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M E D I C A L R E S E A R C H C E N T R E

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INTRODUCTION

The year 1975 brought a series of changes in the Medical Research Centre both in the management and in the organization of research.

In December 1974, professor A. Kunicki retired from the post of director of the Centre. He has been nominated President of the Scientific Council of the Centre; this post was vacant after professor J. Konorski's death on September 14-th, 1973.

In January 1975, professor M. J. Mossakowski was appointed Director of the Medical Research Centre and assis. professor J. W. Borowicz was nominated his deputy for general affairs.

In view of the fact, that in the past years the research lines of the Centre developed into three groups of studies, the Scientific Council of the Centre has been divided into three Sections.

Section I - for studies on the Function of the
Nervous System

Section II - for studies on the Structure of the
Nervous System

Section III - for studies on Transplantology.

Some changes occurred also in the structural organization of research units in the Centre:

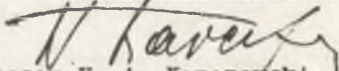
In the Department of Neuropathology, in which a group of workers carried on studies in developmental neuropathology - an independent Laboratory of Developmental Neuropathology has been formed.

Units, mentioned in previous Reports:

- Organization Team of the Department of Mental Hygiene - has finished the organization period. The programme of investigation has been established, the unit now constitutes the Mental Health Department.
- Electron Microscopic Unit. The name of this laboratory is changed to Laboratory of Ultrastructure of the Nervous System, according to its investigations directed above all to this sector of topics.

All these evolutionary changes require amendment of the composition of the present Report.

Scientific Director


Professor W. A. Karczewski, M.D., D.Sc.

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PART I

INVESTIGATIONS AND SCIENTIFIC ACTIVITIES

a. STUDIES ON THE FUNCTION OF THE NERVOUS SYSTEM

a.1. Neural control of breathing

The role of the brain stem in the central and reflex control of breathing.

Patterns of response of respiratory neurones grouped in the region of nucleus ambiguus (NA) to stimulation of the vagus nerve were investigated in anaesthetized rabbits. A short-latency (2-5 msec) excitation and long-latency (5-9 msec) inhibition were observed in various types of neurones. The phrenic motoneurones always responded to stimulation by inhibition of activity (latency 8-9 msec). In contrast to the results of some other authors, all responses of NA neurones were orthodromic, thus implying the involvement of these neurones in the processing of vagal information.

The ventilatory responses to CO_2 were studied after a microinjection of lignocain into the ventral and dorsal respiratory "nuclei" of the medulla. Local anaesthetization of the dorsal "nucleus" and caudal part of the ventral "nucleus" enhanced the response to CO_2 (increase in f , V_T and \dot{V}_E equ.); this response was markedly reduced by a blockade of the rostral part of the latter nucleus.

It has been demonstrated that the activity of the vagus nerves can control the rate of rise of inspiration and thus

affect the pattern of breathing in a graded manner. Moreover, stimulation of the vagal and mesencephalic inputs to the respiratory complex confirms the existence of a "short-term memory" in the respiratory control mechanism (first demonstrated in this Laboratory in 1963).

Comparative studies were undertaken on the role of the vagus nerve in the control of breathing. It was shown that inflation, deflation, inhalation of ammonia vapour, CO₂ and sulphur dioxide elicit identical or very similar responses in baboons, pigs, dogs and rabbits. Several differences seem to exist between these species and the cat. It is postulated that mechanisms controlling respiration in cats may have specific properties.

In experiments with chronically vagotomized rabbits the supplementary role of the vagal loop in the response to CO₂ was confirmed. The direction of the response was identical whether the vagi were intact or cut and its magnitude depended strongly upon the "instantaneous" excitability of the CNS.

Mathematical model of a pulmonary stretch receptor and a system analysis of the performance of the respiratory feedback loops were elaborated; they have been used for computer simulation of physiological experiments.

A reduction of laryngeal resistance in experimental unilateral pneumonia, and its increase in rabbits given serotonin were demonstrated.

a.2. Neural control of circulation

Mechanism of neural control of heart in physiological and pathological conditions

Studies on the mechanism of adrenergic reaction to acute myocardial infarction have shown that the adrenergic response to coronary occlusion, manifested by enhanced adrenaline release into the blood, is evoked reflexly by stimulation of sympathetic nerve endings within and in the vicinity of the ischaemic area of the myocardium. It has been found that prostaglandins generated locally in the myocardium may determine the sensitivity of myocardial sensory nerve endings to nociceptive stimuli.

In order to study the humoral, metabolic and myocardial enzymatic consequences of the adrenergic reaction, an imitation of this response was produced in healthy dogs by adrenaline infusion. Adrenaline excess, quantitatively similar to that seen in acute coronary occlusion, resulted in the suppression of insulin response to an elevated blood glucose level, in the decrease of serum triiodothyronine and elevation of free fatty acids level. This was accompanied by a diminution of histoenzymatic activity of succinic dehydrogenase and ATPase in the myocardium by the decrease in mitochondrial hexokinase activity in the heart, parallel with mitochondrial alterations shown by electron microscopic study. The results suggest that adrenaline excess accompanying the early phase of acute myocardial infarction may

be a trigger mechanism for a variety of disturbances seen in the early phase of the disease. The results obtained are the basis for studying the methods of preventive therapy possible for clinical application.

It has been shown that the release of endogenous prostaglandins into the blood outflowing from working skeletal muscles in the dog is related to muscular contractions and contributes, to the local hyperaemic response to muscular work. Both the resistance and the capacitance vessels are the site of action of endogenous prostaglandins. Exercise-induced generation of these substances contributes to dilation of precapillary vessels and regulated venous outflow during and following muscle work. A biological method was adopted for detecting the concentration of endogenous prostaglandins in the blood outflowing from the sagittal sinus of the dog and an experimental set-up for recording of the level of endogenous prostaglandins in two models of intracranial hypertension were developed.

Studies on the changes in concentration of endogenous prostaglandins in circulating blood during total cardiopulmonary bypass in the dog presented evidence for increased generation of vasodilator prostaglandins during total perfusion and for a contribution of these substances to the hypotension observed during this surgical procedure. The results may be of relevance to clinical perfusion for open-heart surgery.

a.3. The neurohormonal control of adaptation to work and thermal environment

In investigations on the neurohormonal control of adaptation to work and thermal environment, the previously demonstrated relation of the adrenergic system activity during physical exercise to the changes in carbohydrate stores in the organism was analyzed in dogs. A similar mechanism of control of the adrenergic system activity was also found in human subjects performing physical work.

In dogs glucodetectors connected with the control of this system activity were found to be localized within the brain. A general concept concerning the glucostatic control of exercise metabolism is advanced.

It was evidenced that in dogs the thyroid hormones -thyroxine (T_4) and triiodothyronine (T_3) - exert their influence on the thermal balance during physical exercise acting at 2 levels. Beside their peripheral metabolic effects, they have a central effect, probably by increasing the "set point" of the thermoregulatory system.

It was also demonstrated that the modifications in metabolism during physical exercise, as well as in the "metabolic" part of the exercise-hyperthermia caused by excess of thyroid hormones are mainly due to the potentiation of the metabolic action of catecholamines by these hormones.

In further investigations, performed with hyperthyroid patients, changes in their metabolism and thermoregulation during physical effort were described.

The effects of emotional factors on central mechanisms of thermoregulation were shown and analyzed.

Adaptation to low ambient temperature and physical exercise was found to be decreased in animals with previously restricted physical activity.

a.4. Intracellular mechanisms regulating the metabolism
of brain tissue in normal and pathological conditions

The results of studies indicate that hypoxic conditions result in primary damage to the mechanisms responsible for the integrity of structure of cellular membranes and subcellular elements in the nerve tissue. The increase of calcium ion level in brain cells during ischaemia may be responsible for the activation of phospholipases, leading in consequence of increased phospholipid hydrolysis, to a raised level of free fatty acids. Free fatty acids inhibit the processes of phospholipid synthesis decreasing the activities of choline and ethanolamine phosphotransferases in brain microsomes. This causes a deepening of previously slight disturbances of the lipoprotein structure of membranes and of their metabolic function. Free fatty acids and calcium ions have, in addition, an inhibitory action on the activities of several membrane and cytoplasmic enzymes. It has been demonstrated that they are inhibitors of Na^+ - and K^+ -dependent ATPase, cytoplasmic and mitochondrial NADP-dependent isocitrate dehydrogenase, as well as hexokinase. Free fatty acids may also participate in the disturbances of acetylcholine biosynthesis, occurring during hypoxia. The activity of choline acetylase decreases by about 20% with a simultaneous increase in the amount of the active form of pyruvate dehydrogenase participating in

AcCoA formation. It may be assumed that the lack of changes in the content of the mediator under such conditions may depend, among other things on the inhibitory action of free fatty acids on ChAc activity. It has been demonstrated that in vitro acetylcholine inhibits the process of mitochondrial phospholipid hydrolysis and the processes of free-radical oxidation in the mitochondria, like antioxidant compounds.

b. STUDIES ON THE STRUCTURE OF THE NERVOUS SYSTEM

b.1. Reaction of the nerve tissue to exogenous and endogenous damaging factors

Effect of hypoxia on the central nervous system

In investigations on the effects of cerebral ischaemia it has been demonstrated that haemodynamic disturbances in the central nervous system developing as a result of oligovolaemia are due to systemic circulatory disturbances, in the first place to increased venous pressure (right ventricular failure) and secondly, to a fall in the arterial blood pressure (left ventricular failure). The critical value of venous pressure rise, above which postischaemic brain oedema develops, has been determined. Increased arterial blood pressure at the time of developed postischaemic oedema increases even more its intensity.

It has also been demonstrated that during circulatory hypoxia transient disturbances of key enzymes of the glycolytic shunt develop in the brain. They are most evident in the case of hexokinase, where a difference was observed between the susceptibility of the mitochondrial and the cytoplasmic enzyme.

In all types of oxygen debt a transient rise in the activity of adenyl cyclase is observed in the brain and

this finding suggests a raised concentration of cAMP. The intensity and dynamics of these changes differ in relation to the character of hypoxia.

It has been found that a consequence of transient spinal cord ischaemia are prolonged generalized disturbances of spinal cord microcirculation, associated with transient disturbances of neurotransmission as evidenced by changes in acetylcholinesterase activity.

It has been observed that carbon monoxide intoxication leads to disturbances in the activity of diphosphatases and triphosphatases in the structural elements of the blood brain interphase, and this underlie the cytotoxic brain oedema.

