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LIST OF ANALOG INTEGRATED CIRCUITS MADE IN POLAND

Sofia RADIO, TELEVIZIYA, ELEKTRONIKA in Bulgarian No 5, 1977 pp 31-32 and inside back cover

[Article by Engineer P. Dimitrov: "Polish Analog Integrated Circuits"]

[Translation] Conventional designations of parameters

AGC	Automatic gain control
A_p	Power amplification
A_U	Voltage amplification
BW	Frequency band
I_{CC}	Supply current
I_O	Output current
I_{OQ}	Quiescent output current
F	Noise factor
P_d	Dissipated power
P_O	Output power
R_f	Feedback resistance
R_i	Input resistance
R_L	Load resistance
R_O	Output resistance
k	Klirr factor

t_{amb} Ambient temperature

U_{CC} Supply voltage

U_i Input voltage

U_O Output voltage

U_{ON} Output noise voltage at input of a short

U_{oreg} Range of output regulated voltage

U_{osat} Saturation output voltage

Z_i Input impedance

α_{oT} Thermal stabilization factor

η Efficiency

Key, by columns, to following table:

1. Type

2. Designation of circuit

   UL1201N: FM intermediate-frequency [IF] (10.7 MHz) and TV sound IF (6.5 MHz) amplifier
   UL1202L: FM IF amplifier
   UL1211N: AM/FM IF amplifier with AM detector
   UL1221N: Video channel IF amplifier in black-and-white TVs
   UL1231N: Video channel IF amplifier in color TVs
   UL1241N: IF amplifier with FM detector and low-frequency [LF] amplifier
   UL1301N: LF and IF weak-signal amplifier
   UL1321N: Double preamplifier and single transistor
   UL1401L: LF power amplifier
   UL1402L: LF power amplifier
   UL1403L: LF power amplifier
   UL 1461L: Power amplifier with preamplifier
   UL1490N: LF power amplifier
   UL1550L: Voltage stabilizer
   UL1601N: Stereodecoder

3. Parameters

   UL1321N: [last item] Hum

4. Value

5. Measurement conditions

(1) тип	(2) Название на схемата	(3) Параметри	(4) Стойност	(5) Условия за измерване
UL1201N	Усилвател на междинна честота ЧМ (10,7 MHz) и МЧ на звука в телевизията (6,5 MHz)	U_{CCmax}	10 V	
		P_d	≤150mW	U_{CC}=7,5 V
		A_U	>55dB	U_{CC}=7,5 V
		U_{osat}	0,65÷1,3V	U_{CC}=7,5 V ; f=10,7 MHz
		I_o	1,5 mA	U_{CC}=7,5 V
UL1202L	Усилвател на МЧ ЧМ	U_{CCmax}	24 V	
		I_{CCmax}	12 mA	
		A_U	29 dB	U_i=8 mV ; R_L =8 kΩ ; U_{CC}=10 V f=10,7 MHz
		U_{omax}	0,8 V	U_i=100 mV ; R_L =1 kΩ ; U_{CC}=10 V
		P_d	300 mW	f=10,7 MHz
UL1211N	Усилвател на МЧ АМ/ЧМ с детектор АМ	U_{CCmax}	10 V	
		A_U	65 dB	за АМ
		A_U	75 dB	за ЧМ
		I_{CC}	4,2 mA	за АМ
		I_{CC}	6,8 mA	за ЧМ
		k	≤3%	за U_i=10mV
UL1221N UL1231N	Усилвател на МЧ на видеоканала в черно-бели телевизори Усилвател на МЧ на видеоканала в цветни телевизори	U_{CCmax}	18 V	
		A_P	50 dB	f=58 MHz ; U_{CC}=12 V
		AGC	≥60 dB	f=58 MHz ; U_o=5÷7 V ; U_{CC}=12 V
		F	7 dB	f=58 MHz ; R_g=50Ω ; U_{CC}=12 V
		U_{omax}	200 mV	AGC=0 ... 30 dB; U_{CC}=12 V
UL1241N	Усилвател на МЧ с детектор ЧМ и усилвател на НЧ	U_{CCmax}	11,8 V	
		A_U	67 dB	f=4,5 MHz ; R_L =1 kΩ ; U_{CC}=9 V
		P_d	280 mW	t_{ame}=25°C : U_{CC}=9 V
		R_i	10 kΩ	f=4,5 MHz ; U_{CC}=9 V
		R_o	100 kΩ	f=4,5 MHz ; U_{CC}=9 V
		U_o	60 mV	

[For key, see preceding page]

(Continued)

UL1301N	Усилвател на малки сигнали на НЧ и МЧ	U_{CCmax}	12 V	
		A_U	55 dB	f=1 kHz U_{CC}=9 V
		U_o	≥1 V	f=1 kHz U_{CC}=9 V
		R_i	≥4 kΩ	f=1 kHz U_{CC}=9 V
		R_o	2 kΩ	f=1 kHz U_{CC}=9 V
		BW	600 kHz	f=1 kHz R_g=1 kΩ; U_o=1 V
		k	2%	U_{CC}=9 V
UL1321N	Двоен предусилвател и единичен транзистор	U_{CCmax}	25 V	
		A_U	60 dB	U_i=0,5 mV; U_{CC}=6 V
		U_o	1,5 V	k=5%; R_f=100Ω; U_{CC}=6 V; f=1 kHz
		BW	400 kHz	U_i=0,5 mV; U_{CC}=6 V; f=1 kHz
		R_i	≥90 kΩ	f=1kHz; U_{CC}=6 V
		R_o	1 kΩ	f=1 kHz; U_{CC}=6 V
		k	0,4%	U_o=0,5 V; U_{CC}=6 V
		прослуш.	−40 dB	
UL1401L	НЧ усилвател на мощност	U_{CCmax}	16 V	
		I_{omax}	1 A	
		A_U	30 dB	R_f=330 Ω; U_{CC}=11 V; R_L=8 Ω; f=1 kHz
		P_o	1 W	k=10%; f=1 kHz; R_L=8 Ω; U_{CC}=11 V
		η	50%	P_o=1W
		BW	>100 kHz	
		R_i	8 kΩ	
		R_o	0,45 Ω	
		k	0,5%	P_o=0,5 W
UL1402L	НЧ усилвател на мощност	U_{CCmax}	18 V	
		I_{omax}	1,5 A	
		A_U	30 dB	R_f=330 Ω; U_{CC}=13,2 V; R_L=4 Ω; f=1 kHz
		P_o	>2 W	k=10%; f=1kHz; R_L=4Ω; U_{CC}=13,2V
		η	45%	P_o=2 W
		BW	100 kHz	

[For key, see above]

(Continued)

POLISH ANALOG INTEGRATED CIRCUITS (continued)

