers as well as 1,161 perforated card machine sets.

Measured in terms of JVT units, the computing power growth index registered its largest gain in 1974 since 1945 and amounted to 21.9 percent. The index was 19.7 percent for general purpose computers, 11.6 percent for card computers, and 29.2 percent for minicomputers. At the same time, however, the index decreased 13.1 percent for the perforated card inventory. The above data indicate that the development of equipment structure in Czechoslovakia is fully consistent with observed worldwide trends.

Also interesting from the viewpoint of the possibility of a central comparison with Polish computer science development is the increase in the inventory of machines during the 1971-1974 period, which is as follows:

Minicomputers--an increase of 211 units (162.3 percent);  
Card computers--an increase of 134 units (126.4 percent);  
General purpose computers--an increase of 250 units (105.9 percent);  
Perforated card machines--a decrease of 434 sets (-27.2 percent).

The age structure of the computer inventory in 1974 (1,067 machines) was as follows:

12 percent of the machines are physically and morally obsolete (more than 8 years of operation);  
24 percent of the machines are morally obsolete (more than 5 years of operation).

The average computer age is 4.7 years. The average age of domestically produced machines is 3.6 years, for machines produced in the socialist countries it is 5.2 years, and for machines produced in the capitalist countries it is 5.3 years. On the one hand, the above data indicate the application of strict criteria regarding evaluation of modernity and, on the other hand, the increasing trend toward meeting requirements via domestic production.

Because of the dominant position of imported computers in previous years (domestic production 33.6 percent, socialist country production 31.6 percent, and capitalist country production 34.8 percent), the structure of existing computers according to country of origin is not yet clear. A very interesting fact--one not well known in Poland--is that Poland occupies second place in terms of equipment imported from the socialist countries (64 computers). A surprising fact here is the overwhelming predominance over such an active equipment exporter as the GDR (barely 11 computers).

The most outstanding current development trend in the installation of new equipment can be seen in terms of the year 1974. Of the total number of 164 delivered computers, 33.5 percent are JS EMC computers (55 computers). The structure according to countries of origin is as follows:

Domestic computers--47 percent;  
Socialist country computers--38.4 percent;  
Capitalist country computers--14.6 percent.

Where it concerns the structure according to computer size, then the years in which representatives of these computer categories were first installed, as well as the current number of such installations are as follows:

Large computers--32 units (since 1974);  
Category II medium computers--46 units (since 1967);  
Category I medium computers--263 units (since 1965);  
Small computers--145 units (since 1960).

In addition to hardware information, of which only the most characteristic information in the article is mentioned above, data were also given concerning Czechoslovak computer science cadres as of 31 January 1974. The most important data from the extensive statistical table concerning employee qualifications as well as employment trends are as follows:

A total of 39,353 people were employed including:

3,392 management employees (8.6 percent);  
3,920 designers and analysts (10 percent);  
3,416 programmers (8.7 percent);  
3,707 maintenance employees (9.4 percent);  
9,148 operators for data preparation equipment (23.3 percent);  
3,470 computer operators (8.8 percent);  
3,659 perforated card machine operators (9.3 percent);  
624 other operators (1.6 percent);  
5,091 employees to monitor data and outputs (12.9 percent);  
2,926 other operating and service employees (7.4 percent).

From the above data it appears that the number of programmers is very modest, especially when compared to the number of management employees, maintenance personnel and computer operators. The negative effects of such a phenomenon are corroborated in the article's general conclusions regarding the need to greatly expand cadre training as well as the necessity to improve the utilization of installed equipment. The conclusions based on 1974 statistical data concerning the serious delays in installing delivered equipment are also noteworthy.

As can be seen from the above short review, in addition to a very extensive analysis of the present status, the article also contains a number of critical conclusions of which a good many can also apply to our own experience. In any case, the Czechoslovak project can be used by us as an example to develop similar reports. Especially worthy of emphasis is the concept of the JVT index discussed earlier which will allow us to obtain a realistic picture, with proper adaptation, of Poland's equipment potential.