In the same conditions a transient fall in the levels of adrenaline and noradrenaline in the brain is observed, followed by a compensatory rise.

It has been demonstrated that the raised activity of alkaline ribonuclease in the early phase of CO poisoning may be the cause of the impairment of protein biosynthesis in the central nervous system observed under these conditions.

In vitro studies revealed significant differences in the resting potentials of cellular elements of the cerebellum depending on the type of the cell and the degree of maturity. The same relationships have been found with regard to the changes in resting potentials after hypoxia.

They were more intensive in glial cells (oligodendroglia) than neurones (Purkinje cells).

Studies on neurones isolated from regions with different sensitivity to the oxygen debt, demonstrated differences in the glycolytic activity in various types of neurones, the sensitivity to CO correlating with the intensity of metabolic processes in the cell.

Ultrastructural investigations on cyanide intoxication of glia cultured in vitro showed the prevalence of disturbances in cell membranes permeability and damage to the mitochondria. These changes were reversible and depended on the cell type (oligodendroglia) and the degree of maturity.

b.2. Exogenous toxic encephalopathies

A comparison of cerebral microcirculation in vasogenic, compression-induced brain oedema and cytotoxic ouabain-induced oedema, showed differences in the changes depending on the nature of the damaging factor.

In ouabain-induced oedema, after a short period of ischaemia, prolonged venous stasis developed with extensive foci of poor blood supply corresponding to the areas of greatest tissue damage. In the early stage cerebral microcirculatory abnormalities were an exponent of systemic haemodynamic disturbances and direct ouabain action with later developing disturbances of vascular autoregulatory mechanisms. Longlasting microcirculatory disturbances may be the cause of the generalized abnormalities in metabolism observed previously.

In compression-induced oedema microcirculatory disturbances are characterized by irregular perfusion of various parts of the brain with prevailing venous hyperaemia appearing in the white matter, basal ganglia and on the convexity of cortical gyri. They are bilateral and are the direct cause of structural tissue abnormalities.

In electron microscopic investigations of the blood brain interphase elements bilateral changes were demonstrated which involved in the first stage only the perivascular processes of glial cells and later also the elements of the capillary wall. With marked abnormalities in vascular endo-

thelial cells and perivascular glia - the interendothelial junctions and intercellular spaces were unchanged. Masses of floccular substance accumulated in the perivascular glia, which may correspond to proteins passing across the vascular walls. It has been demonstrated that with increasing oedema the cortical synapses in both cerebral hemispheres undergo progressive damage. This was evidenced by the reduced number of synaptic vesicles, their fusion into conglomerates, variation of their size up to complete desintegration of nerve junctions. At the same time a decrease was noticed in the intensity of noradrenaline and dopamine fluorescence and abnormalities in their location, increasing with the development of ultrastructural abnormalities. These changes may be considered as an index of disturbed transmission.

The area of vasogenic oedema was characterized by a decrease in level of sulphhydryl groups which are normally known to stabilize the cell membranes. This decrease, concerning both free and protein-bound SH-groups occurs within the first 24 h of oedema, and retreats after 48 h. Administration of reduced, exogenous glutathione decreases the intensity of oedema.

b.3. Biological characteristics of nerve and glial cells
under normal and pathological conditions

In the investigations on hepatic gliopathy in vitro full prevention by d-penicillamine of the development of gliopathy induced by serum from patients with hepatolenticular degeneration has been demonstrated. The effect of d-penicillamine was incomplete in the presence of exogenous copper salts and serum from patients with hepatic coma and absent in the presence of exogenous ammonium salt. It has been concluded that the protective effect of d-penicillamine appears only when copper is the pathogenic factor and it is absent when gliopathy is due to the action of ammonia.

It has been shown that in patients with acute liver failure, the accumulation of copper is greatest and tissue damage is most severe when they exhibit a raised copper level and/or decreased caeruloplasmin activity in the serum. In this group of patients therapeutic administration of penicillamine is indicated.

Following transplacental administration of ethylnitrosourea disseminated foci of demyelination appeared in the central nervous system in these parts in which the process of myelination had been completed. Demyelination was characterized by degradation of myelin to triglycerides and cholesterol esters and a scant reparative reaction and re-

removal of breakdown products by means of immobile and mobile scavenging. In adult animals ethylnitrosourea similarly caused myelin damage not reaching the stage of full demyelination.

Glucose transport in cellular elements of the nerve tissue in vitro was found to be mediated by astrocytes and to have the character of both active carrier-dependent transport and passive diffusion.

In the enriched fraction of glial cells, the presence of species- and organ-specific antigens was demonstrated. It remains to be established, whether the species-specific component is a genuine glial antigen or an impurity of vascular origin. The positive reaction of the antiglial serum with the myelin fraction may be indicative of the presence of an antigen common to glia and myelin.

In the investigations on the role of glia in the development of the immunological properties of the nerve tissue, the presence of a glial antigen localized in astrocytes and oligodendrocytes of the central nervous system of the rat has been demonstrated. Immunophoretic investigations showed that it is composed of a number of components and that the main component is present in the α zone. This antigen is organ- but not species-specific. It was established that glial cells contain antigens common to the brain and other organs.

b.4. Toxic and anoxic lesions of the developing nervous system

In 1975 the complex investigations on the transplacental action of phenobarbital on the brain of newborn rabbits were terminated.

Moreover, it was found that the damaging factors arising in pregnant rabbits in the course of epileptic seizures penetrate into the foetuses.

The development of the central nervous system has been found to be inhibited and delayed in the newborn as a result of frequently recurring epileptic seizures in mothers during pregnancy. This inhibition involves both neurons and myelin sheaths and probably is connected with impaired oxygenation of blood and decreased blood glucose level in mothers and foetuses.

Phenobarbital administered to pregnant rabbits after the time of organogenesis completion has a damaging effect on the foetus, more pronounced than that of epileptic seizures delaying general development and maturation of all structural elements of the central nervous system.

b.5. Electron-microscopic investigations of blood vessels
in allogeneic renal transplants in dogs

For investigating the morphological changes caused by rejection of an allogeneic renal transplant without immunosuppressive treatment eight renal transplantations were performed in dogs with random selection of donors and recipients.

Biopsy specimens for light-microscopic and electron-microscopic examinations were obtained 15 min after transplantation and at intervals of several days over two weeks.

Changes appeared earliest (after 24 h) in peritubular capillaries, with endothelial cell oedema and layering of the basement membrane. Later (3-6 days after transplantation) fibrinous necrosis of walls and infiltrations developed in the subendothelial space consisting of plasma cells and lymphocytes.

Glomerular capillaries seemed to be less sensitive to immunological reactions. During the first days after transplantation fusion of the pedicles of podocytes occurred and the number of tubular structures increased in their cytoplasm.

Changes in tubular cells were a response to earlier developing pathological changes in the capillaries. Initially, accumulation of cellular organelles in the tubular lumen was observed, followed by necrosis of tubular epithelium cells. The survival time of transplanted kidneys was never above 14 days.

The results of investigations showed that in allogeneic renal transplantation in dogs receiving no immunosuppressive treatment the changes leading ultimately to graft rejection begin, in the first place, in the system of intertubular capillary vessels and then in the glomerular vessels. Changes in the renal tubular epithelium should be regarded rather as secondary and due to disturbances in blood supply to the organ.

These observations are important for a better knowledge of the pathogenesis of graft rejection and may be useful for therapeutic management in cases of renal transplantation in humans.

b.6. Electron-microscopic investigations of neuroblastoma-type neoplasms

Neuroblastomas from surgically treated cases from the Department of Oncology, Mother and Child Research Institute in Warsaw were taken for investigations. The following results were obtained:

- Neoplasms from this group possess the ability of maturation, and in some cases nervous fibres and nerve cells were found nearly identical in electron-microscopic appearance with normal ganglion cells.
- Independently of the degree of maturation of neoplasms, formation of catecholamine granules in nerve fibres was observed in all cases.
- Exocytosis of catecholamine granules was observed in nerve fibres.

These observations are a morphological evidence of the maturation ability of neuroblastoma-type neoplasms. They indicate also that even in most mature forms of these neoplasms production of catecholamines takes place and they are eliminated from the tumour cells, this suggesting that determination of urinary excretion of catecholamines or their metabolites may be an important diagnostic test.

b.7. The problem of brain oedema and pathogenesis of post-traumatic injury of the central nervous system

The research programme on prevention and treatment of brain oedema was begun by carrying out a comprehensive analysis of the behaviour of intracranial pressure (ICP) before and after neurosurgical operations. Specialized methods for evaluating ICP by automatic computer analysis were developed; for example, the floating histogram method, regression analysis, etc. These methods were found to be particularly useful in studying the effect of dehydrating agents on ICP. An on-line real-time intensive care system called SPINN-1, and a clinical-and-research system, INTRAN, were developed and implemented. The clinical intensive-care system includes facilities for continuous measurement and analysis of cerebrospinal fluid drainage in patients with raised ICP.

Experimental studies on animals showed that mannitol dehydrates only non-oedematous brain tissue. Sudden decompression of the compressed brain leads to the spread of cerebral oedema, which is a consequence of the resulting changes in cerebral blood flow, disturbances in the blood-brain barrier, and cerebral haemorrhages.

The behaviour of local pressure in the cat brain during controlled compression and after sudden decompression was studied; the results of this study should permit better evaluation of ICP dynamics in man. It was established

that frequent and large doses of dehydrating agents administered without proper control of the water-electrolyte balance may produce iatrogenic disturbances.

Studies of the electron-microscopic picture of brain oedema and of the effect of anti-oedema drugs showed that the first signs of oedema appear after 2 h of balloon compression, and after 24 h the oedema is fully developed. It was established that slow rates of mannitol infusion are more beneficial because the resulting changes in osmotic pressure are smaller. It was found that CSF lactate monitoring may be useful in evaluation of the patient's state after surgery.

Studies of the effect of craniocerebral trauma on the function of the nervous system showed that EEG changes occurred in 17%-24.5% of boxers who had been active in the sport for 4 years or longer, and in 12.5% of those who had been boxing for 3 years or less.

b.8. Studies of the effect of stereotaxic lesions on the emotional state, memory and bioelectrical activity of the rat brain

Comparative neuropsychological studies of the long-term (3-6 years) effect of amygdalotomy on emotions and behaviour, and on memory and learning ability were carried out in 46 patients suffering from serious forms of epilepsy. The post-operative improvement, which consisted of elimination of psychic tension and emotional instability and improvement in self-control, persisted during the follow-up period. Amygdalotomy not only does not intensify memory disturbances noted before surgery, but helps to improve the range of direct memory and the learning ability of the patient. Cognitive processes are also improved.