1	2	3	4	5
		R_i R_o k	6 kΩ 0,45 Ω 0,5%	P_o=0,5 W
UL1403L	НЧ усилвател на мощност	U_{CCmax} I_{omax} A_U P_o η R_i R_o k	25 V 1,5 A 34 dB 3 W 50% 10 kΩ 0,35 Ω 0,5%	R_f=220 Ω; U_{CC}=18V; R_L=8 Ω; f=1 kHz k=10%; f=1 kHz; R_L=8 Ω; U_{CC}=18 V P_o=3 W P=0,5 W
UL1461L	Усилвател на мощност с предусилвател	U_{CCmax} P_d P_o A_U R_i R_o k U_{ON}	18 V 4 W >3 W 59÷71 dB >8 kΩ ≥0,45Ω 1,3% ≤10 mV	с радиатор AL 100×100×1 U_{CC}=13,2 V; R_L=4 Ω; f=1kHz; k=10% U_{CC}=13,2 V; R_L=4 Ω; f=1 kHz; U_i=0,7mV P_o=1 W; U_{CC}=13,2 V; R_L=4 Ω; f=1 kHz
UL1490N	НЧ усилвател на мощност	U_{CCmax} U_{imax} I_{omax} BW P_o A_U R_i η	12 V 350 mV 0,5 A >100 kHz 0,65 W 46 dB ≥1 MΩ 65%	 k=10%; R_L=15 Ω; U_{CC}=9 V P_o=50 mW, f=1 kHz; U_{CC}=9 V U_{CC}=9 V; R_L=15 Ω; P_o=0,53 W
UL1550L	Стабилизатор на напрежение	U_{oreg} I_{omax} α_{oT}	31...35 V 15 mA ±1,55mV/°C	t_{amb}=25°C; I_0=5mA t_c≤70°C 10°C≤t_{amb}≤50°C
UL1601N	Стереодекодер	U_{CC} P_d U_i Z_i k I_Q	4÷12 V 80 mW ≤350 mV 20 kΩ 0,5% 6,5 mA	U_{CC}=6V; f=1kHz; U_i=100 mV; R_L=3,3kΩ

[For key, see above]

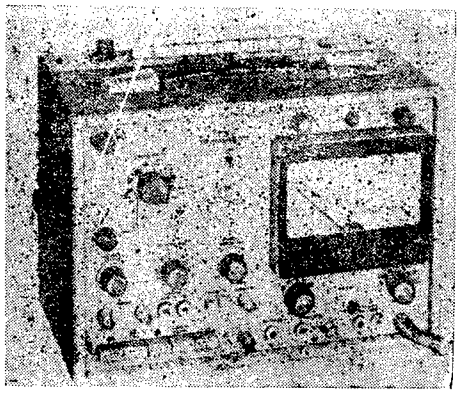
инж. П. Димитров

COLOR TV TESTER MADE IN HUNGARY

Sofia RADIO, TELEVIZIYA, ELEKTRONIKA in Bulgarian No 5, 1977 p 30

[Unattributed article: "Secam-System Color TV Tester"]

[Translation] The Secam-system color TV tester is employed in the repair of color and black-and-white television receivers and can also, in view of its high precision, be used for laboratory needs. It consists of the following measuring units: color-bar generator, test-pattern generator, fixed-frequency generator and modulator, intermediate-frequency generator, voltmeter and ohmmeter. The following measurements and tune-ups can be made: color frequency testing, tune-up of color-identification units, tune-up of frequency color-discriminators, measurements and tune-ups of sound channel. The design employs semiconductor elements and TTL integrated circuits. Dimensions: 279x201x153 mm. Mass: 6 kg. (Hungary)



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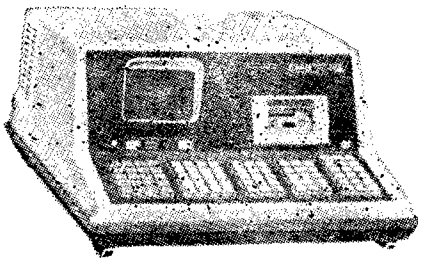
CSO: 2202

PORTABLE PROGRAMMED COMPUTER MADE IN HUNGARY

Sofia RADIO, TELEVIZIYA, ELEKTRONIKA in Bulgarian No 5, 1977 p 30

[Unattributed article: "Portable Programmed Electronic Computer"]

[Translation] The EMG 71-666 portable programmed electronic computer consists of four basic units: central control unit, storage unit (ROM), immediate-access memory (MOS, RAM), and cathode-ray display.



The storage unit is divided into a data block and a program block, the boundary between which is arbitrary.

There is a built-in cassette tape recorder. About 20,000 commands can be recorded on one cassette with a tape speed of 4.75 cm/sec. Tape starting, rewinding, recording and reading can be programmed.

The input-output channel makes it possible to connect various peripherals to the computer.

Technical Data

Supply voltage	220/110 V, 50 Hz
Power consumption	110 VA

Storage capacity	1kx8bit (112 data registers or 832 program steps plus 8 data registers)
Maximum capability for expansion of storage	8kx8bit (1000 registers or 800 program steps)
Display	Cathode-ray tube 95x1120 mm (Hungary)

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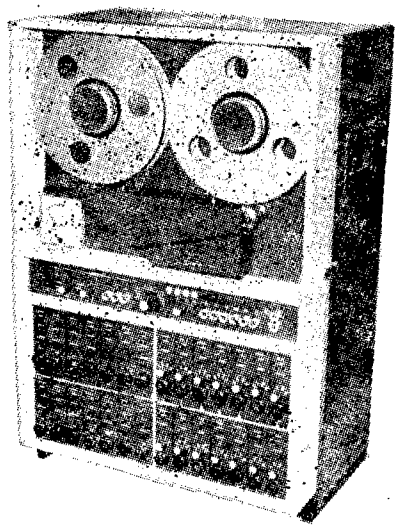
CSO: 2202

CZECHOSLOVAKIA PRODUCES NEW TAPE RECORDER MODEL

Sofia RADIO, TELEVIZIYA, ELEKTRONIKA in Bulgarian No 5, 1977 p 30

[Unattributed article: "EMM141 Measuring Tape Recorder"]

[Translation] The EMM141 measuring tape recorder is intended for simultaneous recording or reproduction of 14 signals in a frequency range from 0 to 30 kHz. It is used for research under laboratory conditions. Its design enables it to make recordings also when mounted in a vehicle. It has two recording systems: frequency modulation and direct recording. The frequency band (at a tape speed of 38.1 cm/sec) under the first system is up to 2.5 kHz, and under the second system up to 30 kHz. Eightfold speed-up or slow-down of either process is feasible. It uses 1" (25.4 mm)-wide recording tape of the BASF-LGS35 type and has four tape speeds: 4.75, 9.5, 19.05 and 38.1 cm/sec. It is powered by a 22-29.5 V storage battery or from the power-supply system. Power consumption is 250 VA. Dimensions: 300x490x730 mm. Mass: 60 kg. (Czechoslovakia)



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CSO: 2202

PROBLEMS IN DEVELOPMENT OF CHEMICAL SCIENCES DISCUSSED

Tirana ZERI I POPULLIT in Albanian 4 Jun 77 p 3

[Article by Kole Popa]

[Text] The chemical sciences, in the whole field of their broad extension, play an important role in performing the great tasks set for the science sector by the historic decisions of the Seventh Party Congress and in solving the acute problems now being forcefully raised by the development and revolutionary modernization of production and by the revolutionization of the whole life of the country. With regard to the problems of developing the chemical sciences in our country, I think that, among those that ought to draw the most attention and engage more fully the chemical sector and its scientific research activity, the further deepening of experimental scientific studies on the country's natural raw materials, the competent and consistent application of modern methods of chemical research, the entry into the chemical synthesis field on a broad front, and, finally, the projecting in our country and the putting into operation with our own forces of the new technological processes and new chemical industrial projects should be ranked [given priority].