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HUNGARY

ROSTER OF NEW CANDIDATES OF SCIENCES PUBLISHED

Budapest MAGYAR TUDOMANY in Hungarian No 11, 1976 pp 726-728

[News from the Committee of Scientific Qualification: New Candidates of Sciences, July 1976]

[Text] The Committee of Scientific Qualification declared

Klara Dozsa Farkas (Mrs Abaffy), candidate of biological sciences, on the basis of her dissertation entitled "Coenological and Ecological Study of the Enchyatreide System Living in the Original Soil";

Jolan Palotas (Mrs Abonyi), candidate of geographic sciences, on the basis of her dissertation entitled "Major Characteristics and Regional Differentiation of the Post-Liberation Development of Our Food Industry";

Bence Adorjan, candidate of economic sciences, on the basis of his dissertation entitled "Computer Technology Today and Tomorrow";

Janos Ay, candidate of economic sciences, on the basis of his dissertation entitled "Methodological Aspects of Sampling-Type Animal Censuses";

Andras Berey, candidate of economic sciences, on the basis of his dissertation entitled "Some Theoretical and Practical Aspects of the Utilization of Industrial Labor According to Education and Training";

Laszlo Bethelendi, candidate of agricultural sciences, on the basis of his dissertation entitled "Industrialization and Efficiency in State Farms";

Jeno Bobrovszky, candidate of political and legal sciences, on the basis of his dissertation entitled "Some Aspects of the Legal Protection of Scientific and Technical Achievements in Socialist Economic Integration";

Endre Boga, candidate of chemical sciences, on the basis of his dissertation entitled "Oxidation of Benzaldehyde in Acetic Acid Catalyzed With Cobalt(II) Acetate";

Magda Csath, candidate of economic sciences, on the basis of her dissertation entitled "Methodology of Mid-Range Enterprise Planning";

Zoltan Deseo, candidate of technical sciences, on the basis of his dissertation entitled "Stresses Arising in Deck, Bottom, and Side Structures of Ship Hulls as a Result of General Bending Stresses of the Ship Body";

Ilona Bolla (Mrs Gerics), candidate of historical sciences, on the basis of her dissertation entitled "Development of a Legally Uniform Serf Class in Hungary";

Gyorgy Gruner, candidate of physical sciences, on the basis of his dissertation entitled "Hyperfine Statial Distribution in Iron-Based Dilute Alloys";

Sandor Gyarmati, candidate of legal and political sciences, on the basis of his dissertation entitled "Financial Responsibility in the Law Governing Agricultural Production Enterprises";

Magdolna Mahr (Mrs Hangos), candidate of chemical sciences, on the basis of her dissertation entitled "Automated Electro-Analytical and Photometric Methods for the Series Analysis of the Main Ingredients of Vegetable Matter";

Najem Harchan, candidate of economic sciences, on the basis of his dissertation entitled "Economic Relationships Between Iraq and the European Socialist Countries, and Their Effect on the Economic Development of Iraq";

Laszlo Hatvani, candidate of mathematical sciences, on the basis of his dissertation entitled "Stability Aspects of Movements of Non-Autonomous Systems";

Matyas Hontvari, candidate of political and legal sciences, on the basis of his dissertation entitled "Responsibility for Quality in International Trade";

Katalin Honty, candidate of chemical sciences, on the basis of her dissertation entitled "Yohimbine-Based Alkaloids (Modification of the Spatial Structure of Alloyohimbine)";

Jeno Josa, candidate of technical sciences, on the basis of his dissertation entitled "Fabrication Accuracy of General Panel Fabricating Lines for

the Furniture Industry and the Internal Relationships Involved";

Laszlo Komaromi, candidate of biological sciences, on the basis of his dissertation entitled "Functional Morphological Study of the Pre-mRNP Particles of the Cell Nucleus";

Mrs Laszlo Kovacs, candidate of economic sciences, on the basis of her dissertation entitled "Female Labor in the Socialist Agriculture of Hungary";

Laszlo Kotvelyessy, candidate of educational sciences, on the basis of his dissertation entitled "Increasing the Efficiency of Biology Teaching in Grades I and II of Classic High-Schools";

Dezso Kulacs, candidate of educational sciences, on the basis of his dissertation entitled "Experimental Study of the Motivational Effects of Educational Methods Requiring the Activism and Independence of the Pupils";

Gizella Kulcsar, candidate of medical sciences, on the basis of her dissertation entitled "Persistent Adenoviruses and Herpes Simplex Viruses in Human Pathology";