The first stage of the programme of experimental studies of the spontaneous neuronal activity of the amygdala and the effect of electrical stimulation of the cat hypothalamus on this activity was completed. These studies indicated that neuronal populations in the medial part of the amygdala exhibits a lively spontaneous activity and shows the highest sensitivity to electric stimulation of the rostral part of the hypothalamus. The medial part of the amygdala may play a role in the control of discharges in epileptic patients.

b.9. Gnostic disturbances caused by hemispheric lesions

It was shown that temporal disturbances are caused by a common mechanism which involves the destruction of one of the links of the following chain: task - task programming - task implementation - inspection of implemented task.

A detailed description of these problems was published in *Acta Physiologica Polonica*, XXVI, 5, Suppl. 11, 1975.

b.10. Experimental studies on CNS hereditary disease on the model of a rabbit with hereditary paralytic tremor

(pt - male; pt/pt - female)

(Brain fine structure of pt-rabbit. Intracerebral calcifications)

The investigations in the EM were carried out on 4 symptomatic pt-rabbits and 4 controls from the same mixed litters (carrier x healthy male). From the brain of each animal approximately 70 tissue blocks (according to topography of lesions) were embedded in epon. The neuro-axonal dystrophy studied in the EM shows degenerative changes in the mitochondria and appearance of some unknown lamellar structures. The coalescence of degenerated organelles forms "calcigenous beds" with secondary deposition of calcium crystals. The size of the latter ($400 \text{ \AA} \times 40 \text{ \AA}$) corresponds to hydroxyl apatites. Additional X-ray verification gave for calcified deposits on paraffin sections the Sigma-quotient above unity, corresponding to calcium binding ($\text{Ca}_3/\text{PO}_4/2$).

(Cerebral changes in healthy senil rabbits as compared with senil changes in pt-rabbits)

The brains of 59 rabbits were examined with a light microscope, the age of the animals ranging from 3.5 to 8.5 years. Group I-st included 35 healthy rabbits and pt-carriers.

The II-nd group consisted of 24 symptomatic pt-rabbits. The cerebral picture in the two groups was similar with neuronal atrophies and rarefactions, proliferation of glial and connective fibers and hydrocephalus internus. These changes were observed about two years earlier in the pt-group. No characteristic senil features as those described in experimental works with aluminium salts and vincrisine were found. In the pt-rabbits with recurrent clinical course neuronal calcifications and in some grey structures acute neuronal damage were seen, independently of the time of survival.

c. STUDIES ON TRANSPLANTATION

Investigations on and practical application of immunological differentiation of living organism

c.1. Tissue and organ transplantation

The study of the mechanism of hyperacute rejection of xenogeneic transplants has shown that a gamma-globulin located serum fraction of the blood outflowing from the xenogeneic transplant inhibits the migration of macrophages. There has been a correlation between the inhibition index and the time of graft survival.

The morphologic changes observed in xenogeneic transplants were similar to those found in the experimental model of hyperacute rejection of allogeneic transplants.

Function studies of the autotransplanted kidney preserved for 24 h in long surviving animals have shown normal glomerular filtration however, the renal plasma flow was slightly reduced.

The conclusion from that study was that 24-hour preservation did not disturb the function of the autotransplanted kidney.

The results of experimental liver preservation over the period of 6 h with the use of immersion cooling and the periodic perfusion method were negative, contrary to those

reported in other publications. An assessment of liver tissue damage during preservation showed that during the period of the initial ischaemia certain ultrastructural changes appear in the capillary endothelium.

At the same time there is an increase of the permeability of the capillary wall. Results of these studies indicated the necessity of maintaining normal microcirculation in the transplanted organ.

c.2. Investigations on the practical use of immuno-suppressive agents

Microscopical examination of the lymph nodes and spleens of dogs previously treated with ALG showed that, when a highly active preparation of ALG was used, depletion of the thymus-dependent areas of the lymphatic nodules occurred. Treatment with ALS may cause some side effects, mainly damage of the liver. Mononuclear infiltrations were found in periportal areas of the liver. A new preparation of antilymphocyte globulin was obtained by the Sephadex column technique. It appeared that the process of IgG preparation may produce formation of aggregates which limit its practical value. Further research is necessary to find a method preventing aggregates formation.

d. OTHER RESEARCH WORKS

Human physiology. Pathophysiology of circulation

d.1. Study of the pathophysiology of lymph circulation

A technique of aseptic 5-days collection of peripheral lymph from the lower extremities in healthy humans was developed. Preliminary studies showed that IgA, IgG, IgM levels as well as hemolytic complement component levels were dependent on the body position and function of the extremity. An experimental model of short term lung lymph stasis has been worked out in dogs. Histological examination of the lung tissue of these dogs showed interstitial oedema of the septum of the lung alveoli. The microscopic appearance was similar to that observed in the lung in mitral stenosis.

Histological examination of the groin lymph nodes in patients with chronic lymphangitis has shown a complete lack of lymphoid tissue. Studies performed in dogs proved that administration of *E.coli*, *Streptococcus faecalis* and *Staphylococcus* to the lymphatic vessel of a hind leg in an amount of 1×10^9 cells/ml caused two months later complete atrophy of the lymphatic tissue in the popliteal lymph nodes.

d.2. The opening of an arteriovenous anastomosis after experimental dissection of peripheral nerves and in similar clinical situations

Cutting of the sciatic nerve in rabbits leads to the appearance 4-6 weeks later of a trophic ulceration which does not heal. Until recently this phenomenon was believed to be due to - what is called - the "trophic factor".

Arterial and venous system have been investigated in rabbits after dissection of the sciatic nerve. At different periods of time after the cutting of the sciatic nerve arteriographic examination was performed showing immediate and persistent opening of arteriovenous anastomoses.

The discovery of the opening of a-v anastomoses leading to serious disturbances of the microcirculation and especially of the nutritional blood supply to a denervated leg facilitated our understanding of the etiology of trophic ulcerations.

Appearance of sclerotic obliterative changes in vascular bypass transplants was observed in patients after vascular surgery. Similar changes appeared in venous as well as artificial vascular prostheses a few to several years after the surgery. A number of such cases were recorded. It seems that this is the best model for studies on the etiology of peripheral arteriosclerotic changes.

d.3. Studies on adaptation of children and adolescents with above average intelligence to school environment

In this group of investigations considerable differences were found in the estimates of students' abilities by teachers and psychologists. These differences were found in from 7 to 34% of the material. In many cases the teachers estimated much higher the intelligence level of students than did psychological tests. It has been disclosed that estimations of students' activities by teachers often fail to take into account the creative aspects and are frequently based only on their reproduction ability. In view of this, it is difficult to estimate - without previous psychological tests - the actual proportion of very highly intelligent students. Multispecialist studies showed that the most frequent type was general intellectual capability, followed by humanistic abilities and mathematical ones. Adaptation difficulties to the school environment were observed in 15-20% of students with above average intelligence.

The obtained data are important from the theoretical as well as practical point of view for a better recognition of the intellectual abilities in school children and for their creative development.

A programme of multidirectional care of children with above average intelligence presenting various difficulties has been elaborated.

The programme comprises directives for the activity of teams of highly qualified specialists; psychologists, psychiatrists, sociologists and teachers. Such teams for the development of abilities should be organized in all provinces. They would conduct also training for developing abilities and instructions would be provided for teachers, facilitating the organization of optimal conditions for the development of talents in their students. Realization of the programme may serve as a basis for a modern system of ability development.

The Department intends this programme will be submit to the Ministry of Education.

d.4. Two-route re-education of children with reading
and writing difficulties

In investigations on the two-route re-education system which includes the psychodidactic aspect as well as the psychomotor one, a set of specially elaborated exercises was applied with increasing grades of difficulty. Their purpose was to improve the development of retarded functions of analysers and elimination of psychomotor excitability disturbances in 25 children. After re-education the scholastic progress of most children improved significantly and their behavior at school was also better.

Elaboration of a method of two-route re-education is of considerable importance since it has been found to be an effective method in controlling the most frequent causes of school difficulties - psychomotor hyperactivity and dyslexia.

d.5. Influence of family and educational institutions on the development of personality

Owing to the specificity of a school teacher's work the occurrence of neurotic syndromes within this professional group is frequent. In the period 1971-1974, in Łódź 588 sick leaves have been given to school teachers to promote their health; in 23.6 percent of cases these leaves were necessary because of neurotic syndromes. In the same period a reduction of working time was granted to 618 persons on account of health problems; in 25.4 percent of cases - neurotic symptoms. It has been verified that neuroses are the cause - even more frequently than circulatory and respiratory system diseases - of a reduced ability for work among school teachers.

Studies on the influence of teachers' neurotic disorders on school results and emotional disturbances of pupils are continued.

d.6. Factors determining social adaptation and maladaptation

The social adaptation of persons released from penitentiary institutions is related to objective and subjective factors. The objective factors are established by the State in the form of - what is called - postpenitentiary aid, consisting of ensuring employment, advance-pay and accomodation. The subjective factors that condition adaptation are; working habit, stable family situation, low frequency of stays in penitentiary (single stay). The subjective factors of social maladaptation are as follows: lack of working habit, alcoholism or drunkenness, unstabilized family situation, multiple stays in prison. The ability to take advantage of the objective factors of adaptation established by the State is blocked by social maladjustment factors in the discharged offenders. Studies on juridical adjustment of women released from penal institutions show a low incidence of criminal activity recurrence (reconviction) among persons previously punished by law-courts for crimes against communal property (1%) and a high incidence of criminality recurrence among women sentenced for crimes against personal property (27%). This analysis shows that the kind of crime previously committed seems to be the most important factor determining recurrence of criminality.

d.7. Drug addiction in children and juvenils: causes, consequences, prevention

The following factors have been found as mainly predisposing to drinking among young people: various mental abnormalities (most of all - personality disorders), drinking patterns observed in family home and unfavourable models of behaviour of their peers. Imitation of older fellow students (or adults, uncommonly) is the essential motive of alcohol drinking.