1. The deepening of the studies on the nature of the country's mineral or organic raw materials requires that we raise our chemical research to a higher scientific level--in keeping with the full discovery of all the characteristics of raw materials on the one hand and with the determination of the over-all value of this great wealth of the country on the other--in order to respond more properly to production's requirements for their most rational and fullest exploitation. Today, along with the determination of the global parameters, there has also begun to be a demand for deciphering the composition of the initial materials to be exploited, extending so far as to determine the structures of molecular order which are the basis of the mechanical, physical, chemical, physiological, biological and other properties.

The determination of the composition and structure of mineral raw materials, of those accompanying the principal materials and of the systems of combination to which they are subject in nature acquires importance not only for

the circumstances of practical exploitation, but also for considerations and generalizations of a geological and mineralogical character, at which they may permit one to arrive.

On organic mineral raw materials which come out of the earth in the form of petroleum and on the quantitative determination of all their various components, the necessary preliminary studies have now begun to be made in order to determine scientifically, first of all, the classification of the petroleums. This is decisive in the orientation of the oil refining industry, both in order to obtain the products needed by the country's economy in ready form and in order to orient its production activity toward obtaining other semiprocessed products which go to other industries for further processing in the most varied directions. Identification of the individual hydrocarbon components of petroleums and quantitative determination of them in crude oil, that is, in the various fractions of its first distillation, are now the basic object of studies to judge correctly and arrive at scientific conclusions and generalizations about the genesis of the country's various kinds of petroleum, about possible correlations between the different deposits as to origin, about the emigration of petroleum from the first foci of its formation, about the changes that its content has undergone during the penetration of specific geologic strata and so forth.

From these few examples it becomes clear that the deepening of the studies to gain a full knowledge of the nature of our country's raw materials is an important prime line of development for chemical research activity.

2. The application of modern methods of research in all our scientific activity in the field of chemical research will increase the ability to furnish competently all the parameters required by the science of our days.

It is known that the determination of the macroscopic properties of substances is the principal basis for industrial chemical research. This activity by our chemical research institutions must continue to be perfected and deepened incessantly. But the data obtained by this activity present themselves a little too indirectly to be elevated to the level of considerations of a molecular order, as has begun to be required now in a good many cases, especially by the oil industry. Demands for immediate solution of structural problems have begun to become more and more insistent, and still more refined data are being demanded regarding the geometry of the molecule and its dynamic magnitudes.

Among the methods used in the chemical research laboratories to obtain these fine measurements may be mentioned X-ray and electron refraction, the dipolar moment, vibration spectra, nuclear magnetic resonance and so forth.

Our chemical laboratories, both in the center and in the districts, now possess the better part of the modern apparatus that make these measurements, from the most complex and important to the most ordinary ones in daily use. What is most needed now, I think, is the planned specialization of the

cadres in the fully competent use of these modern instruments, the broadening and deepening of their theoretical knowledge to enable them to go on from fine experimental measurements to generalizations and conclusions of a scientific and practical nature. These problems, we believe, should also be given more attention by the basic research institutions, which possess the instruments and the cadres, and by the chairs of higher learning.

3. The present stage of our country's development has placed on the agenda the task of entering widely into anot branch of industrial development, that of chemical synthesis.

The bases of our heavy chemical industry have been laid. Our country now produces; synthetically, sulfuric acid, ammonia, nitric acid, ammonium nitrate, calcined soda, caustic soda and so forth. But there are still many other synthetic chemical products that are imported, in either small or large quantities, for the needs of the various branches of production and service (chemicals for the needs of the country's various industries, chemical reagents, semiprocessed or semimanufactured pharmaceutical raw materials, synthetic chemical raw materials or products of every category and so forth), although many of these products can be synthesized in this country and, in a good many cases, wholly with domestic raw materials.

I believe that the chemical research sector has the duty to study thoroughly the problem of all those products which, under the present conditions, can be synthesized in this country and to begin to determine the rhythm of development of wide chemical synthesis in our country, taking into consideration, of course, and rigorously studying beforehand all the data of a scientific, technical, technological, economic and other nature that may be necessary. It is a known fact that chemical laboratories--equipped with ordinary laboratory instruments of chemical glass set up for the purpose of production in the form of small shops having the dimensions of a para-industrial pilot plant--easily perform, according to requirements, any kind of chemical synthesis, however complex it may be. These production laboratories have the advantage of being easily adapted with few changes in the system of apparatus, for any kind of synthesis that is required. It seems to me that this course should be widely exploited for domestic synthesizing--especially in cases where the demands are for limited amounts--for many industrially used chemicals and chemical reagents, many pharmaceutical products, many consumer chemical products and so forth.

But, above all, special interest is acquired by the fact that we are in the process of setting up a full-cycle oil refining industry. This industry, along with the main products of its activity, can supply industry with special hydrocarbons in an entirely pure state for the most varied purposes of industrial synthesis.

Bearing these things in mind, I believe that chemical research is faced with great study tasks in the wide development of chemical synthesis in our country. Special attention, I think, should be devoted to finding

more fruitful ways of further industrial exploitation of the semiprocessed products that will flow from our petroleum industry which is just now being established, in full accordance, of course, with the economic, industrial and technical conditions of the country and the prospects for its further development.

4. The domestic projection and establishment with our forces of new technological lines and chemical-industry installations represent a great problem, which has long confronted us but which is becoming more urgent every day.

Under our conditions, it is our indispensable duty to project gradually every chemical-industry installation from now on by ourselves and to set up every technological line with our own forces. In our industry we have examples of chemical-industry technological lines and installations projected and built by our people, but these are still few and do not offer what is required. Here it is a question of our establishing a broad chemical industry on the basis of a modern technology in accordance with the demands of the times; and we should do this in ever greater reliance upon our own forces, whether in experimentation on a laboratory scale, or in testing, projecting and building with pilot-plant dimensions or with those of production, without claiming to move on inexorably to absolute autarky in this field. Of course, there are difficulties, and these are numerous, but unless we begin to do a little today, we must not expect to do much by by the end of the five-year plan. If we set ourselves the task of projecting and setting up by ourselves the new chemical-industry plants, the work must be organized here in a centralized manner, directed and planned. For this reason, I think it would be appropriate to establish a special organizational form, for example, a specialized, technological projecting institution, in which experienced technologists, various engineering cadres, technicians and outstanding production workers would also be employed along with the cadres specialized in chemical engineering.

The technological projecting sectors now functioning under some government departments' research institutes should, I think, also be integrated in this central technological projecting institution, since the activity of those sectors, despite their good will, seems to me to keep always too far away from the solution of the great and complex problems posed to applied research by the programmed expansion of the broad chemical industry in our country.

The historic decisions of the Seventh Party Congress also open up new horizons with great and clear prospects to the chemical sciences, and they are for us too, for both the chemical cadres and all the other workers of the country, a grandiose work program for reaching new and higher levels.

