

RELATION OF HUNGARIAN BIOPHYSICISTS TO IUPAB AND UNESCO

1. IUPAB

The Hungarian Biophysics was organized in 1960, one year before foundation of IUPAB⁽¹⁾, therefore many Hungarian biophysicists attended the first International Biophysics Congress at Stockholm 1961, where the predecessor organization of IUPAB, the International Organization for Pure and Applied Biophysics was founded. The good reputation of the Hungarian biophysics was demonstrated by the fact, that prof. Ernst was elected a member of the Council and he served two terms in it. Following the foundation, Hungarian biophysicists always had some kind of leading position in various bodies of IUPAB. We had membership, e. g., in the Radiation Biophysics Commission (Tigyi 1966–72 and 1987–93, Rontó 1984–87, Sztanyik 1987–93), in the Commission of Education and Development of Biophysics (Ernst 1969–72, Tigyi 1978–84 chairman, Biró 1990–93) in the Commission of Molecular Biology (Szentágothai 1969–72) in the Commission of Cell and Membrane Biophysics (Keszthelyi 1990–93), in the Council of IUPAB (Tigyi 1972–78).

The author of this paper was elected Secretary General in 1984 (Bristol) and served 9 years on this post.

IUPAB NEWS

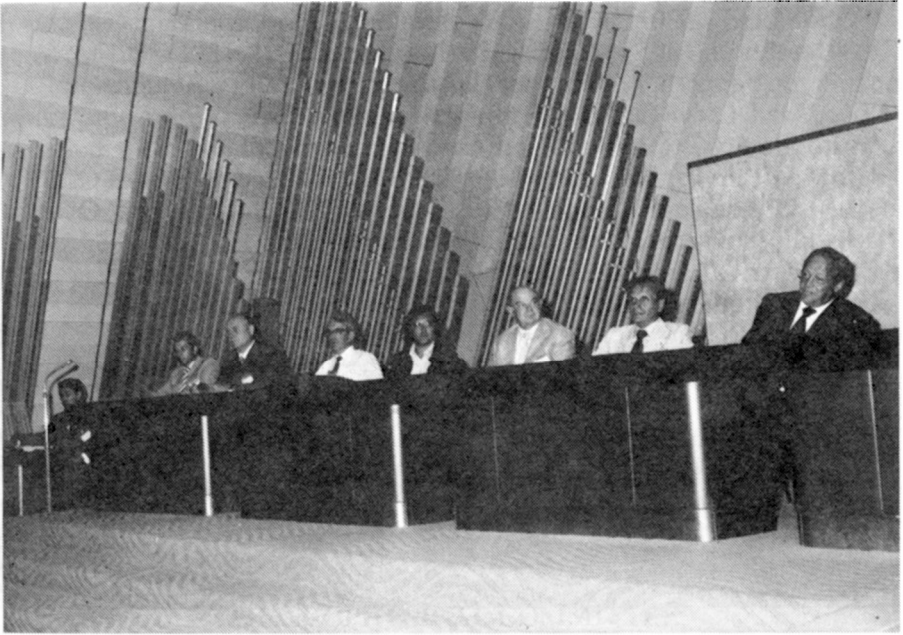


REPORTS ON THE ACTIVITIES OF THE INTERNATIONAL UNION FOR PURE AND APPLIED BIOPHYSICS
FROM THE SECRETARY GENERAL: Prof. J. TIGYI, Inst. of Biophys. Med. Univ. H-7643 PÉCS, Hungary