In studies on causes of drug dependencies among youth it is found that the majority of drug addicts reveal personality disorders as well as a high level of anxiety and discrepancies between great aspirations and the possibilities of their fulfilment. Concomitant use of alcohol and other dependence-producing drugs is the most dangerous way of drug abuse. Frequently the drug addicts commit crimes in order to obtain the stupefying agent.

d.8. Psychophysical and social aspects of suicides
and suicide prevention

The epidemiological analysis of suicide attempts in Łódź in 1973 has revealed that 30.8 percent of the total number of persons (866 cases) hospitalized after suicidal self-poisoning are adolescent suicide attempters aged between 15 and 19 years. Suicide attempts among children up to 14 years of age represent 3.6 percent (31 cases) of the hospitalized cases of suicidal intoxications.

Children and adolescents together comprised 34.4 percent (298 persons) of the total number of admissions after suicidal self-poisoning in 1973.

The rate of suicide attempts by poisoning that needed hospitalization, for the total population of Łódź in 1973 is estimated as 11.09 per 10000 inhabitants, for adolescents between the ages of 15 and 19 years - 38.08 per 10000, and for girls aged 15-19 - 58.7 per 10000. On the basis of analysis of suicide attempts among children under 15 years of age it was concluded that the psychiatric consultations system hitherto existing is not sufficient for the detection of children with high suicide risk.

The following factors are conducive to suicide attempts among children and adolescents: broken home, alcoholism of parents, not living in the family.

Prevention of children and adolescents suicide attempts should be based on principles of secondary prevention - every young person after a suicide attempt should come within psychiatric care. Special emphasis should be laid on the detection of individuals with serious suicide risk or - in general - the risk of suicidal behaviour.

d.9. Studies - construction of biomedical apparatus

In 1975 MEDIPAN Scientific Instruments Laboratories has been continuing the work on construction and development of biomedical apparatus, repair and maintenance services of their own apparatus as well as that supplied by the Swedish firm L.K.B.

The basic production programme included

	type	No. of apparatuses produced
- biologically controlled respirators	ULR-1	6
- pullers for pulling of glass microelectrodes	GMP-1	15
- cameras for oscilloscope photography	KO-3	23
- pneumotachometers		2

In this group of equipment one biologically controlled respirator was produced at the request of a British buyer and a puller on the order of a Bulgarian buyer.

Most scientific equipment produced was ordered by Polish scientific research laboratories including: Laboratories of the Medical Academies in Białystok, Gdańsk and Wrocław; Laboratories of the Universities in Gdańsk, Lublin and Toruń.

Nearly one-third of these instruments were produced on the order of laboratories of the Medical Research Centre, Polish Academy of Sciences.

e. NEW METHODS - FOR MEASUREMENT AND INVESTIGATIONS

Technique of selective block of transmission

in the vagous nerve

An original thermode with automatic temperature control

The method has been developed by Drs HUSZCZUK A. and RYBA M. in the Department of Neurophysiology. It is applied in studies on respiratory reflexes mediated by the vagous nerve, but can be used also in other fields of physiology wherever a selective block of nervous transmission is required.

The method of two-route re-education of children

The method has been elaborated by MARKIEWICZ J., M.Physic.Ed. and ZAKRZEWSKA B., M.Psych., from the Research Group of School Mental Hygiene.

The method will be used for re-education of children with dyslexia, dysgraphia and psychomotor hyperactivity.

The method is being introduced gradually in mental health clinics for children and in schools in Warsaw.

LIST OF PUBLICATIONS

Notice:

All English titles in parantheses in this publication indicate, that the original language of those titles is other then English.

aa. Original papers

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Niektóre etapy biosyntezy białka i RNA w mózgu szczura po wielokrotnym zatruciu tlenkiem węgla.

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BORKOWSKI M.: bb 20, bb 21
BOROWICZ J. W.: bb 5
BORUTA A.: bb 43, dd 1
BRONISZEWSKA-ARDELT H.: bb 6, bb 7, bb 86
BRYŁKO J.: aa 17
HRZEZIŃSKA Z.: aa 22, aa 23, aa 24, aa 42, bb 8, bb 36,
bb 43, bb 59, bb 80, bb 81
CEDRO A.: bb 9, bb 10
CEREMUŻYŃSKI L.: bb 11
CHANCE B.: aa 26, bb 75
CHODAKOWSKA J.: aa 6
CHWALBIŃSKA-MONETA J.: aa 23, bb 12, bb 61, bb 84
CROSS B. A.: aa 5, bb 4
DANIELEWICZ-KOTOWICZ A.: bb 5, bb 15
DĄBROWIECKI Z.: aa 36, bb 13, bb 89
DĄBBSKA M.: aa 7, aa 8, aa 17, bb 14, bb 15, bb 16
DESMEDT L.K.C.: bb 99
DOMAŃSKA-JANIK K.: bb 17

- DYDYK L.: aa 8, bb 16, bb 18
DYTKO P.: aa 38, aa 39, bb 3
DZIDUSZKO J.: aa 38, aa 39
ERECIŃSKA M.: aa 26, bb 75
FERENS Z.: aa 7
GADAMSKI R.: bb 19, bb 20, bb 21, bb 65
GAJKOWSKA B.: aa 27, bb 44, bb 78
GŁOGOWSKA M.: aa 9, bb 22, bb 23
GOLEC L.: bb 24
GRIEB P.: bb 25, bb 26
GROMEK A.: bb 27, bb 28, bb 48, bb 49, bb 56, bb 66, bb 67
GROMYSZ H.: bb 29
GUZ A.: aa 5, bb 4
HAMBERGER A.: bb 51
HERBACZYŃSKA-CEDRO K.: aa 34, bb 9, bb 10, bb 11, bb 35,
bb 88
HERCZYŃSKI R.: aa 10, bb 30, bb 31
HORROCKS L. A.: bb 90
HUSZCZUK A.: aa 5, bb 4, bb 32
IWANOWSKI L.: aa 11, bb 33, bb 34, bb 98
JANCZEWSKA H.: bb 35
JARECKI M.: aa 6
JEFFERIES A.: aa 5, bb 4
JĘDRYCHOWSKA E.: aa 9, bb 23
JUCHA Z.: dd 2

- KACIURA-UŚCILKO H.: aa 24, aa 25, aa 42, bb 8, bb 36,
bb 43, bb 80, bb 81
- KANSY J.: bb 18
- KAPUŚCINIŃSKI A.: aa 12, aa 18, bb 37, bb 38
- KARCZEWSKI W. A.: aa 10, bb 29, bb 30, bb 31, bb 39,
bb 40, bb 41
- KĄCKI J.: dd 6
- KLATZO I.: aa 29, aa 30, aa 33
- KORSAK-ŚLIWKA J.: aa 39
- KOSOWSKI S.: bb 42, bb 68, bb 69
- KOWALSKI W.: bb 24
- KOZŁOWSKI S.: aa 13, aa 22, aa 25, aa 42, bb 36, bb 43,
bb 59, bb 60, bb 61, bb 91
- KRAŚNICKA Z.: aa 14, aa 20, aa 41, bb 44, bb 45
- KROH H.: aa 15, bb 16
- KRÓLICKI L.: bb 3
- KRUK B.: bb 84
- KSIEŻAK H.: bb 47, bb 48, bb 49, bb 76
- KULCZYCKI J.: aa 7
- KULESZA J.: bb 50
- KUNICKI A.: aa 38, aa 39, bb 3
- LOESCHCKE H. H.: aa 31
- ŁAWECKI J.: bb 11
- ŁAZAREWICZ J. W.: bb 51, bb 52, bb 53, bb 56, bb 90, bb 100
- ŁUKASIEWICZ H.: cc 1, cc 2
- ŁYSZCZARZ J.: aa 16, bb 54, bb 55

MACHALLA J.: bb 61
MAJEWSKA M. D.: bb 52, bb 53, bb 56
MARKIEWICZ J.: dd 3
MARYNIAK R.: bb 5
MAŚLIŃSKA D.: aa 17, bb 57
MCHEDLIŠHVILI G. I.: aa 18, bb 37
MELIS W.: bb 99
MOSSAKOWSKI M. J.: aa 19, aa 20, aa 21, aa 43, bb 58,
MURRAY R. M.: aa 29, aa 30, aa 33
NAUMAN A.: bb 11
NAUMAN J.: bb 11
NAZAR K.: aa 6, aa 22, aa 23, aa 42, bb 36, bb 43, bb 59,
bb 60, bb 61, bb 97
NIKOLAISHVILI L. S.: aa 18, bb 37, bb 38
OLSZEWSKI W.: bb 62, bb 63, bb 64, cc 1, cc 2, dd 6
OSTENDA M.: aa 11, aa 14, bb 34, bb 65
PASTUSZKO A.: bb 27, bb 28, bb 66, bb 67
PAWŁOWA O.: bb 68, bb 69
POHOŠKA E.: aa 24, aa 25, bb 36
POKORSKI M.: aa 31, bb 70, bb 71, bb 72
PRILL K.: aa 31, bb 72
PRONASZKO-KURCZYŃSKA A.: aa 44
PRZYBYLSKI A.: bb 45, bb 73
RADOMIŃSKA-PYREK A.: aa 36, bb 89, bb 90
RAFAŁOWSKA U.: aa 26, bb 28, bb 52, bb 74, bb 75, bb 76
RAP Z.M.: aa 27, aa 28, bb 77, bb 78

- RATYŃSKI B.: bb 20, bb 21
- RENKAWEK K.: aa 20, aa 29, aa 30, aa 33
- ROMANIUK J. R.: bb 50
- ROSSOWSKA M.: bb 79
- ROWIŃSKI W.: cc 1, cc 2, cc 3, dd 4
- RYBA M.: bb 50
- RYKOWSKI H.: bb 21
- SADOWSKI B.: bb 68, bb 69, bb 80, bb 81, bb 82, bb 83, bb 99
- SADOWSKI J.: bb 84, cc 4
- SCHLAEFKE E.: aa 31, bb 70, bb 72
- SEE W. R.: aa 31, bb 70, bb 72
- SELLSTRÖM A.: bb 51
- SIKORSKA M.: aa 32, bb 7, bb 19, bb 85, bb 86, bb 87, bb 94
- SKONECZNA M.: bb 85
- SKÓRKA B.: aa 6
- SOBOCIŃSKA J.: bb 36
- SOKOŁOWSKI E.: bb 24
- SOLTYSIAK J.: bb 24
- SPATZ M.: aa 29, aa 30, aa 33
- STASZEWSKA-BARCZAK J.: aa 34, aa 35, bb 88
- STROSZNAJDER J.: aa 36, bb 13, bb 56, bb 89, bb 90
- SZCZEPAŃSKA-SADOWSKA E.: aa 13, bb 91
- SZEREDA-PRZESTASZEWSKA M.: aa 37, bb 92, bb 93
- SZEWZYKOWSKI J.: aa 38, aa 39, bb 3
- SZUMAŃSKA G.: aa 27, aa 44, bb 19, bb 20, bb 21, bb 65, bb 78
- SZUMSKA J.: dd 5