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CSO: 2102

NEW APPARATUS FOR LAYING UNDERGROUND CABLES

Tirana ZERI I POPULLIT in Albanian 2 Jul 77 p 3

[Article by Dhimiter Lezo, laboratory worker in the Engineering Faculty; Selim Lundra, engineer of the Tirana Electric Enterprise; Xhavit Demneri, engineer in the Power Plant Directorate and Esat Emiri, pedagog in the Engineering Faculty]

[Text] Ever better work in organizing scientific activity has been done in recent times by the Faculty of Engineering. The list of subjects for scientific research has been broadened and efforts have been made to make it serve production as effectively as possible. For example, during all of last year, at the request of the communal electric enterprise in Tirana, in cooperation also with the DPCE [General Directorate of Electric Power Plants], our faculty has set up a scientific work group engaged in studying the possibility of applying of new scientific methods, the inductive and the acoustic, in the electric power lines or communications sector. This was made necessary by the fact that the evergrowing rhythm of our cities, industrial enterprises, construction enterprises, post and telegraphs and so forth has brought not only a continual expansion of underground cable lines, but also higher demands for the strengthening of scientific discipline, for operation without breakdowns or for the maximum shortening of the time and reduction of the means and forces needed to determine the routes of the cables and the location of defects in them.

The first problem, that of determining the routes of cables, may be thought to be simple, or resolved by existing diagrams, maps or planimetric charts. But the rapid rate of change in urban planning and the change in the profile of our cities or the inhabited centers complicate the problem in many cases. Still more difficult is the determination of the routes of cables passing through uninhabited areas or outside of the towns. So in practice a good deal of energy and working time is spent on this problem and tens of meters of unnecessary trenches are dug, which create difficulties for the movement of inhabitants and means of transportation, to say nothing of the expenditure of lost time.

From what has been said, it is clear that finding the routes of cables, the determination of the depth of their location underground or the exact determination of the location of a defect are problems of no small importance.

The first task of the scientific work group is to master the inductive method theoretically, which would make it easier to produce with our own forces the complete equipment needed to apply this method, which makes it possible to determine the route of electric cables, sheathed or unsheathed, communications cables, water pipes and oil or gas pipes. Besides the route, one can determine the depth of a cable underground, find the position of the existing sleeves, determine where it joins other cables and locate defects.

Endeavoring to put into practice the revolutionary principle of self-reliance, the scientific work group has successfully overcome all the difficulties of studying, projecting and testing and has succeeded in producing a complete apparatus for applying the inductive method. The electrical diagram, the design and all the technical indicators of the apparatus produced by us are on a level with that produced by the other countries since the 1970's. The apparatus has small dimensions and a low weight and is simple to use.

This apparatus permits one to determine the route of cables having a length of up to 5 km. It has been produced entirely from parts which are to be found in this country. It is worth emphasizing that its cost has turned out to be about one-tenth as high as that of a similar apparatus offered by importers, although the output of our apparatus is ten times greater.

From the tests made thus far for the practical mastery of the method we can state that the route of cables is determined with fairly high precision. For a cable lying as much as 2 meters underground, for example, the error in determining the axis of the cable does not exceed 10 centimeters. The error in determining the location of a defect does not exceed 0.5 meters (which is much smaller than by other methods).

However, each of the methods has its own advantages, since it covers a certain part of the various cases occurring in practice. Therefore, we are of the opinion that for the conditions in our country it would be an asset to produce the respective apparatus domestically for the main cities or districts and for some of the different construction or industrial enterprises. The experience gained by the work group in producing the first specimen and in its practical use can help in this respect. The production of 30-40 sets may be done by the URT [expansion unknown] in Durres, by the electro-medical plant or cooperatively. Dropping this article from the import list would also mean a considerable saving in foreign exchange funds.

We are of the opinion that it is possible also to disseminate in this country the acoustic method which has been used for the first time in the metallurgical combine. For this purpose, the scientific workers of our faculty are continuing their efforts to collaborate with the electric enterprise in Tirana.

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CSO: 2102

ROLE OF METEOROLOGICAL STUDIES IN AGRICULTURE

Tirana ZERI I POPULLIT in Albanian 2 Jul 77 p 3

[Article by Asllan Mici and Masar Baci: "Meteorological Studies and Agricultural Practice"]

[Text] The exploitation of climatic elements for the benefit of agriculture is a broad and complex problem whose solution is based on studies of a technical-organizational and scientific-research character.

An important role in these studies is played by agricultural meteorology, which, in addition to studying the effect of climate and its local changes on plants, extends its activity to the physical changes in the environment effected, for example, by forest belts, canals, greenhouses and so forth.

It also includes the study of the climatic conditions for the preservation of products of vegetable or animal origin in warehouses, silos and so forth, and the climatic conditions with regard to the transport of farm products by air, sea, land and so forth. This activity is aimed at the rational exploitation of the meteorological and hydrological conditions for the benefit of agriculture and other branches of the country's economy.

In our country, the experiments and studies made thus far in the framework of agricultural meteorology have been applied in character and directly connected with farm production problems. Some of these have been the fruit of cooperation between the Hydrometeorological Institute and other scientific institutes, such as the cotton microclimate, the corn phytoclimate, the climate and production of the olive and so forth.

Subjects useful for production have also been studied, such as certain climatic characteristics of our country suited to the development of the growing of corn and the bioclimatogram of the cotton boll weevil, and an agroclimatic manual containing valuable material for daily agricultural practice is about to be completed.

The experience gained from certain experiments made in a protected environment, such as obtaining from hothouses more than two crops of vegetables per year and the production of vegetable seedlings by a new method aimed

at exploiting the microclimate of greenhouses have begun to be applied in wide-scale production with profitable results for the country's economy.

In working on this, a rich data base reflecting multi-year averages such as the sums of the active and effective temperatures, the air temperature, the duration of sunlight, the beginning and end of freezes, wind velocity, the distribution of precipitation and so forth has been created. A knowledge and exploitation of these and other data, such as the level of the groundwater and solid deposits, are of great importance for practice and scientific research work in this field.

The progress of our agriculture towards full intensification has brought forth a good many important problems and tasks for agricultural meteorological science. Some of them have been programmed for future solution by the Institute's specialists, in collaboration with the other institutions, especially with the producing farms, but there are others, especially the tasks and problems of the day, that cannot be executed and solved without strong activity by agricultural meteorology in every district. About 240 meteorological stations and posts, ranging in number from 4 to 22 in each district, are now operating in our country. These observe regularly, day by day, the values of the various meteorological elements needed for the daily practice of agriculture and are the basis upon which the organization of this activity in the district must rest. These values and that of the levels of the groundwater, which are observed at more than 450 points, are quite important material for the specialists, agronomists and all farm workers. But why should they not be exploited every day for the benefit of agricultural practice, both on the farm cooperatives and in the farm enterprises of each district? What prevents this is the underestimation of these data and studies by the specialists of some farms.

The operative exploitation of meteorological and hydrological data and the daily and future studies based on them demands greater concern on the part of the farm sections and the scientific farm institutions. In this respect the role of the Ministry of Agriculture is indispensable for taking the necessary measures for the reorganization of agricultural meteorological activity under every farm section. Although the exploitation of the meteorological and hydrological data has been evaluated by the agronomists and the farm production and base cadres in the special consultations organized in some districts, they have not found a full solution.