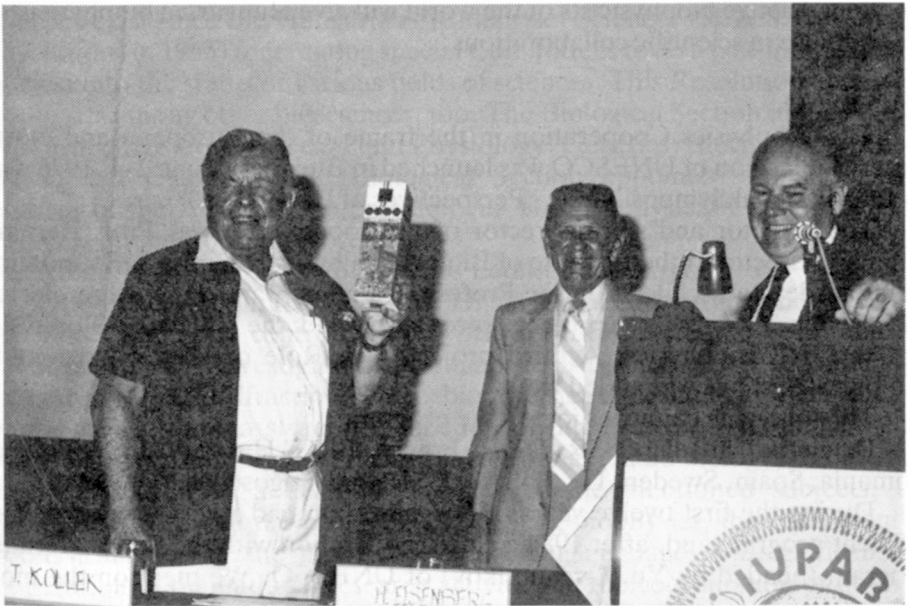
During the past decades 3 IUPAB sponsored scientific meetings were organized in Hungary, and the Hungarian biophysicists had a relatively large delegation at the 10th International Biophysics Congress (1 plenary lecturer and 4 symposium speakers).

One of the most important result of the close cooperation between Hungarian biophysicists and IUPAB was the possibility to organize the 11th

⁽¹⁾ See: J. Tigyi "Thirty two years of the Organized Hungarian Biophysics" in this issue.



The opening ceremony of the 5th International Biophysics Congress, Copenhagen, 1975. (From left: F. Oosawa, K. Wüthrich, J. Tigy, D. Phillips, M. Montal, V. Gurfinkel, G. R. Kosztyuk, F. Lynen.)



The opening ceremony of the 9th International Biophysics Congress in Jerusalem, 1987. (T. Kollek, Mayor of Jerusalem, Profs. H. Eisenberg and J. Tigy)



The Foundation of UNESCO Collaboration in Budapest, 1976. (Tigyi, A. Pullman, J. Jaz)

International Biophysics Congress, July 25–30, 1993. We hope, that the meeting of active biophysicists of the world will give Hungarian biophysicists a new impulse in scientific collaborations.

2. UNESCO.

The Biophysics Cooperation in the frame of the European and North American Region of UNESCO was launched in Budapest, June 2–4, 1976 with an International Symposium on „Perspectives of Biophysics”⁽²⁾.

The initiator and spiritus rector of the cooperation was Prof. Bernard Pullman, director of the Institute of Biological Physico-chemistry, Foundation Edmund de Rothschild in Paris. Professors Pullman and Tigyi were elected cochairmen. Two research projects were established: the Molecular Biophysics and the Cell Biophysics. A third project: The Role of Water and Ions in Biological Systems was added later.

The following countries joined the program:

Belgium, Canada, CSSR, DDR, France, FRG, Hungary, Italy, Poland, Romania, Spain, Sweden, UK, USA, USSR, and Yugoslavia.

During the first twelve years this organization had a very up to date and efficient program and, after 1984 a close cooperation with the „Biomaterials” program (headed by Yu. Ovchinnikov) of UNESCO. We mention the most

⁽²⁾ Acta Biochim. Biophys. Acad. Sci. Hung. 12. (2) 1977.

remarkable meetings only: Budapest 1978, Paris 1980, Baltimore 1982, Bucharest 1982, 1984, 1987, Houston 1983, Alma Ata 1984, London 1988.

Unfortunately, this very successful cooperation did not get financial support any more, because of the crisis of UNESCO when USA and UK suspended their membership. However the Biophysics Cooperation of the UNESCO European and North American Region was a very useful venture of UNESCO and helped the development of world biophysics remarkably. During the last 4 years of cooperation it was an important point to involve the biophysicists of the developing countries in the program. After a few years gap the UNESCO formed a world-wide program: Molecular Biology Network headed by Prof. A. Azzi. We hope that we can continue our collaboration also in this new project.