SZYDŁOWSKA H.: bb 94

SLIVKA S.: aa 39

SMIALEK M.: aa 3, aa 4, aa 8, aa 32, aa 40, aa 41, bb 87,
bb 94, bb 95, bb 96

TATOŃ J.: aa 23

THOMAS E.: bb 57

TOMASZEWSKA L.: aa 25

TURLEJSKA E.: bb 97

TURSKI B.: bb 43

TYSZKO I.: bb 98

VANE J. R.: aa 35

WALKIEWICZ W.: bb 16

WANQUIER A.: bb 99

WASIUTYŃSKI A.: dd 6

WESOŁOWSKI J.: bb 20, bb 21

WIDEMAN J.: aa 28, bb 26

WOCIAL B.: aa 6

WOŹNIEWICZ B.: bb 11

WRÓBLEWSKI J. T.: bb 6, bb 52, bb 53, bb 100

ZALESKA M.: bb 17

ZALEWSKA T.: bb 17

ZELMAN I. B.: aa 21, aa 43, aa 44

ZIEMBA A. W.: aa 42, bb 36

PART II

INFORMATION

COOPERATION WITH FOREIGN COUNTRIES

DEPARTMENT OF NEUROPHYSIOLOGY

KARCZEWSKI W. A., M.D., D.Sc., professor of Physiology

Member of: Polish Physiological Society

British Physiological Society

(Associate Member)

Societas Europea Physiologiae Clinicae
Respiratoriae

International Brain Research Organization

P.A.S. Committee for Physiological Sciences

(V-President)

BUDZIŃSKA K., M. Pharm.

GLOGOWSKA M., M.D.

Member of: Polish Physiological Society

GRIEB P., M. Biol.

GROMYSZ H., D. Nat. Sc.

Member of: Polish Physiological Society

HERBACZYŃSKA-CEDRO K., M.D.

Member of: Polish Physiological Society

Society of Polish Internists

European Society for Clinical Investigation

(V-President)

HUSZCZUK A., M.E.Eng., D.Nat.Sc.

KULESZA J., M.Phys.

POKORSKI M., M.D.

Member of: Polish Physiological Society
Deutsche Physiologische Gesellschaft

PRZYBYLSKI A., D.Nat.Sc., Ph.D.

Member of: Polish Cybernetics Society

ROMANIUK J., M.Biophys.

RYBA M., M.D.

SEMERAU-SIEMIŁANOWSKI Z.; M.D., professor of Medical Sciences

Member of: Polish Physiological Society

SZEREDA-PRZESTASZEWSKA M., M.D.

Member of: Polish Physiological Society
Societas Europea Physiologiae Clinicae
Respiratoriae

1. Agreement between the Polish Academy of Sciences and the Czechoslovak Academy of Sciences.

GROMYSZ H., D.Nat.Sc., spent one month in the Department of Physiology, Comenius University Medical School in Martin (Czechoslovakia). He performed a series of experiments on cats checking the role of the upper airway reflexes on medullary respiratory activity. He conducted a seminar on his studies on vagal stimulation and medullary responses.

HERBACZYŃSKA-CEDRO K., M.D., gave a lecture on "current research on prostaglandins and their role in local control of circulation", during her 2-days visit in the Department of Normal and Pathological Physiology, Slovak Academy of Sciences, Bratislava.

2. Polish Academy of Sciences, Section of Medical Sciences and the Wellcome-Trust London agreement.

- Stays at the Department of Physiology St. George's Hospital Medical School, London:

KARCZEWSKI W. A., M.D. professor of Neurophysiology - gave a seminar "New data on the neural control of breathing". He consulted the programme of the symposium "CO₂ and breathing" to be organized in Warsaw as well as the plans for further scientific cooperation.

SZEREDA-PRZESTASZEWSKA M., M.D., during her three months' stay studied the role of laryngeal resistances in augmented breaths in cats. She read a paper "Laryngeal resistance in anaphylaxis" at the mini-symposium there, "larynx and the control of breathing".

- At the Department of Physiology, Medical School
University of Bristol:

GRIEB P., M.Biol.Sc., during his two months stay became acquainted with new techniques applied in experiments on central chemosensitivity. He visited also the Department of Physiology, St. George's Hospital Medical School, London, the University Laboratory of Physiology in Oxford and the Department of Medicine, Charing Cross Hospital, Medical School in London.

3. Individual visits of research workers of the Department to foreign countries.

STASZEWSKA-BARCZAK J., M.D., assis. professor of Natural Sc. During tenure of fellowship at the University of Melbourne, Australia, Dept. of Pharmacology, investigations on the role of humoral factors in the response of the circulatory system to acute haemorrhage were carried out. Another problem concerned the release of substances influencing vascular tone in conditions of impaired ventilation.

HERBACZYŃSKA-CEDRO K., M.D., took part in the Council Meeting of the European Society for Clinical Investigation, Feb. 3-5, 1975, London, England, as Council Member. The conference concerned the scientific programme and organization of the X-th Annual Meeting in 1976.

HUSZCZUK A., D.Nat.Sc., participated in the II-nd Polish-Italian Meeting on Bioengineering, October 1975, Udine, Italy, at which he read a paper on - "Feedback in respiratory homeostasis".

4. In 1975, the following foreign scientists visited the Department of Neurophysiology:

- Professor E. BARGETON -

from the Department of Human Physiology, UER
Biomédicale et M 81 INSERM, Paris, France

- Doctor PRITAM K. GILL -

from the New Delhi Chest Institute, India

- Professor M. SANDLER -

from the Department of Clinical Pathology, Queen
Charlotte's Hospital, London, England

- Professor L. SZEKERS -

from the Department of Pharmacology, Szeged
University, Hungary.

5. Council Meeting of the European Society for Clinical Investigation, Jablonna, Poland, Sept. 18-20, 1975, organized by Mrs K. HERBACZYŃSKA-CEDRO, from the Department of Neurophysiology.

Eleven participants from: Austria, Belgium, England, France, Holland, Italy, Norway, Sweden and Switzerland contributed to the meeting. It concerned the scientific programme of the X-th Annual Meeting of ESCI in April 1976, Rotterdam, Holland.

DEPARTMENT OF APPLIED PHYSIOLOGY

KOZŁOWSKI S., M.D., D.Sc., professor of Physiology

Member of: Research Council - Institute of Food and
Nutrition

Research Council - Institute of Protection
of Labour

P.A.S. Committee for Physiological Sciences
Polish Physiological Society

International Working Group on Biological
and Cosmic Medicine "Intercosmos"

Polish National Committee of the International
Programme (Subcommittee of Human Adapta-
bility)

BRZEZIŃSKA Z., M.Biochem., D.Pharm.

Member of: Polish Physiological Society

JASIŃSKA R., M.Pharm.

KACIUBA-UŚCILKO H., M.Agr., D.Agr.Sc., D.Nat.Sc., assis.
professor of Natural Sciences

Member of: Polish Physiological Society

Editor of "Acta Physiologica Polonica"

KRUK B., M.Biol., D.Nat.Sc.

Member of: Polish Physiological Society

LYSZCZARZ J., M.D., D.Sc., assis. professor of Medical
Sciences

Member of: Polish Physiological Society

European Soc. of Clinical Respiratory
Physiology

MONETA-FLABIŃSKA J., M.D.

NAZAR K., M.D.

Member of: Polish Physiological Society
European Society for Clinical Investigations

SADOWSKI B., M.Biol., D.Nat.Sc., assis. professor of
Natural Sciences

Member of: Polish Physiological Society

SADOWSKI J.; M.D., D.Sc., assis. professor of Medical
Sciences

Member of: Polish Physiological Society

TURLEJSKA E., M.Vet., D.Nat.Sc.

Member of: Polish Physiological Society

ZIEMBA A., M.Biol.

1. Multilateral cooperation between the Academies of Sciences of the socialist countries

KOZŁOWSKI S., M.D., Professor of Physiology - took part in the Conference of the Regular Working Group, and Symposium on Biology and Cosmic Medicine "Interkosmos" held in May 1975 in Varna (Bulgaria). He presented results of investigations carried out in the Department of Applied Physiology.

He also took part in the 5th All-Union Conference of Aerospace and Aviation Medicine in Kaluga (USSR) where he became acquainted with current studies on physiological mechanisms of adaptation to different environmental conditions.

2. Within the agreement between the Section of Medical Sciences of the Polish Academy of Sciences and USSR Academy of Sciences

KRUK B., D.Nat.Sc. - spent 6 weeks in the Laboratory of Thermoregulation, Pavlov's Institute in Leningrad (USSR) where she performed experimental studies concerning the threshold values of heat content in the organism inducing thermoregulatory reactions.

3. Within the agreement between the Polish and Czechoslovakian Academies of Sciences

NAZAR K., M.D., stayed for 1 month at the Institute of Physical Education, Charles University in Prague and Institute of Experimental Endocrinology in Bratislava (S.R.Cz.), where she became acquainted with modern methods used in investigations on lipid metabolism and endocrine activity in healthy subjects and patients with metabolic diseases.

4. Within the agreement between the Polish Academy of Sciences and the Royal Society (Great Britain)

KACIUBA-UŚCILKO H., D.Agr.Sc., assis. professor Nat. Sci., spent 3 months at the Department of Applied Biology, A.R.C. Institute of Animal Physiology, Babraham-Cambridge (Great Britain), where she took part in investigations on mechanisms of adaptation to various thermal conditions, and hormonal regulation of thermogenesis in neonates.

Doctor BRIAN STEPHENS - from the Institute of Animal Physiology, Babraham-Cambridge (Great Britain) stayed for 1 week at the Department of Applied Physiology, where he became acquainted with the main lines of investigations carried out in the Department, and discussed the results of studies on thermal adaptation of the organism, and central mechanisms regulating the water and electrolyte balance.

5. Within the agreement between the Polish Academy of Sciences and the German Service for Scientists Exchange (DAAD)

LYSZCZARZ J., M.D., assis. professor Med. Sci., spent 3 months at the Institute of Physiology, University of Giessen (GFR), where he continued his experiments, started in Poland, on thermoregulation.