The tasks set by the Seventh Party Congress in the field of agriculture, in whose fulfillment agricultural meteorology must also play a role, are numerous. They relate, above all, to the uninterrupted growth in the yields of farm products, the increase of soil fertility, the maximum limitation of negative factors, both of a climatic nature and a biological character and so on. These problems, along with others, are also connected with the preliminary measures to be taken in effective reliance upon a thorough scientific and comprehensive knowledge of the climatic environment for each area and farm. In this respect, the problem of organizing and exploiting

the data from agricultural meteorology must be considered as an indispensable link in the entire agrotechnical system contributing to continuous intensification in agriculture. Alongside the growth in the activity of agricultural meteorology in the districts, it is necessary to make a continuous and persistent effort to further strengthen the ties and collaboration between meteorological and hydrological specialists and those in other fields, especially agriculture, so that all the workers and specialists in the various sectors of agriculture may base their work on broader and more thorough scientific activity in order to exploit our climatic and soil wealth as rationally as possible in favor of the achievement of the planned yields for the various farm crops.

10002
CSO: 2102

NEW BOTANICAL VARIETIES OF TRITICUM SPHAEROCOCCUM PERC. OBTAINED BY INTERSPECIFIC HYBRIDIZATION

Sofia DOKLADY BOLGARSKOY AKADEMII NAUK in English Vol 30 No 1, 1977 signed to press 21 Sep 76 pp 109-112

[Article by I. T. Stankov of the Malkov Agricultural Experimental Station, Sadovo, Bulgaria]

[Text] Round-grain (Indian) wheat--T. sphaerococcum Perc.--is an ancient cultigen species, an aborigene of the Hindustani Subcontinent. Archaeological excavations in Punjab revealed an ancient agriculture (4th to 3rd milennium B. C.) which is believed to have grown round-grain wheat (5,7). Despite the old age of this cultigen wheat species, its botanical varieties known in our days are very limited. Percival (6), who gave a suitable name to the species, has described only six varieties. More recently Singh (8) reported about another six, to two of which he gave a name. A few years ago two more varieties were discovered and described (2).

New botanical varieties of T. sphaerococcum, two of which were named (9), were obtained in experimental conditions by interspecific hybridization from the varieties described by Percival with T. durum Desf. and T. dicoccum, Schrank. Another variety was obtained and named from the hybrid progeny in F_4, derived from the free flowering of the highly sterile F_1 plant through the crossing of Aegilops ovata L. and T. aestivum L. (3). In recent years induced mutant forms with symptoms of T. sphaerococcum, one of which was named as a new variety (1), were obtained from T. aestivum L. Today the botanical diversity of T. sphaerococcum is represented by 14 described and named varieties.

In 1972 we selected another four stable new varieties of T. sphaerococcum which are now in F_9 and do not undergo segregation, from our pentaploid as a result of interspecific hybridization, proceeding from Vavilov's law of homologous series, juxtaposing the botanical diversity of T. sphaerococcum with that of T. aestivum. These new varieties possess symptoms specific of the species: spherical grain, semispherical glumes, erectoid ear, short and erectoid leaves. Their fertility and productivity are quite normal. Their variety peculiarity is determined by the following botanical symptoms (Fig.): 1. Red beardless and glabrous ear with a red grain (families 36/11 and 36/17). 2. Red bearded pubescent ear with red grain (families 36/8 and 2/7). 3. Red beardless pubescent ear with white grain (families 36/11a and 2/7a). 4. Red beardless pubescent ear with red grain (family 2/7b).

TABLE
Varieties of Triticum sphaerococcum Perc.

Ear	Glumes	Grains	Name of the variety	Author
bearded	white glabrous	white	echinatum Perc.	Percival (1921)
bearded	white glabrous	red	spicatum Perc.	Percival (1921)
bearded	white pubescent	white	randhawai Singh	Singh (1959)
bearded	white pubescent	red	popovii Stankov et Tsikov	Stankov et Tsikov (1973)
bearded	red glabrous	white	rubroglabrum Singh (=alborubiginozum Jakubz.)	Singh (1959) Jakubziner (Flacksberber 1939)
bearded	red glabrous	red w	rubiginosum Perc.	Percival (1921)
bearded	red pubescent	white	pakistanicum Udacz.	Udaczin, Shabmedov (1974)
bearded	red pubescent	red	rubroaristatum (nom. nov.)	Stankov
with black awns	white pubescent	white	kibricum Udac.	Udaczin, Shahmedov (1974)
with short awns	white pubescent	red	pseudorubrum Bochev	Bochev (1974)
beardless	white glabrous	white	tumidum Perc.	Percival (1921)
beardless	white glabrous	red	rotundatum Perc.	Percival (1921)
beardless	white pubescent	white	globosum Perc.	Percival (1921)
beardless	white pubescent	red	kostofii Stankov et Tsikov	Stankov et Tsikov (1973)
beardless	red glabrous	white	ischkaschimicum Nigm.	Nigmatullin (1972)
beardless	red glabrous	red	malkoffii (nom. nov.)	Stankov
beardless	red pubescent	white	rubroalbum (nom. nov.)	Stankov
beardless	red pubescent	red	jakubzinerii (nom. nov.)	Stankov

We gave the following names to the indicated four varieties:

1. Triticum sphaerococcum Perc. var. malkoffii* (var. nov) spica non aristata, gluma sterilis rubra, glabra, granum rubrum. Beardless and glabrous globosum with T. durum--No 233.
2. Triticum sphaerococcum Perc. var. rubroaristatum (var. nov.) spica aristata, bluma sterilis rubra, pubescens, granum rubrum. Bearded and pubescent ear, red glumes, red grains. Derived from crossing of T. sphaerococcum var. globosum with T. durum--No. 233 and from crossing of T. durum--No. 233XT. sphaerococcum, var. rotundatum.
3. Triticum sphaerococcum Perc. var. rubroalbum (var. nov.) spica non aristata, gluma sterilis rubra, pubescens, granum rubrum. Beardless and pubescent ear, red glumes, white grains. Derived from crossing of T. sphaerococcum var. globosum with T. durum--No. 233 and from crossing of T. durum--No. 233 with T. sphaerococcum var. rotundatum.
4. Triticum sphaerococcum Perc. var. jakubzinerii** (var. nov.) spica non aristata, gluma sterilis rubra, pubescens, granum rubrum.
   Beardless and pubescent ear, red glumes, red grains. Derived from crossing of T. durum--No 233XT. sphaerococcum var. rotundatum.
   The four new varieties of T. sphaerococcum are found in the herbarium and maintained variety at the K. Malkov Agricultural Experimental Station in Sadovo near Plovdiv, Bulgaria.

*In memory of K. Malkov (1873-1908), founder of agricultural experimentation in Bulgaria

*In honor of M.M. Yakubtsiner, Soviet scientist who has great merits for the development of wheat systematization.