JÓZSEF TIGYI

Secretary General of the IUPAB

THE BIOPHYSICAL COMMITTEE OF THE HUNGARIAN ACADEMY OF SCIENCES

Scientific committees of the Sections of the Hungarian Academy of Sciences exist since the Hungarian Academy of Sciences (H.A.S.) adopted a Resolution (in 1965) for creating special Committees to do a fact-finding-investigation into the status of various fields of sciences. This Resolution applied to biophysics among other biosciences, too. The Biological Section of the H.A.S. established five Committees: Plant Physiology, Genetics, Biochemistry, Biophysics, and Cytology. The Biological Section appointed Eugene Ernst, member of the Academy, to preside over The Biophysical Committee. The members on the Committee were:

József Tigyi, László Bozóky, János Ladik, Imre Tarján,

Ottó Fehér, István Ketskeméthy, Olga Geszti, Erika Ágoston.

This Committee controlled the work of nine sub-committees doing the actual fact-finding-investigations into nine fields of biophysics: submolecular structures (X-ray diffraction, etc.), biocybernetics, excitatory phenomena, micro- and sub-micro structure, function of muscle, transport phenomena, radiation physics: dosimetry, radiation biophysics (radio biology), bioenergetics. In addition to a detailed report over the mentioned subjects, the Committee discussed the problems of teaching biophysics, the equipment of biophysical research, the importance of learning languages, the significance of cooperation in the national research activity and the coordination of fields of research.

After the Committee had finished its fact-finding-investigation it became one of the nine standing Espers' Committees of the H.A.S. The Biophysical

Committee had thirteen members, Eugene Ernst was its president and Joseph Tigyí its secretary.

The function of the Board was controlled by the Biological Section of the H.A.S. and it reported its activity to the Biological Section yearly. Its task was to survey the research, education, publication, and educational lecturing for the general public in the fields of biophysics. At the same time it served as an advisory board of the Biological Section of the H.A.S. and in this capacity it gave expert opinion on the projects of the biophysical research groups in Hungary, surveyed their reports, and prepared proposals about developing the biophysical research at national level.

Minor changes in the composition of the committee occurred together with the periodical re-elections of the officials of the Academy. Eugene Ernst carried on presiding at the Committee after the 1976 elections, Dr. A. Niedetzky became the secretary of the Committee that had eleven more members. The second Hungarian textbook of biophysics entitled „Bevezetés a Biofizikába” (Introduction to Biophysics) written by Eugene Ernst was published in this period (the first one published in 1947 of the same title was much shorter and it was practically the written form of Eugene Ernst’s lectures on selected sections of biophysics). After Eugene Ernst’s death (27. 02. 1981.) Joseph Tigyí took over the leadership of the Committee that had 15 members as a total at that time. Eight expert teams (transport phenomena, muscle function, excitation, radio biophysics, photo biology, quantum biology, biocybernetics, and theoretical biophysics) helped the work of the Committee. In this year the Committee decided to hold a part of its sessions at various research departments of biophysics to make a closer contact with the scientists and to become familiar with the actual problems of scientific work.

The secretary of the Committee has been Tibor Lakatos since 1985. Sándor Damjanovich followed Joseph Tigyí as president in 1988, and Lajos Trón took over this post in 1991.

An important task of the committee has been, since 1985 to, review the applications for OTKA grants (OTKA is the Hungarian acronym for National Foundation of Scientific Research). Two referees read and report each application, the Committee discusses the reports and proposes a sequence of acceptance to the OTKA authorities, as a result of a secret ballot. It gives an estimate, too, if the financial demand of the applicants matches the goal of the submitted project.

Recently, the Committee had to survey again the work done at various research centres of biophysics to help the Academy in reorganizing of the research activities in Hungary.

At present, sixteen committees are affiliated of the Biological Section of the Academy, one of them is the Biophysical Committee and it keeps trying to contribute to the production and reproduction of the contitions of successful research in biophysics.

TIBOR LAKATOS
Secretary of the Committee



Building of the Local Committee of the Hungarian Academy of Sciences, Pécs. (Photo: István Vadász Jr.)

MEMBRANE TRANSPORT CONFERENCES IN SÜMEG

Sümege, a nice, small town in the western part of Hungary, not too far from Lake Balaton, has been for 17 years the spot of the annual conferences of the Hungarian scientists dealing with the investigation of the structure and function of biological and model membranes, the molecular mechanism of transport processes, including also immunobiological and other clinical aspects of the membrane structure and function. (Earlier, between 1972–1976, the first conferences were located in Tihany, at the Lake Balaton.)