6. Individual visits of scientists to foreign centres

SADOWSKI B., M.D., assis. professor Nat. Sci., stayed for 3 months at the Department of Psychopharmacology, Janssen Pharmaceutica, Beerse, Belgium, where he carried out investigations on stimulation of positive emotions in dogs.

SADOWSKI J., M.D., assis. professor Med. Sci., visited the Laboratory of Experimental Medicine, University of Brussels (Belgium), where he became acquainted with new methods used in investigations on renal function, and took part in experiments concerning some factors influencing glomerular permeability.

In 1975 the following foreign scientists visited the Department of Applied Physiology:

1. Doctor HEIM T. -

from the Department of Pediatrics, University Medical School, Pécs (Hungary). During his 2-day visit Dr. Heim discussed several problems of chemical thermoregulation, and delivered a lecture on lipid metabolism neonates exposed to cold.

2. Doctor DUKES-DUBOIS F. -

from the Physiology and Ergonomics Branch, National Institute for Occupational Safety and Health, Cincinnati, USA. During his 3-day visit Dr. Dukes-Dubois discussed methods and problems of physiological studies in industry, and ergonomic problems. He delivered two lectures.

3. Professor Dr KIRSCH K. -

from the Institute of Physiology, University of West Berlin. During his 5-day visit Dr. Kirsch became acquainted with the investigations carried out in this Department, and discussed recent results obtained in both Laboratories on water-electrolyte regulation and on endocrine functions during physical effort. He delivered a lecture concerning his recent achievements and visited some other Polish physiological centres.

4. Professor Dr. COSTILL D.,-

from the Human Performance Laboratory, State University, Indiana, USA. During his 4-day visit Dr. Costill gave consultations concerning the application of most suitable methods in investigations on adaptation of the human organism to different conditions of work and hot environment. He discussed the final version of the paper concerning common investigations carried out previously with Dr. Nazar and others in Stockholm.

5. Doctor SALTIN -

from the Department of Physiology, August Krogh University, Copenhagen, Denmark, During his 3-day visit to this Department Dr. Saltin discussed several current problems concerning regulation of exercise metabolism, and adaptation of the human organism to physical work and thermal environment.

DEPARTMENT OF NEUROPATHOLOGY

MOSSAKOWSKI M. J., M.D., D.Sc., professor of Neuropathology

Corresponding member of the Polish Academy of Sciences

President of the Polish Association of Neuropathologists

Member of the Committee on Neurological Sciences

Corresponding member of the American Association of
Neuropathologists

Vice-president of the Board of the International Society
of Neuropathology

Member of: International Brain Research Organization (IBRO)

Polish Society of Neurologists

Polish Society of Anatomopathologists

Polish Society of Cyto- and Histochemists

Polish Society for Radiation Research

ALBRECHT J., M.Biol., D.Nat.Sc.

Member of: Polish Biochemical Society

Polish Association of Neuropathologists

International Society of Neuropathology

BANKOWSKI Z., M.D., D.sc., professor of Medical Sciences

FERENS Z., M.D.,

Member of: Polish Association of Neuropathologists

International Society of Neuropathology

GADAMSKI R., D.Vet.Sc.

Member of: Polish Society of Anatomy

Polish Association of Neuropathologists

International Society of Neuropathology

HILGIER W., M.Pharm.

KAPUŚCINIŃSKI A., M.D.

Member of: Polish Radiological Society

KRAJEWSKI S., M.D.

KRAŚNICKA Z., M.D., D.Sc., assis. professor of Neuropathology

Member of: Polish Association of Neuropathologists
Polish Society of Neurologists
Tissue Culture Association (USA)
International Society of Neuropathology

KROH H., M.D.

Member of: Polish Association of Neuropathologists
Polish Society of Cyto- and Histochemists
Polish Society of Neurosurgeons
International Society of Neuropathology

MARCINIĄK M., M.D.

Member of: Polish Association of Neuropathologists
International Society of Neuropathology

OSTENDA M., M.D.

Member of: Polish Association of Neuropathologists
Polish Society of Neurologists
International Society of Neuropathology
Polish Society of Cyto- and Histochemists

PRONASZKO-KURCZYŃSKA A., M.Biol., D.Nat.Sc.

Member of: Polish Endocrinological Society

RAP Z., M.D.

Member of: Polish Association of Neuropathologists
International Society of Neuropathology

RENKAWEK K., M.D.

Member of: Polish Association of Neuropathologists
International Society of Neuropathology
Polish Society of Cyto- and Histochemists

SIKORSKA M., M.Chem.Eng.

Member of: Polish Association of Neuropathologists
International Society of Neuropathology

SMIALEK M., M.Pharm., M.D.

Member of: Polish Association of Neuropathologists
International Society of Neuropathology
Polish Biochemical Society

SZUMAŃSKA S., M.Biol., D.Nat.Sc.

Member of: Polish Society of Cyto- and Histochemists
Polish Association of Neuropathologists
International Society of Neuropathology

WEINRAUDER E., M.Biol., D.Nat.Sc.

Member of: Polish Association of Neuropathologists
International Society of Neuropathology

ZELMAN I. B., M.D., D.Sc.

Member of: Polish Association of Neuropathologists
Polish Society of Neurologists
International Society of Neuropathology
Editor in Chief of "Neuropatologia Polska".

1. Bilateral cooperation between the Section of Medical Sciences of the Polish Academy of Sciences - and - the USSR Academy of Sciences.

MOSSAKOWSKI M. J., M.D., professor of Neuropathology, Director of the Centre, stayed July 2-10, 1975 at the Laboratory of Experimental Physiology and Resuscitation, Institute of Neurology, and at the Brain Research Institute - in Moscow, as well as at the Institute of Experimental Medicine in Leningrad, where he became acquainted with the research programme and activities of these institutions and discussed the possibilities of further cooperation.

2. Within the agreement between the Polish Academy of Sciences and the Finnish Academy of Sciences:

ALBRECHT J., M.D., Stayed from April 3-rd to June 30-th, 1975, at the Department of Medical Chemistry of the Helsinki University where he studied the properties and metabolism of nuclear chromatin proteins, in neuronal and glial nuclei of the chicken brain.

PALO J., M.D., from the Department of Neurology, University of Helsinki, Finland, visited the Dept. of Neuropathology for 8 days. He studied and discussed the research work done by the workers of the Department.

3. Within the agreement between the Polish Academy of Sciences and the Swedish Royal Academy of Sciences:
SZUMAŃSKA G., D.Nat.Sc., stayed May 15-th - June 1-th, 1975, at the Dept. of Histology and the Brain Research Laboratory of the University in Lund, and also at the Institute of Neurobiology, Göteborg University, to get acquainted with the glioxal technique of catecholamine determination in the brain.
4. Within the agreement between the Medical Research Centre and the USSR Academy of Medical Sciences in Leningrad:
KRAŚNICKA Z., M.D., D.Sc., assis. professor of Neuro-pathology, stayed for two months at the Institute for Experimental Medicine in Moscow, and at the Brain Research Institute in Leningrad, where she carried out joint research on the effects of anoxia on nervous tissue cultured in vitro.
5. Within the agreement between the Medical Research Centre and the Institute of Physiology, of the Georgian Academy of Sciences in Tbilisi (USSR):
NIKOLAISHVILI L., M.D., from that Institute spent about 3 months at the Centre, working on the pathophysiology of brain circulation during hypoxia.

In 1975, the following foreign scientists visited the Department of Neuropathology:

BERGSTRÖM M., M.D. -

from the Department of Pathology of the Helsinki University (Finland).

KARVONEN J., M.D. -

from the Department of Clinical Physiology, Central Hospital in Tampere (Finland).

KELEMAN J., M.D. -

from the Medical Research Centre, Tigru-Mures (Rumunia) - stayed March 19-26, 1975. He demonstrated to the scientific workers of the Centre various modifications of glia staining and delivered a paper at the III-rd Neuropathological Conference of the Polish Association of Neuropathologists (March 1975).

Professor KLEIHUES P., M.D. -

from the Max Planck Institute for Brain Research in Köln (GFR) - stayed at the Centre for 4 days, he delivered a paper on chemical carcinogenesis in the brain and surveyed the work done in the Dept. of Neuropathology.

KRUSEMAN A., M.D. -

from the Department of Pathology, Leyden University (Holland) - stayed for one week to become acquainted with the research work done by the Department, and delivered a paper on the results of peroxidase techniques for demonstration of pituitary adenomas.

MARCOVICI G., M.D. -

from the Institute of Neurology and Psychiatry in Bucarest (Rumunia) - participated in the III-rd Neuropathological Conference of the Polish Association of Neuropathologists (March 1975), and visited the tissue culture laboratory of the Department.

Professor QUANDT J., M.D. -

from the District Hospital for Psychiatric and Neurological Diseases in Barnburg-Saale (GFR) - participated in the III-rd Neuropathological Conference of the Polish Association of Neuropathologists (March 1975) and visited the laboratories of morphology and electron microscopy of the Department.

An International Symposium on "Pathophysiological, biochemical and morphological aspects of brain ischaemia and arterial hypertension" was held at Warsaw, September 18-20, 1975.

The scientific programme of this Symposium was organized by Professor M. J. Mossakowski, head of the Department of Neuropathology.

Seventy-seven scientists, including 25 from abroad, took part in the Symposium. The foreign participants came from: Austria, Czechoslovakia, Denmark, German Democratic Republic, German Federal Republic, Holland, Hungary, Sweden, U.S.A., and U.S.S.R.

Fifty-three papers and reports were read, including 19 papers by the scientific workers from the Centre.

LABORATORY OF DEVELOPMENTAL NEUROPATHOLOGY

DĄBESKA M., M.D., D.Sc., assis. professor of Neuropathology

**Member of: Polish Association of Neuropathologists
Polish Society of Neurologists
International Society of Neuropathology**

DYDYK L., M.D.

**Member of: Polish Association of Neuropathologists
International Society of Neuropathology**

IWANOWSKI L., M.D.

**Member of: Polish Association of Neuropathologists
Polish Society of Neurologists
International Society of Neuropathology**

KOZŁOWSKI P., M.D.

MAŚLIŃSKA D., M.D.

**Member of: Polish Association of Neuropathologists
International Society of Neuropathology**

LABORATORY OF COMPARATIVE NEUROLOGY

OSETOWSKA E., M.D., professor of Neurologic Sciences

Member of: Polish Society of Neurology

International Society of Neuropathology
(Executive Committee)

Membre-fondateur de Group de Travail
de Neuropathologie de la Fédération
Mondiale de Neurologie

Société Belge de Neurologie

Deutsche Vereinigung der Neuropathologen
und Neuroanatomen

LUSZAWSKI F., zootechn.Eng.