Miklos Kun, candidate of historical sciences, on the basis of his dissertation entitled "From Democratic Pan-Slavism to Anarchism (The Ideas of Mikhail Bakunin and His Political Career During the Mid-1860's)";

Istvan Lakatos, candidate of chemical sciences, on the basis of his dissertation entitled "Use of Organic Solvents and Argon Injection in Solution Spectrometry";

Magda Varsanyi (Mrs Lakatos), candidate of chemical sciences, on the basis of her dissertation entitled "Investigation of the Anodic Dissolution of Metals in Non-Aqueous Media";

Gyula Lazar, candidate of biological sciences, on the basis of his dissertation entitled "Structural Study of the Vision Center of the Frog";

Janos Lehoczky, candidate of agricultural sciences, on the basis of his dissertation entitled "The Role and Significance of the Biology of Pathogenic Wine Fungi and of the Effect of Fungicides on the Creation of a Highly Effective Farm Protection System";

Mrs Laszlo Makai, candidate of geographical (meteorological) sciences, on the basis of her dissertation entitled "Energy Transformations in the Atmosphere";

Erzsebet Maklari, candidate of medical sciences, on the basis of her dissertation entitled "Acid-Base Changes in Experimental Bleeding Shock";

Jeno Malomsoki, candidate of biological sciences, on the basis of his dissertation entitled "Complex Method for the Characterization of the State of Training of Athletes";

Miklos Mann, candidate of historical sciences, on the basis of his dissertation entitled "The Life and Work of Agoston Trefort";

Lorinc Matos, candidate of agricultural sciences, on the basis of his dissertation entitled "Processing of Wine-Manufacturing Byproducts";

Laszlo Mester, candidate of agricultural sciences, on the basis of his dissertation entitled "Mechanization of the Deep Fertilization of Grapes";

Abdul Amir Dhaif Mezel, candidate of biological sciences, on the basis of his dissertation entitled "Comparison of Certain Morphological and Physiological Properties of Maize at Various Heterozygote Levels";

Lorinc Mezey, candidate of chemical sciences, on the basis of his dissertation entitled "Some Aspects of Thermodynamic Stability";

Anna H. Nagy, candidate of biological sciences, on the basis of her dissertation entitled "On the Regulation of Type C<sub>4</sub> Photosynthesis";

Gyula Nagy, candidate of agricultural sciences, on the basis of his dissertation entitled "Basic Aspects of the Management of Agricultural Production Cooperatives";

Laszlo Nagy, candidate of geographic sciences, on the basis of his dissertation entitled "Desirable Placement of Wheat Growing in Hungary on the Basis of Natural and Economic Factors";

Jozsef Nemeth, candidate of historical sciences, on the basis of his dissertation entitled "The Free Trade Union of Technical Intelligentsia and of Hungarian Engineers and Technicians After the Liberation (1945-1948)";

Arpad Olajos, candidate of economic sciences, on the basis of his dissertation entitled "Specialist Training and Employment";

Laszlo Onosi, candidate of historical sciences, on the basis of his dissertation entitled "Development of Peasant Movements in Balmazujvaros";

Istvan Orosz, candidate of historical sciences, on the basis of his dissertation entitled "Agricultural Production in Hungary Between 1790 and 1849";

Judit Sagi (Mrs Peter Osman), candidate of psychological sciences, on the basis of her dissertation entitled "Memory Disturbances in Cases of Local Brain Damage (Relationships Between Deliberate and Unintended Recollection)";

Emil Paldi, candidate of biological sciences, on the basis of his dissertation entitled "Investigation of the Nucleic Acid Metabolism of Grain Crops at Low Temperature";

Jeno Papp, candidate of biological sciences, on the basis of his dissertation entitled "The Evolutional Trends of the Braconid Apanteles Species and Their Importance in Biological Eradication";

Gyula Simig, candidate of chemical sciences, on the basis of his dissertation entitled "Alpha-Alpha-Diphenyl-Alpha-Halogenoacetic Acid Derivatives and Their Reactions With Nucleophilic Substances";

Gyula Simon, candidate of educational sciences, on the basis of his dissertation entitled "The General High School and the Training of Teachers for the General High School: A Historical Study";

Robert Simon, candidate of historical sciences, on the basis of his dissertation entitled "Development and Character of Trade in Mecca";