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CSO: 1840

STUDY OF AUXOTROPHY OF STRAIN CANDIDA SP. L-86 EXOLIPASE PRODUCER

Sofia DOKLADY BOLGARSKOY AKADEMII NAUK in English Vol 30 No 1, 1977 signed to press 12 Jul 76 pp 113-115

[Article by A. A. Atev and K. I. Markov of the Institute of Microbiology, Bulgarian Academy of Sciences, Sofia]

[Text] Auxotrophic yeasts of the Candida genus have been the subject of intensive research for taxonomic and production purposes. Some authors (6) believe that these yeasts have a species specificity as regards vitamins. Others find that some Candida krusei strains stand in need of biotin, others of biotin and thyamine, and still others of biotin, thyamine and pyridoxin. There are also prototrophic strains of the same species (7).

We did not find any data in available literature on the necessity of growth factors for yeast producers of lipase. This is precisely why we undertook our investigation: to study the auxotrophy of a lipase-producing yeast strain.

Material and Methods. The investigations were made with a mutant yeast strain, Candida sp. L-86, obtained in our laboratory by a combined treatment of the initial culture with N-methyl-N-nitro-N'-nitrosoguanidine and UV-rays. A 20-hour culture with a concentration of 1.10^6 k./mil on a 0.1 ml quantity was used as sowing material.

The strains were cultivated statically in test-tubes with 6 ml of a Wickerham nutritive medium (8) or in a Rieder medium (5) at 28°C for 114 hours. The strain's growth was recorded nephelometrically; it is represented in $^{o}/_{o}$ turbidity.

The effect of the following growth factors was investigated: biotin, thyamine, nicotinamide, pyridoxin, Ca-pantothenate, inositol, paraaminobenzoic acid (PABA), riboflavin and folic acid in concentrations of 0.0001 to 10.0 mg/ml medium.

The auxotrophicity of the strain was also determined with respect to the substances forming the thyamine molecule: formiate, acetate, carbonate, aspartate, alanine, and methionine, within the above limits.

Results and Discussion. The growth of the investigated strain, expressed in $^{o}/_{o}$ turbidity, depending on the form and concentration of the tested

growth substances, is shown in Table 1. As can be seen, a growth exceeding that of the controls (without growth factors in the medium) can be observed when the following are added to a Wickerham nutritive medium: thyamine, Ca-pantothenate and folic acid.

The investigated strain stands in need of 0.1 mg/ml of medium thyamine, 1.0 mg/ml of Ca-pantothenate, and 0.001 mg/ml of medium folic acid. Lodder et al., ([8]) recommend for the cultivation of auxotrophic yeast strains the use of 0.2 mg/ml of Ca-pantothenate, 0.04 mg/ml of thyamine and 0.0002 mg/ml of folic acid.

Table 1

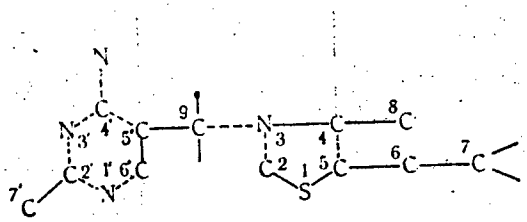
Growth of strain Candida Sp. L-86 (in % turbidity) depending on the concentration of the growth factors after 144-h cultivation in Wickerham medium

Conc. mg/ml	Growth factors								
	biotin	thyamine	PABA	Co-panto thenae	inosite	nicotin-amide	pyrid-oxine	ribo-flavine	folic acid
0.0000	24	24	24	24	24	24	24	24	24
0.0001	25	24	25	26	25	24	25	24	84
0.001	26	53	24	38	25	25	26	25	100
0.01	26	86	27	62	27	25	25	26	100
0.1	25	100	27	89	26	27	26	25	100
1.0	26	100	25	100	26	26	25	27	100

The L-86 strain requires greater quantities of these substances. This is explained by its being auxotrophic with respect to three growth factors and by the vitamin concentrations used being within wide limits.

The addition of the remaining growth substances to the nutritive medium does not stimulate the strain's growth, which shows that it is capable of synthesizing these glucose and ammonium salt substances.

Thyamine plays a major role in the metabolite processes within the yeast cells. According to Ostrovskiy ([4]), it participates in the formation of over 25 compounds there.



Thyamine Structure according to Ostrovskiy ([4]).

The following substances take part in the formation of the thyamine molecule: formiate (C_4), carbonate (C_2), acetate (C_7), aspartate (C_5,C_6, C_9) alanine (N_e,C_4,C_3) and methyonine (S_{11},C_2,C_5,C_6,C_7).

The strain's growth, depending on the concentration of the substances forming the thyamine molecule, is shown in Table 2. As can be seen, it is incapable of synthesizing aspartate and methyonine.

Aspartate biosynthesis is effected, as is known, by the transamination of oxalacetate or by the diazo-amination of fumarate. The strain's inability to synthesize aspartate, which is necessary for synthesizing the pyrimidine part of thyamine, is due to the blocking of azo-amination of fumarate.

Methyonine biosynthesis ([1,3]) proceeds according to the scheme: aspartate--semialdehyde of aspartic acid--serin--homocystein--methyonine.

The single-carbon radical $-CH_3$ is transferred to the homocysteine molecule for methyonine synthesis by means of an enzyme which contains as cofactor folic acid in the form of tetrahydrofolic acid.

Table 2

Growth of strain Candida Sp. L-86 (in % turbidity) depending on concentration of substances forming thyanine molecule after 144-h cultivation in Rieder medium

Conc. mg/ml medium	Thyamine components					
	formiate	acetate	carbonate	aspartate	flavine	methyonine
0.00	24	24	24	24	24	24
0.01	24	25	25	26	24	25
0.10	26	25	24	26	25	29
1.00	23	23	28	54	26	68
10.0	23	24	25	100	27	100

Thyamine structure according to Ostrovskiy (4)

The strain's auxotrophicity with respect to folic acid blocks this reaction and hence also the biosynthesis of methyonine and the thyazol part of thyamine.

Conclusions. 1. Of the investigated nine growth factors, strain Candida Sp. L-86 is auxotrophic with respect to thyamine, Ca-pantothenate and folic acid.

2. The investigated strain is incapable of synthesizing methyonine and aspartate which participate in the formation of thyamine.

3. The investigated strain's auxotrophicity with respect to thyamine is probably due to its incapacity to aminate fumarate and to its auxotrophicity with respect to folic acid.

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CSO: 1840

DEPARTMENTS, FUNCTIONS OF NATIONAL METEOROLOGICAL SERVICE OUTLINED

Budapest MAGYAR NEMZET in Hungarian 23 Jul 77 p 5

[Article by Elek Kornyei: "Hungarian Meteorologists in International Cooperation"]

[Excerpts] Forecasting

The central facility of Hungarian meteorology changed its name several times in past years. Until 1950 — as its name during that period also indicated — it was also engaged in terrestrial magnetism studies. From 1951 onward it was called the National Institute of Meteorology, and in 1970 it changed into the National Meteorological Service and assumed the structural organization promulgated by the chairman of the National Technical Development Committee. This institution is the repository of all atmospheric science activities in the country. We try and describe its activities on the basis of an informative bulletin issued by the presidium of the National Meteorological Service.