SAWICKI J., M.B.vet.

TARASZEWSKA A., M.D.

Member of: Polish Association of Neuropathologists
International Society of Neuropathology

1. Within the Polish-American Scientific Agreement

(PL-480, 05-030) the Laboratory continued the cooperation with the National Health Institutes - Bethesda:

Agreement 05-035-1(N) 1973-1976,

the investigations on brain fine structure of rabbit with hereditary tremor (pt-rabbit).

Agreement 05-516 - 1.29, 1974-1976,

National Library of Medicine - publication of the work - Osetowska E.: "Neuropathology of viral and allergic encephalitides" American edition revised and enlarged.

2. The visits of scientists in the foreign countries:

Professor OSETOWSKA E., M.D., head of the Laboratory - on individual invitation delivered a lecture at the Max-Planck Institut for Brain Research, Köln, G.F.R., on: "Experimental study on hereditary disease of CNS with pt-rabbit model: Changes in clinical and genetical patterns as observed in ten generations of pt-rabbits". She took part also in the Annual Meeting of the Association of German Neuropathologists and Neuroanatomists, on which a paper was presented: Taraszewska A., Osetowska E., Krücke W.: Zur Pathogenese der intracerebralen Verkalkungen bei dem erblichen paralytischen Tremor der pt-Kaninchen. (On the pathogenesis of the intracerebral calcification in

pt-rabbits with hereditary paralytic tremor). Jahrestagung der Vereinigung Deutscher Neuropathologen und Neuroanatomien. Abstr. p. 177, pos. 31.

TARASZEWSKA A., M.D., during tenure of a longterm fellowship at the Max Planck Institute for Brain Research in Frankfurt a/M, G.F.R., carried on electron microscopic studies concerning hereditary paralytic tremor in pt-rabbits.

3. In 1975, the following foreign scientists visited the Laboratory:

Professor FANKHAUSER R. -

head of the Institute of Comparative Neurology, Bern, Switzerland. The aim of the visit was scientific consultation. The guest delivered also two lectures:

1. On organization of scientific research in the Institute of Comparative Neurology, Bern
(Repeated at the III-rd Neuropathological Conference of the Polish Assoc. of Neuropathologists, Warsaw, March, 1975)
2. Some data concerning the scientific life in Switzerland

HARIGA J., M.D. -

from the Bunge Institute, Antwerpia, Belgium. The aim of the visit was initiation on research concerning special genetic qualities of pt-stock.

DEPARTMENT OF NEUROCHEMISTRY

GROMEK A., M.Biol., D.Nat.Sc.

Member of: Polish Biochemical Society
Polish Physiological Society

IRONISZEWSKA-ARDELT B., M.Biol., D.Nat.Sc.

Member of: Polish Biochemical Society

DABROWIECKI Z., M.Chem., postgrad. assis.

DOMAŃSKA-JANIK K., M.D.

Member of: Polish Biochemical Society
Polish Association of Neuropathologists

KSIEZAK H., M.Biol.

Member of: Polish Biochemical Society

LAZAREWICZ J.W., M.D.

Member of: Polish Biochemical Society

MAJEWSKA M., M.Biol.

Member of: Polish Biological Society

PASTUSZKO A., M.Biol.

RAFALOWSKA U., M.Biol., D.Nat.Sc.

Member of: Polish Biochemical Society

ROSSOWSKA M., M.Biol., D.Nat.Sc.,

STROSZNAJDER J., M.D.

Member of: Polish Biochemical Society
Polish Neurological Society

WIDEMAN J., M.Biochem., D.Nat.Sc.

Member of: Polish Association of Neuropathologists

WRÓBLEWSKI J., M.Biol., postgrad. assis.

ZALESKA M., M.Biol.

Member of: Polish Biological Society

ZALEWSKA T., M.Biochem., D.Pharm.Sc.

Member of: Polish Biochemical Society

Polish Association of Neuropathologists

International Society of Neuropathology

1. Within the agreement between the Medical Section of the Polish Academy of Sciences and the USSR Academy of Sciences

DĄBROWIECKI Z., M.Chem., stayed 2 weeks at the Institute of Physical Chemistry in Puszkino and at the Institute of Physical Chemistry in Moscow, in order to acquaint himself with the methods for study of the properties of bimolecular membranes.

2. Under the scholarship obtained from the Alexander von Humboldt Foundation, West Germany:

STROSZNAJDER J., M.D., stayed 2 months at the Institute of Physiological Chemistry in Cologne, West Germany, and performed investigations on the synthesis of ethanolamine plasmalogens in neuronal and glial cells, as well as studies on stearic acid desaturase in the brain and liver during development.

3. Within the agreement between the Polish Academy of Sciences and The Swedish Royal Academy of Sciences

LAZAREWICZ J., M.D., stayed 8 weeks at the Institute of Neurobiology University of Göteborg, where he participated in the preparation of publication of the results of previously performed common experiments concerned with the transport and metabolic role of calcium in the CNS, and worked on the common programme of research.

4. Individual scientific training

WIDEMAN J., D.Nat.Sc., participated in the EMBO Course on "Cellular and subcellular fractions in neurochemistry", Stockholm, Sweden, June 25 - July 4, 1975.

STROSZNAJDER J., M.D., participated in the 33-rd FEBS Course on "Energy conserving biomembranes", Salzburg, Austria, February 26 - March 4, 1975.

ZALEWSKA T., D.Pharm., spent 1 year at the Department of Neurology, Max-Planck Institute in Cologne, West Germany, where she performed investigations on intracellular mechanisms of metabolic regulation in the CNS under normal and pathological conditions.

WIDEMAN J., D.Nat.Sc., stayed 1 year at the Roche Institute of Molecular Biology in Nutley, NY, USA, where he studied the role of sulphhydryl and disulphydryl compounds in the mechanisms of transport through biological membranes, as well as the activities of enzymes participating in the carbohydrate-energy metabolism of CNS cells.

ZALESKA M., M.Biol., stayed 3 months at the Experimental Research Department, Semmelweis University, Medical School, Budapest, Hungary, where she investigated the metabolism of biogenic amines in the CNS.

In 1975, Professor HORROCKS A., M.D. - from the Ohio State Univeristy, Columbus (USA) visited the Department of Neurochemistry. He stayed for one week at the Centre for scientific consultations and carried out in cooperation with the group of workers of the Department an experiment on the activity of plasmalogenase and phosphotransferases in the brain.

LABORATORY OF THE ULTRASTRUCTURE OF THE NERVOUS SYSTEM

BOROWICZ J. W., M.D., D.Sc., assis. professor of Medical
Sciences

Member of: Polish Pathologists Society
Polish Association of Neuropathologists
European Society of Pathology
European Cell Biology Organization

DANIELEWICZ-KOTOWICZ A., M.D.

GAJKOWSKA B., M.Biol., D.Nat.Sc.

MARYNIAK R., M.D.

OLSZEWSKA K., M.Biol.

DANIELEWICZ-KOTOWICZ A., M.D., stayed from Nov. 1974 to March 1975 at the Laboratoire d'Histologie, Faculté de Médecine, Université de Marseille, France, where she studied the techniques of investigations on the neurosecretory system and carried out autoradiographic investigations of the hypothalamo-hypophyseal system in rats.

DEPARTMENT OF NEUROSURGERY

MEMPEL E., M.D., D.Sc., assis. professor of Neurosurgery

Member of: Polish Society of Neurological Surgeons
Hon. Member of the Purkyně Czechoslovak
Medical Society

ADYNOWSKI J., M.D.

Member of: Polish Radiological Society

AUGUSTYNIAK B., M.D.

Member of: Polish Society of Neurological Surgeons

CZERNICKI Z., M.D.

Member of: Polish Society of Neurological Surgeons

DYTKO P., B.Sc.(hon), M.Phys.

DZIDUSZKO J., M.D.

Member of: Polish Society of Neurological Surgeons

GROCHOWSKI W., M.D.

Member of: Polish Society of Neurological Surgeons

JURKIEWICZ J., M.D.

Member of: Polish Society of Neurological Surgeons

KORSAK-SLIWKA J., M.Sc., E.Eng.

KWIATKOWSKI A., M.D.

LUCZYWEK E., M.Psych.

RYCEMBEL Z., M.D.

Member of: Polish Society of Anaesthesiologists

STADNICKI R., M.Psych.

STEMPIŃSKA G., M.D.

SZEWCZYKOWSKI J., M.D.

Member of: Polish Society of Neurological Surgeons

SZUMSKA J., D.Psych., D.Neuropsych.Sc.,

assis. professor of Neurosurgery

Member of: Polish Society of Neurological Surgeons

TERSTEN E., M.Psych.

ŚLIWKA S., M.Sc., E.Eng.

WITKIEWICZ B., M.D.

Member of: Polish Society of Neurological Surgeons

DEPARTMENT FOR SURGICAL RESEARCH AND TRANSPLANTATION

NIELUBOWICZ J., M.D., D.Sc., professor of Surgery

Corresponding Member of the Polish Academy of Sciences

President of the Polish Surgeons Society

V-President of the European Cardiovascular Surgical
Society

Corresponding Member of Lyon's Surgical Society (France)

Hon. Member of the Lombardy Surgeons Society (Italy)

Member of: The Executive Committee of the Sociétés

Internationale de Chirurgie

Surgeons Society of Great Britain and Ireland

American College of Cardiology

Surgeons Society of Italy

Deputy head:

OLSZEWSKI W., M.D., D.Sc., assis. professor of Surgery

Member of: Polish Surgeons Society

V-President of the European Society
for Surgical Research

International Lymphological Society
(Editorial Board)

International Transplantation Society

Brasilian Vascular Society (Hon. Member)

DAHROWSKI M., M.D.

GAŁKOWSKA M., M.Biol.

KŁOS J., M.D.

KOSSAKOWSKI A., M.D.

KUPIEC-WĘGLIŃSKI J., M.D.

LUKASIEWICZ E., M.Pharm., D.Pharm.

MORZYCKA M., M.Biol., M.D.

PLACHTA J., M.Pharm.

ROWIŃSKI W., M.D.

Member of: Polish Surgeons Society
European Dialysis and Transplantation
Association
European Society for Surgical Research
International Transplantation Society

RUKA M., M.Vet.Sc.