Geza Szilagyi, candidate of chemical sciences, on the basis of his dissertation entitled "Photochemical and Thermal Reactions of Derivatives of Maleic Acid";

Laszlo Szilvassy, candidate of agricultural sciences, on the basis of his dissertation entitled "Chemical Weeding of Domestic Rice Plantations";

Eva Szel, candidate of medical sciences, on the basis of her dissertation entitled "Analytical Study of the Practical Nurse's Work";

Mrs Antonisz Szpirulisz, candidate of economic sciences, on the basis of her dissertation entitled "Development of the Productive Force of Hungarian Railway Operations in Socialist Economy";

Janos Varga, candidate of chemical sciences, on the basis of his dissertation entitled "Data on the Structural Study of Low-Molecular Planar Protein (Gliadine)";

Nandor Varkonyi, candidate of educational sciences, on the basis of his dissertation entitled "Conditions of Effective Polytechnical Education in Socialist Society";

Gabor Vasvari, candidate of chemical sciences, on the basis of his dissertation entitled "Investigation of the Homogeneous Catalytic Oxidation of Ethylbenzene by Modeling";

Janos Vekas, candidate of political and legal sciences, on the basis of his dissertation entitled "Developmental Stages of the Contractual System";

Velimir Nikolasev, candidate of biological sciences, on the basis of his dissertation entitled "The Phospholipid Content and Composition of Human Foetal Tissues, Placenta, and Mother Plasma";

Gyorgy Velosy, candidate of medical sciences, on the basis of his dissertation entitled "Coordinational (Complex) Chemical Methods in Clinico-Chemical Analyses";

O. Andras Vertes, candidate of linguistic sciences, on the basis of his dissertation entitled "History of Hungarian Phonetics Until the 1880's";

Erika Zador, candidate of chemical sciences, on the basis of her dissertation entitled "Investigation of the Reactions of Positive Charge Carriers in Liquid Hydrocarbons by Pulse Radiolysis"; and

Zoltan Zoltan, candidate of geographical sciences, on the basis of his dissertation entitled "Role of the Infrastructure in the Growth of Cities and City Networks."

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## HUNGARY

### INSTITUTE EXTENDS RESEARCH ON TRITICALE

Budapest HAZAI TUDOSITASOK in Hungarian 1 Nov 76 pp 4-5

[Excerpts] Research aimed at improving the characteristics of the wheat-rye hybrid, triticale, is continuing at the Vegetable Growing Research Institute of Kecskemet. The international interest evoked by this research is proved by the fact that triticale research in CEMA countries will henceforth be directed by Hungarian specialists. A joint research laboratory for this purpose is to be set up in Szeged.

Generally, triticale has a protein content of 16-20 percent, but in certain experimental strains it has been found to be considerably higher. Initially triticale had too long a stalk which made it difficult to harvest and prone to lodging. However, when it was finally successfully crossed with a dwarf wheat from Asia, this problem was overcome. Stalk length was reduced to 40-80 centimeters. Dwarfing also improved yields greatly: 50-53 quintals of triticale per hectare. However, dwarf triticale will not be grown on a nationwide basis in Hungary until its yields equal those of wheat, probably not until 1979.

Research on triticale for domestic propagation is aimed at development of higher-yield, fuller-kernel hybrids. At the same time, joint research is being conducted with India to discover a strain that can be grown in the Himalaya region.

Among the CEMA countries, Poland has evinced the greatest interest in triticale, followed by the GDR, USSR and Czechoslovakia. CEMA cooperation is particularly important to Poland. If the experiments are successful, Poland will be able to plant triticale instead of rye on approximately 1 million hectares.

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## HUNGARY

### NEW VIDEOTON TERMINAL, VTS-56100

Budapest SZAMITASTECHNIKA in Hungarian Oct 76 p 4

[Excerpts] The VIDEOTON produced VTS-56100 terminal system is a computer technology device which offers numerous computer processing possibilities for decentralized warehouses systems, transport or hotel networks, enterprise dispatcher services, production control systems, etc. It can also be used as a subscriber terminal or data processing center for information systems or enterprises.