The organization of these conferences is rather special: it is prepared and settled by individuals, the members of the membrane sections of the Hungarian Biochemical, Physiological, Biological, Haematological, Neurochemical, Clinical, Immunological and Biophysical Societies. Naturally all themes which are interesting for and investigated by the members of these sections are discussed in a 3 to 4 years cycle. The forthcoming program used to be decided at the end of the preceding conference by the participants, whose number is around 100–120.

As to the structure of the conferences the participants discuss two or three themes in reviews and shorter oral contributions while the posters represent all fields of the membrane research in Hungary. The posters are arranged in the hotel where almost everybody is accommodated permitting unlimited discussions during the whole day.

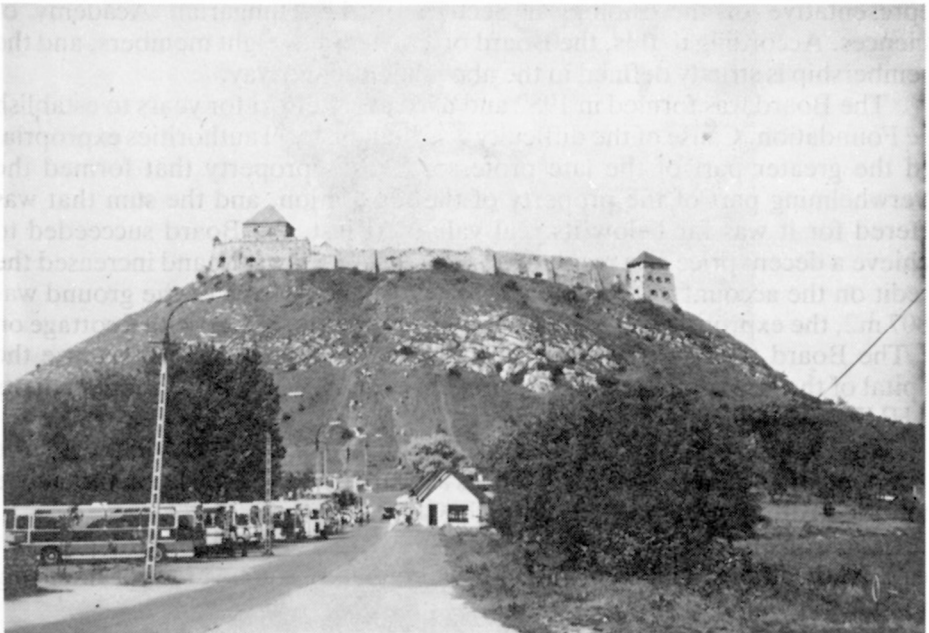
Comparing the programs of the 23 conferences one can follow the development of the membrane-transport research. At the beginning of the seventies the physiology and biochemistry of different transport processes were in the limelight and membrane biophysicists worked also on different transport models or on the description of transport processes by using non equilibrium thermodynamics. These were the years of the appearance of different lipid model membranes (BLM, liposome) in Hungary. Then, parallel with the development of microscopic and submicroscopic physical methods the study of the membrane structure, its alterations and their role in the regulation of transport processes came to the front. The beginning of the eighties were the years of the investigation of the structure and phase transitions of lipid membranes, the construction of different models in order to describe and explain these structural alterations. Nowadays, having new methods of high resolution and sensitivity the knowledge of the structure and function of membrane proteins on molecular level is the main aim.

Some titles from the program of the XXIII. Sümege Conference (1993) prove this opinion:

- Mapping of the cell surface protein patterns by using combined luminescent anisotropy and energy transfer measurements.
- – Expression of Na^+ - K^+ - ATPase isoforms along the nephron.
- The study of the structure and function of a Ca^{++} - ATPase with perturbation methods.

- Investigation of Ca-transporting ATPase in different blood cells.
- The perturbation of the function of Na^+/K^+ pump in diabetes mellitus.
- Tannins and phenols as the inhibitors of the plasmamembran ATPase in plants.

SÁNDOR GYÖRGYI



The site of the Membrane Transport Conferences is Sümeg situated north of the lake Balaton.