The institution has three facilities: The Central Institute of Meteorology in Kitaibel Pal Street, the Central Forecasting Institute which was inaugurated on Tatabanya Square in 1974, and the Central Institute for Atmospheric Physics, which is also in Budapest (18th District, Gilic Square No. 1) and was established to perform studies in the fields of atmospheric physics, energetics, and cosmic meteorology.

The Central Institute of Meteorology directs and controls the domestic surface and atmospheric observation network, performs the modern storage and processing of meteorological data, edits and publishes the most important yearbooks and monthly reports, operates the electronic computer center of the Service, and performs basic, applied, and development research on the methods of long-range weather forecasting.

The Central Forecasting Institute issues the short- and medium-range forecasts for the press, the radio, and the television media. It also serves private and public transportation, as well as the airports. In the observatory in Siofok, there is a Lake Balaton and Lake Velence storm warning system, which has the important task of issuing warnings and alarms if sudden weather hazards and high winds are expected. A very important function of this institute is the collection, around the clock, of all domestic and foreign weather data reflecting the physical state of the atmosphere from the ground to an altitude of several kilometers. These data are transferred to a weather map which is drawn every three hours or every six hours. The forecasts are prepared on the basis of these maps.

Flight activities are well-nigh impossible without meteorologists. The meteorological service at Budapest-Ferihegy International Airport provides this service, and briefs the pilots before their departure orally and in writing about the expected weather conditions along their routes and in their destinations.

For Clean Air

The third facility of the National Meteorological Service, the Central Institute of Atmospheric Physics, deals, among others, with the protection of the clean atmosphere, sun radiation, atmospheric ozone, atmospheric chemistry, and other subjects related to atmospheric physics. Meteorologists everywhere in the world participate in the work to protect the human environment, in the work to ensure the cleanliness of the air we breathe. Increasing urbanization has its meteorological ramifications: industrial facilities emit air pollutants and polluted air enters the country through the borders also. It is necessary to establish a "plan for higher air quality." Tasks in this field necessitate the examination of the air pollutants and the creation of "meteorological analogy models" for forecasting the concentrations of pollutants. For examples, the scientists developed the characteristic figures for the cement factory in Hejocsaba, the Danube-Shore Thermal Power Plant, the Borsod Chemical Combine and other industrial establishments. These figures are important to ensure that the air-quality standards are complied with, and they may be continuously monitored.

Hungarian meteorologists participate on a regular basis in international meteorological cooperation. One important result of this cooperation is the World Weather Service, without which the preparation of weather forecasts would be practically impossible. The Hungarian meteorologists

participate in the collective experiments sponsored by the International Council of Scientific Unions and the Meteorological World Organization, dealing with global atmospheric studies. Insofar as their goals and technical facilities are concerned, these studies are on a vast scale, and are as big enterprises as have been ever conducted in the history of sciences.

Without exaggeration, we may state the following: The work of the Hungarian meteorologists has earned the respect of the whole world.

2542
CSO: 2502

POLISH ACADEMY OF SCIENCE ACTIVITIES, PERSONNEL

Warsaw NAUKA POLSKA in Polish No 4, Apr 77 pp 141-157

["The Chronicle" column]

The Role and Efficiency of Work

[Excerpts] A scientific session entitled "The Role of Works and Factors Increasing Its Efficiency to Realize the Socioeconomic Goals Specified in the Resolutions of the Eighth PZPR Congress" was held in Lodz on 29 and 30 November 1976. It was organized by Lodz University and the Lodz Committee of the PZPR.

The session program consisted of plenary conferences and discussions in three problem sections. The proceedings were opened by Prof Romuald Skowronski, rector of Lodz University. The following plenary papers were delivered: "Consumption and Work Efficiency" by Jan Szczepanski, vice president and fellow, Polish Academy of Sciences [PAN] and "How to Manage Personnel Better and More Efficiently" by Eugeniusz Dobosz, department director in the Ministry of Labor and Social Welfare. In the problem sections, the following papers were delivered: "Efficiency of Managing Labor Resources In a Region" by Prof H. Mortimer-Szymczak; "The Workplace as a Center for Shaping Interhuman Socialist Relationships" by Doc Dr Hab S. Dziecielska-Machnikowska; "The Process of Continuing Education as an Objective Necessity for Socioeconomic Development" by Dr A. Gniazdowski; "The Rational Organization of Free Time as a Labor Productivity Factor" by Dr J. Penc; "A Rational Personnel Policy and Work Efficiency" by Doc Dr Hab T. Janusz; "The Forming of Material Working Conditions as a Factor Increasing Work Efficiency" by Doc Dr J. Nowakowski; "Organizational Evaluation of Work Efficiency" by Doc Dr Hab Z. Mikolajczyk; and "The Motivational Role of Material Incentives" by Doc Dr Hab St. Borkowska.

In the discussions, problems concerning means of increasing work efficiency were broached. Among other matters emphasized were: the need to counter absenteeism and personnel fluctuations, and the training of specialists in the higher schools who would be concerned about assuring optimum working conditions for workers.

Conference of Lawyers

The PAN State and Law Institute and the Law Department of the University of Gainesville (Florida) cosponsored an international symposium on the theme: "Parliamentary and Postadministrative Forms of Protecting Citizens' Rights," which was held in Warsaw from 6 to 8 December 1976.

In addition to Polish lawyers, the following participated in the conference: Prof W. Remniew of the USSR; Dr A. Zschidrich and Prof H. Klenner of the GDR; L. Berger, Petition Commission chairman of the FRG Bundestag; U. Lundvik, Swedish Parliamentary ombudsman; and Profs F. Baldwin and J. Mills of the United States.

Prof A. Lopatka, director of the State and Law Institute, opened the conference, and the main paper was delivered by Doc Dr Hab L. Czubinski, procurator general of the Polish People's Republic.

Conference of Microbiologists

In honor of the 30th anniversary of the Polish Microbiological Association, a conference of the PAN Section II Microbiological Committee was held in Szczecin on 8 and 9 December 1976. Taking part were approximately 30 microbiologists from every Polish scientific center and the Dutch scholar Prof D. A. A. Mossel, president of the International Committee on the Microbiology of Food and Nourishment, who visited Poland at the invitation of the PAN. He delivered a paper and familiarized himself with the situation in Szczecin, where an international congress of microbiologists will be held in 1977.

Szczecin's scientific achievements in the field of microbiology were presented in the following papers: "Direction of Scientific Research at the Academy of Agriculture Department of Food Microbiology" by Prof S. Zalewski; "Direction of Scientific Research at the Szczecin Academy of Agriculture in the Fields of Agricultural Microbiology and Phytopathology" by Prof T. Dominik; "Direction of Scientific Research at the Pomeranian Medical Academy Microbiology Department in Szczecin" by Doc Dr Hab J. Halasa; "Direction of Scientific Research at the Voivodship Health and Epidemiology Station" by Dr J. Golba; and "Direction of Scientific Research at the Department of Veterinary Hygiene in Szczecin" by Dr B. Uzieblo.

Participants in the conference visited the PAN Microbiology Department and the Academy of Agriculture Department of Microbiology of Food. They also became acquainted with the processing technology of the Deep-sea Fishing Enterprise and the Gryf Fishing Service, and they visited the fishing boat REKIN.