This equipment operates with microprocessors. In addition to establishing contact with the computer and initiating transfer, it makes various applications technology solutions possible in indirect mode. Existing channels of communication (telex, telephone) can be used for data transfer. With the aid of supplementary equipment, (signal converters) it is possible to use a rented or switched in network, but it is also possible to build up "physical lines." Highly reliable transfer is ensured by cyclically coded error protection.

The basis of the VTS terminal is the microcomputer controlled alphanumeric display. The INTEL 8008 microprocessor permits minor local processing and allows the terminal to solve arithmetic operations before transfer begins. In this way the central computer is relieved of a certain amount of work and can spend more of its valuable machine time on more complex tasks.

It is possible to inscribe 80 characters in 16 lines on the screen. The characters consist of Latin and Cyrillic letters, number and punctuation marks which can be made to appear in a 5 x 7 point matrix. The display device has a storage capacity of 1,280 characters (the full content of the screen), and this storage can be "recirculated." The work of the operator is facilitated by a variety of possibilities for editing text. Among other things, it is possible to add rows or insert words or characters. Important words can be underlined; blocks of material can be moved horizontally or vertically, etc. A microprogram can be used to tabulate text editing, format and for memory protection.

A store built up of MOS LSI circuits which can be expanded to a maximum of 16 K bytes and which consists of ROM RAM units is connected with the terminal. The essential element of the system is the program--firmware--set into the reprogrammable ROM storage. This program can greatly modify the characteristics of the terminal within the limits set by the hardware. The RAM module serves as a work area and as storage for the changing parts of the program. The operating and display elements on the control console permit establishment of contact with the other units, designation of the peripherals which are to be used, determination the method of operation (direct-indirect) and the method of data transfer.

From the control panel, programs fed into the store can be retrieved and started. The running of the program can be monitored with the aid of LED displays. In case of operator or machine error, the cause of error can be determined quickly. The flexibility and the modular design of the VTS terminal permits assembly of the optimal configuration for the job involved. The terminal can handle 4 input and 4 output peripherals.

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## HUNGARY

### HUNGARY TO BUY R-22, R-50 COMPUTERS FROM USSR

Budapest VILAGGAZDASAG in Hungarian 5 Nov 76 p 3

[Text] On 3 November the METRIMPEX Foreign Trade Enterprise signed a 7.7 million ruble import agreement in Budapest with the Soviet foreign trade association, Elektronorgtechnika. Under the terms of the agreement the Soviet enterprise will, at the order of NOTO-OSZV (International Computer Technology Training and Information Center--National Computer Technology Enterprise), deliver eight R-22 computers in 1977. Of these, four will have a capacity of 256 kilobytes while the remaining four will have twice this capacity. According to the agreement the Hungarian buyer is to receive basic software along with the computers. NOTO-OSZV will take charge of installing the machines for the enterprises which purchase the Soviet computers from it. In addition to the aforementioned eight computers, another three R-22 machines are to arrive at NOTO-OSZV. These are machines originally scheduled to arrive in 1976 the delivery of which has been postponed so they will reach the users in 1977. In 1977 the high-capacity R-50 Soviet computer which will be used by the Computer Technology and Automation Research Institute of the Hungarian Academy of Sciences will be put into operation. METRIMPEX officials revealed that purchase of another two R-50 computers is under discussion.

METRIMPEX would like to buy computers for the enterprises from other socialist countries in 1977. The plans are to import computers worth 9 million-10 million rubles from the GDR, Romania and Bulgaria. However, no contracts have been drawn up so far.

Insofar as 1976 computer imports are concerned, NOTO-OSZV is to receive eleven Soviet R-22 computers this year. Of these, eight have a capacity of 128 kilobytes; three of 256 kilobytes. On the basis of previously concluded contracts, METRIMPEX will import computers worth 10.5 million rubles from the GDR and 2 million rubles from Bulgaria in 1976. This means that computers worth over 20 million rubles will arrive from the socialist countries. This value is expected to amount to about 25 million-30 million rubles next year.

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## HUNGARY

### BRIEFS

GENE TRANSFER--A few years ago the thought of gene transfer would have seemed utopistic. Yet, today, the Szeged Biological Center is among the institutions which have succeeded in transferring a gene which makes possible the binding of atmospheric nitrogen from one bacterium to another. Although there is no immediate practical significance to this, it will undoubtedly have important consequences in the near future. [Budapest NEPSZABADSAG in Hungarian 3 Dec 76 p 8]

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