DZBAŃSKA D., M.Vet.Sc.

Scientific exchange and cooperation under special agreement between the Polish Academy of Sciences and the Academy of Sciences of the German Democratic Republic.

Technician, Miss W. SLUŻEWSKA - visited for two weeks the Zentral-Institute für Diabetes "Gerhardt Katsch" in Karlsburg, GDR where she learned the technique of islet cell isolation and the techniques of insulin determination in body fluids to study the changes in its level after pancreatic transplantation.

Scientific exchange and cooperation under special agreement between the Norway Radium Institute (Oslo) and the Medical Research Centre of the Polish Academy of Sciences.

Assis. professor, OLSZEWSKI W., M.D. - visited three times the Radium Institute in Oslo. During his visits he took part in investigations on the kinetics of lymphocytes and immunoactive proteins in humans and experimental animals. Six papers were prepared for publication.

Technician, PAWLAK J. - has been staying for six weeks in the Norway Radium Institute in Oslo where she learned the methods of complement hemolytic activity determination as well as its components in the serum and lymph.

Professor ENGESET A. - Director of the Haematology Department of the Norway Radium Institute visited for ten days the Surgical Research and Transplantation Laboratory of the Medical Research Centre. The research programme of the Laboratory was presented to prof. Engeset.

Professor Engeset gave a lecture on lymphocytes kinetics and discussed the programme of cooperation between the Polish Academy of Sciences and the Norway Radium Institute for the next years.

Scientific exchange and cooperation under special agreement between the Polish Academy of Sciences and the Swedish Royal Academy of Sciences

Technician, ZIÓLKOWSKA A. - has been staying for two months in the Laboratory of Experimental Surgery, Lund University, Malmö getting acquainted with the immunological, serological and cellular techniques as well as with the techniques used in studies of coagulation and fibrinolysis system.

Individual grants and visits to foreign medical centres:

ROWIŃSKI W., M.D. - worked for 8 months in the surgical Research Laboratory of the Harvard Medical School, enhancement USA carrying on investigations on the

phenomenon of induction enhancement and its mechanism in organ transplants. During his stay in the U.S.A. he also worked in the Kidney Transplantation Unit of the Surgical Department of Peter Bent Brigham Hospital and at the State University, Minneapolis, USA. During his stay in the USA doctor Rowiński visited several centres for organ transplantation, gave four lectures on kidney transplantation in Poland and took part in three scientific meetings.

Assis. professor OLSZEWSKI W., M.D., visited for three weeks Roswell Park Memorial Hospital, USA where he became acquainted with the methods of immunologic studies in transplantology and tumour transplants. He gave a lecture on hyperacute rejection of xenogeneic transplants.

Department for Surgical Research and Transplantation was visited by several scientists:

Professor BILENKO M., M.D. -

from the Laboratory for Organ and Tissue Transplantation of Ac. M. Sc. Moscow, USSR. During her 4 weeks visit in Warsaw she carried out experiments on hyperacute xenogeneic kidney rejection.

Professor LABAUGE, M.D. -

from the Surgical Laboratory of the University in Montpellier, France. During his visit prof. Labauge gave three lectures on vascular pathology of the Central Nervous System.

Professor LONGO T., M.D. -

from the Surgical Clinic of the University of Milano, Italy. During his one week visit Professor Longo gave two lectures on the haemodynamics in heart transplants and the artificial haemodynamic models of the heart. Furthermore Prof. Longo took part in a scientific meeting in the Medical Research Centre and visited the Surgical Department of the Medical Academy in Cracow.

Assis. professor LUNING M., M.D. -

from the Medical College of Humboldt's University, Berlin, G.D.R. During his six-day visit prof. Luning presented the results of the joint studies concerning changes in the lymphatic system in patients with neoplasm and discussed the paper on the radiologic picture of the rejected xenotransplanted organs, prepared for publication.

RESEARCH GROUP OF SCHOOL MENTAL HYGIENE

OSIŃSKI H., M.Psych., M.D.

Member of: Polish Society of Mental Hygiene
Orton Society (USA)

MARKIEWICZ J., M.Physic.Ed.

ORŁOWSKI S., M.Ph.

Member of: Polish Society of Mental Hygiene
Polish Society for Rehabilitation
of the Disabled

SIWKIEWICZ J., M.Psych.

Member of: Polish Society of Mental Hygiene
Orton Society (USA)

SZMUKLER S., M.A.

Member of: Polish Society of Mental Hygiene
Orton Society (USA)

ZAKRZEWSKA B., M.Psych

Member of: Polish Society of Mental Hygiene
Polish Psychological Society
Orton Society (USA)

Professor, CWYNAR S., M.D., scientific adviser of the Research Group, and SZMUKLER S., M.A., scientific worker, participated in the International Congress of the World Federation of Mental Health (August 10-16, 1976, Copenhagen, Denmark). They discussed the profile and results of investigations conducted by the Research Group of the School Mental Hygiene at the plenary session of the European League of Mental Health during this Congress. The paper delivered by them aroused interest and recognition of the participants of the Congress. Particular attention was devoted to the model of complex treatment and prophylaxis of didactic and educational difficulties in children in primary schools elaborated by the Group. The multiaspect character of this programme in which the children the parents and the teachers are involved in the therapeutic, corrective and prophylactic tasks and activities ensures the realization of school mental hygiene principles.

The postulate of organizing in Poland a symposium of the League on the topic - Mental Hygiene Problems in School - has been accepted.

MENTAL HEALTH DEPARTMENT

POSEL Z., M.D.

Member of: Polish Psychiatric Association
Polish Society of Mental Hygiene
Polish Medical Association

BAZYLEWICZ-WALCZAK B., M.Psych.Clin.

Member of: Polish Psychiatric Association
(Section of Psychotherapy)

GODLEWSKA U., M.D.

Member of: Polish Medical Association
Society of Polish Internists

JUCHA Z., M.A., D.Ph.Sc.

Member of: Polish Psychological Society
Polish Society of Mental Hygiene

KLIMOWICZ A., M.L.

Member of: Polish Society of Mental Hygiene
Polish Society of Lawyers

PELKA-SŁUGOCKA M. D., M.L., D.C.L.

Member of: Polish Sociological Society
Polish Society of Lawyers
Polish Society of Mental Hygiene

PRZYBYSZ R., M.Soc.Sc.

RENDECKA A., M.Ph., M.Psych.Sc.

Member of: Polish Psychological Society

ROGOZIŃSKA E. M., M.Ph.

Member of: Polish Psychiatric Association
(Section of Psychotherapy)

SULAT M. J., M.A.

SZAFRAŃSKA M., M.D.

Member of: Polish Psychiatric Association
Polish Society of Mental Hygiene
Polish Medical Association

TOMCZAK J. W., M.D.

Member of: Polish Psychiatric Association
Polish Society of Mental Hygiene

WIERCIOCH L. R., M.D.

Member of: Polish Psychiatric Association
Polish Medical Association

ZAKRZEWSKI P., D.C.L., D.A.Sc.

Member of: Polish Sociological Society
Polish Society of Mental Hygiene

ZURAW J., M.A.

Within the cooperation established in 1974 with the Juvenile Psychiatry Department of Bechterev's Institute in Leningrad (USSR) - the Dept. of Mental Health in 1975 received from this Institute questionnaires for personality rating of adolescents, with adjustment disorders. These materials were utilized during the elaboration of methods for the scrutiny of the young drug addicts population.

MEDIPAN - Scientific Instruments Laboratories

KARALOW S., M.Sc., M.Eng.

GONSTAŁ J., M.Sc., M.Eng.

GRUCZA R., E.Eng.

JABLŹYŃSKI S., M.Sc., E.Eng.

JĘDRASZAK M., M.Sc., M.Eng.

KLOBUKOWSKI A., M.Sc., M.Eng.

KWAPISZ A., M.Sc., M.Eng.

TOMKOWICZ L., M.Sc., M.Eng.

MISCELLANEA

AWARDS OF SCIENTIFIC DEGREES

BORKOWSKI M., M.D., on the basis of the thesis:

"Experimental studies on the influence of arterio-venous anastomoses on the etiology of trophic ulcers in rabbits"
- was granted the degree of Doctor Medicinae Habilitatus.

WIDEMAN J., M.Biochem.Sc., after having completed his postgraduate studies at the Department of Neurochemistry, on June 20, 1975, defended his thesis entitled: "The regulation of sulfhydryl group (-SH) content in the particular anatomical structures of rat brain under hypoxic conditions"
- and received the degree of Doctor of Natural Sciences in Biochemistry.

SCIENTIFIC REWARDS

Reward of the Secretary of the Polish Academy of Sciences:
for group investigations on the effects of thyroid hormones on metabolism and thermoregulation during physical exercise.
The team rewarded:

Assis. professor KACIUBA-UŚCILKO H.

Professor of physiology KOZŁOWSKI S.

Doctor pharm.sc. BRZEZIŃSKA Z.

Doctor med.sc. KRUK B.

- with technical assistance of:

RADZISZEWSKA W., GAJOWCZYK A. and SZOSTAK R.

Reward of the Medical Section of the Polish Academy of Sciences: SZEREDA-PRZESTASZEWSKA B., M.D., received a reward of the Medical Section of the Polish Academy of Sciences for her studies on: "The role of vagus nerve in the respiratory failure during anaphylactic shock in the rabbit".

The annual reward of the Polish Association of Neuropathologists was awarded to:

Doctor nat.sc. ALBRECHT J. -

for a series of studies concerning protein biosynthesis in the CNS in conditions of experimental CO intoxication

Doctor med. sc. RENKAWEK K. -

for studies on the histoenzymatic properties of the cerebral vessels (comparison with vessels of other organs) in conditions of tissue culture.

Doctor med. sc. ŚMIALEK M. -

for a series of investigations on the respiratory activity of isolated CNS neurones (Cartesian microdiver technique) in conditions of CO intoxication.

The annual reward of the Society of Polish Anatomopathologists: the name Professor Wilhelm Czarnocki's Reward, was awarded for the works in 1975 to:

Doctor med. sc. DANIELEWICZ-KOTOWICZ A. -

for the studies on electron-microscopic changes in rat hypophysis after adrenalectomy and after ACTH administration. I-st Adenohypophysis.

Doctor nat. sc. GAJKOWSKA B. -

II-nd degree reward - for the studies electron-microscopic changes in supraoptic and paraventricular nuclei of the hypothalamus of rat in hypothyroidism.