FOUNDATION „EUGENE ERNST”

The late Eugene Ernst, former director of the Department of Biophysics of the University Medical School of Pécs (1945 to 1972) was a member of the Hungarian Academy of Sciences. He was awarded by „Kossuth Price” twice, founded the Hungarian Biophysical Society (1961) and presided it from 1961 to 1969 and he was its Honorary President till his decease. He died in 1981. His last will and testament appointed the Hungarian Academy of Sciences as his heir under the condition that his legacy would be the monetary basis of a foundation to support biophysics in Hungary.

The initial property of the Foundation consists of HUF 280 000 cash, a piece of ground and a building within the area of the city, Pécs. The Academy nominated a board of trustees to establish the foundation and to administer its function. The President of the Board is the biophysicist of the highest scientific degree from among the followers of the founder, its secretary is a person selected by the president from among the scientists of the Department of Biophysics of the University Medical School of Pécs (The Department of Biophysics includes a local Research Group of the Hungarian Academy of Sciences.) The Trustees are: the President of the Committee of Biophysics of the Hungarian Academy of Sciences, the President and the Secretary General of the Hungarian Biophysical Society, the director of the Department of Biophysics of the Biological Research Center of Szeged, the representative of the Legal Department of the Hungarian Academy of Sciences and the representative of the Biological Section of the Hungarian Academy of Sciences. According to this, the Board of Trustees has eight members, and the membership is strictly defined in the above mentioned way.

The Board was formed in 1982 and used every effort for years to establish the Foundation. Cause of the difficulty was that the local authorities expropriated the greater part of the late professor Ernst's property that formed the overwhelming part of the property of the foundation, and the sum that was offered for it was far below its real value. At last, the Board succeeded to achieve a decent price as a result of a few years long lawsuit, and increased the credit on the account of the Foundation. The original area of the ground was 8807 m², the expropriation of 5126 m² decreased it to 3681 m² with a cottage on it. The Board tries to convert this property into money and to increase the capital of the Foundation by it. The present capital of the Foundation amounts to HUF 2 792 000 (31. December, 1992.)

The Constitution of the Foundation was accepted in 1987 and the President of the Academy of Sciences confirmed it. Because of the above mentioned difficulties the Foundation began to function in 1989.

The Constitution of the Foundation – as written up by the Board – determines, that the interest of the capital of the Foundation can be used for financing the following items:

1. *The „Eugene Ernst Medal”* which can be donated biannually to a Hungarian biophysicist who did an outstanding work in the field of biophysical

research, in the education, or as an organiser. The money that is given with the Medal amounts to the 80 per cent of the prevailing Award of the Academy of Sciences.

Till now, two Hungarian biophysicists received the „Eugene Ernst Medal”:

József Tigyi, Member of the Hungarian Academy of Sciences (1989)
Györgyi Rontó, Professor of Biophysics (1991)

2. „*Eugene Ernst Prize*” aims to reward young biophysicist below 35 who won an essay competition as invited by the Hungarian Biophysical Society. This Prize is given at the biannual National Society Meetings of the Hungarian biophysicists. The Board of Trustees decides about the award taking into consideration opinion of the Presidium of the Hungarian Biophysical Society based on the reports of experts. The Foundation has been awarding this Prize since 1985. Four young biophysicists got this Prize in 1991, the total of it amounted to HUF 75 000.



Eugene Ernst (1895–1981)

3. „*Eugene Ernst Award*” is given for a significant scientific activity. The Board of Trustees takes the decision after having been considered the proposal of the Presidium of the Hungarian Biophysical Society. This Award is given occasionally.

The Foundation supports young Hungarian biophysicists’ participation at international scientific conferences. We have distributed the following amounts till now:

1985	HUF	20 000.–
1986		15 000.–
1990		345 000.–
1991		24 000.–
1993		500 000.–
Total		<u>904 000.–</u>

(In the years 1990 and 1993, the Board supported the participation at the International Biophysics Congresses in Vancouver and in Budapest, respectively.)

The Medal, the Prize and the Award can be given only to Hungarian citizens for activities done in Hungary.

We believe, that the Foundation supports the development in the field of biophysics with good results when it appreciates scientific achievements of the biophysicists both morally on financially.

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