Application of Mathematics

The Fifth All-Polish Conference on Applications of Mathematics was held in Bukowiec nad Zalewem Solinskim from 1 to 8 December 1976. It was organized by the PAN Mathematical Sciences Committee, the Main Administration of the Polish Mathematics Society and the PAN Mathematics Institute. Specialists from university and scientific centers from all over Poland and representatives from industrial enterprises and plants from the Subcarpathian region were in attendance.

Approximately 50 specialized papers were delivered. During the discussions, the following subjects were also touched upon: current and direct information concerning results and achievements of individual scientists and scientific centers, and increasing contacts between scientists and applications personnel.

Cybernetics in Medicine

On the initiative of the PAN Section IV Technical Sciences, the first conference on biocybernetics and biomedical engineering was held in Warsaw from 29 November to 2 December 1976. Representatives of Poland's scientific centers, especially from Warsaw, Wroclaw, Lodz, Krakow and Poznan, took part in it.

The status of biocybernetics and biomedical engineering in Poland was presented by PAN Fellow Maciej Nalecz, director of the PAN Institute for Biocybernetics and Medical Engineering. Also discussed were: computer-aided medical diagnosis problems; new conductors; measuring methods and systems for biology and medicine; processing information in organisms and models of the nervous system and neurocongruent networks. Unique devices were displayed such as: measuring equipment to investigate the rehabilitation of the speech organ; a digital medical thermometer that takes measurements every second and an automatic blood analyzer that produces full results in just a couple of minutes. The latest achievements of doctors and biocybernetecists were also presented, such as the introduction into medical practice of the so-called intraaortal method of aiding circulation, which provides good results in case of a heart obstruction.

Economic Evaluation of Mineral Raw Materials

The Central Office of Geology, the Mining and Metallurgy Academy and the Polish Economic Society organized a scientific conference dedicated to the economic evaluation of mineral raw materials in the socialist countries. The conference took place on 6 and 7 December 1976. In addition to the organizers, participating in it were scientists from Yugoslavia, Hungary and the USSR.

During the discussions, attention was focused on the fact that development trends of the global economy increasingly depend on the amount and structure

of resources that are controlled by individual countries. Because various difficulties are encountered in managing the utilization of these resources under conditions of mounting deficits of these resources, it is necessary to prepare theoretical formulations concerning a macroeconomic evaluation of raw materials and, also, to create a data base which would enable more rapid application of scientific achievements to practice. A more expeditious evaluation of mineral resources is also needed.

The results of the conference will serve to standardize economic methods of evaluating mineral resources as one of the conditions for properly determining the effectiveness of integrating processes vis-a-vis the raw materials base.

Fifth Radiographic Structural Analysis Seminar

In preparation for the 11th International Crystallography Congress, which will be held in Warsaw in 1978, the PAN Crystallography Committee, in collaboration with the PAN Institute of Low Temperatures and Structural Research and the PAN Office for Scientific Personnel and Personal Matters, organized the Fifth Radiographic Structural Analysis Seminar, which was held in Trzebieszowice from 18 to 29 September 1976.

The seminar program included basic problems of modern crystallography, problems of precise determination of crystal structures, interpretation of non-Bragg diffraction effects resulting from dislocations of orientation in crystals and, also, crystallochemical interpretation of structural data.

The lecturers were eminent foreign professors such as: N. W. Bielow, member of the USSR Academy of Sciences; A. Guinier from the University of Paris-Sud; H. Jagodzinski from Munich; P. M. De Wolf from Holland; K. Itoh from Japan; E. Wolfel from Darmstad; F. Hanica from Bratislawa; A. Kalman from Budapest; and Dr D. M. Cheiker from the Crystallography Institute in Moscow. Lectures were also conducted by Polish professors, including K. Lukaszewicz of the Institute of Low Temperatures and Structural Research and Doc Dr J. Leciejewicz of the Nuclear Research Institute.

Approximately 100 individuals representing the most important research centers in Poland in this field took part in the seminar. The level of the lectures as well as the presentations of individual works were proof of the constantly improving research methods and crystallographic work in Poland.

During the seminar, the scientific work of Polish centers involved in structural radiography was presented. Instead of issuing reports on individual accomplishments, work results were presented during the so-called poster session in the form of large-scale drawings and diagrams. This method of presenting scientific findings, now being used more and more outside of Poland, was greeted with overwhelming approval and interest, especially by the foreign guests.

The next Radiographic Structural Analysis Seminar will be held in 1979. It is expected that it will be international in character.

30 Years of Activity by the Electrical Engineering Institute in Miedzyles

In December 1976, the Electrical Engineering Institute in Miedzyles celebrated its 30th anniversary. In recognition of the service of this institute in developing the machine industry, the State Council awarded it the Banner of Labor, Second Class. The ceremony took place 20 December 1976. The Electrical Engineering Institute was formed in 1946. Since 1969 it has been a scientific and technological subsidiary unit of the EMA Electrical Apparatus and Machinery Industry Association specializing in so-called high-current electrical engineering. The 406 patents awarded to the institute in the 30-year period are proof of its innovations and the technical range of its developments. During this same time period, 241 original inventions developed by the institute were utilized in our industries.

Over 300 scientists and researchers, including 60 professors and docents, are employed by the institute. Scientific activity is conducted in several dozen specialized departments such as the Distribution Apparatus Department, the Nondestructive Testing Department, the Department of Electrical Drives for Machine Tools, the Metrology Department, the Electrical Traction Department, the Electrical Machinery Department and the like.

During the 1971-1975 period, the financial results from the production of equipment developed by the institute amounted to over 6.5 billion zlotys. During the 1976-1980 period, the institute will concentrate its efforts on the development of basic energy equipment, standard-drive systems and motors and various types of electric-machine components for automation. The production of control and measuring equipment will also increase. Research will be conducted on the automation of engineering work and on electrical engineering material. In addition, basic research will be expanded further to increase theoretical knowledge of the extensive electrical engineering field.

ERGONOMIA, A New PAN Publication

The first issue of the publication ERGONOMIA, an organ of the Ergonomics Committee attached to the PAN Presidium as well as the Ergonomic Commission of the PAN Branch in Krakow, will make its appearance in 1977. The publication will contain scientific articles on the classical ergonomic problems of the interaction of man, machine and physical environment that occurs in various industrial branches, agriculture, forestry, transport and construction. The publication will also contain articles on currently developing problems regarding system ergonomics, consumer goods ergonomics, the application of ergonomics to architecture and the like.

Because of the interdisciplinary and multidisciplinary character of ergonomics, the publication will also contain scientific articles related to ergonomic problems in the sphere of the natural, social and technological sciences.

In its "Kronika" section, ERGONOMIA will record the scientific and research activities as well as association activities of various Polish and foreign institutions.

The publication is designed for scientists of various disciplines as well as for all those who are interested in information concerning ergonomics, and in the practical and scientific activities in the field of ergonomics.

Prof Andrzej Jozefik is the chairman of the Editorial Committee, and the secretary is Dr Med Janusz Pokorski. Krakow will be the editorial headquarters, and the magazine will be published by the Ossolineum Press, Krakow Branch.

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