

*Facta non solum verba*

ESTONIAN  
ACADEMY OF SCIENCES  
YEAR BOOK

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## CONTENTS

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Foreword .....	5
Chronicle .....	7
Membership of the Academy .....	17
General Assembly, Board, Divisions, Councils and Commissions .....	21
Conferences, Seminars, Lectures and Discussions .....	38
Researchers' Night .....	50
Medals, Awards and Scholarships .....	52
Estonian Academy of Sciences Foundation .....	57
Publications of the Academy .....	58
International Scientific Relations .....	59
National Awards to Members of the Academy .....	64
Anniversaries .....	66
Members of the Academy .....	87
Estonian Academy Publishers .....	98
Under and Tuglas Literature Centre of the Estonian Academy of Sciences..	102
Financial Activities .....	105
Associated Institutions .....	108
Associated Societies and Unions .....	132
In Memoriam .....	157
Remembrance .....	163
Directory .....	166
Appendix 1 Academy Development Plan 2006-2010 .....	168
Appendix 2 Contact Points for International Science Organisations in Estonia .....	173
Appendix 3 Cooperation agreements of the Estonian Academy of Sciences with partner organisations .....	175

## **FOREWORD**

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When reading the materials presented in this yearbook, due consideration should be taken of both - the logic of the Academy's inner development and processes taking place in the Estonian society. The development plan adopted by General Assembly, April 2006, expresses the wish of the Academy to create instruments promoting the share of knowledge-based methods in making decisions that promote the economic and social life in Estonia.

Unfortunately, the Estonian society, regardless of its noticeable progress is still quite far from being knowledge based. Even a process of lesser complexity – movement towards the civil society – has markedly slowed down, in the opinion of quite a few people. But, the period of rapid economic growth has everywhere and always been a hard time for people doing science or otherwise trying to be creative.

Like in the earlier years, the Academy has continued efforts to improve the mutual understanding of scientists and society – in particular scientists and entrepreneurs, and scientists and political decision makers. Our efforts materialise in the form of publications presenting the Estonian scientific thinking, by seminars explaining new trends in science, presentation of research methods beneficial to state management and business, etc. The Academy participated in preparation of the strategy “Knowledge Based Estonia II”, which made its way to the Riigikogu (Parliament) and was approved at the beginning of 2007. Many undertakings of that type are held in co-operation with the Ministry of Education and Research, Archimedes Foundation and universities. Those efforts will also continue in the future.

The discussion initiated about the Academy's publication strategy of scientific journals in Estonia has been active, instructive and sometimes even acrimonious. Summaries and conclusions about the discussion will be drawn in 2007. As a by-product of the said exchange of opinions, another discussion is emerging in Estonia about the need to update (i.e. to improve and complement) the principles used to evaluate the research results and to assess the researchers for distributing the research funds.

At the beginning of this millennium, the Academy (upon initiative of the Science Competence Council) had a crucial role in launching the programme of Estonian Centres of Excellence in Research. The programme of Centres of Excellence is by now almost fully controlled by the Ministry of Education and Research, still several meaningful discussions of the work of Centres of Excellence have been organised by the Academy. Unfortunately, the decision on the rules of long-term continuation of that programme has not been reached and the powers of Centres of Excellence created for 2001-2006 will be prolonged for one year, for the time being.

Reported on the assets side of the past year is undoubtedly Jüri Engelbrecht's inauguration to Presidency of the European Federation of Academies ALLEA. The General Assembly of ALLEA heard the report completed under supervision of the newly incumbent President "Inter-academies scientific cooperation". As commissioned by the European Parliament, EASAC (European Academies' Science Advisory Board) prepared a report on the use of oil shale in Europe. A very large part of the report bases on materials presented by Mihkel Veiderma and Andres Siirde. The said report will be discussed in the ITRE (Industry, Research and Energy) Commission of the European Parliament in March 2007.

The following chapters of the yearbook contain more detailed data on the activity of the Academy and associated institutions and societies.

*Leo Mõtus*

## CHRONICLE

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January 9 – President of the Academy Richard Villems signed “The Joint Declaration of Presidents of the Academies of Sciences of Estonia, Latvia and Lithuania concerning the Preparation of Common Energy Strategy for the Baltic States”. The document was introduced to the Prime Ministers of the Baltic States.

January 20 – Ambassador of the Federal Republic of Germany Julius Bobinger visited the Academy and met with Vice-President Jüri Engelbrecht.

January 24 – Board of the Academy approved at its session the report of Raimund-Johannes Ubar on his 3rd working year as research professor. It approved the activity plan of the Academy for 2006, assigned 15000 kroons for the support of the 120th anniversary conference of Tuglas, discussed the opportunities and conditions concerning the organisation in 2007 of a joint conference on the analysis of the activities of R&D centres together with the Ministry of Economy and Communications and the Enterprise Estonia Foundation. It was decided to submit at the session of the Board in March 2006 the propositions for streamlining the system of awarding the Medals of the Academy and the principles of commemorating the significant dates of departed Members of Academy. The session also passed a decision on the nominees of the Medal of the Academy. It set up the Academy History Commission and the working commission for reviewing the new draft version of the Academy Act. In connection with expiration of the powers of Member of Academy Jüri Engelbrecht, it was decided in concert with the Council of the Estonian Science Foundation to nominate Chairman of the Council of the Estonian Science Foundation Jüri Allik for the representative of Estonia in the governing council of the European Science Foundation. It was resolved to establish the offices of an analyst and a service manager at the Academy. The Board decided to regard Member of Academy Leo Mõtus as Member of the Energy Council of the Academy. According to the proposition of Member of Academy Ilmar Koppel, it was decided to participate in the organisation of a conference day in commemoration of Foreign Member of the Academy Ivar Ugi, within the framework of the international conference *Balticum Organicum Syntheticum* in June 2006.

January 25 – Dr. Henk Moed (Leiden University) delivered a lecture in the Academy Hall. He expanded upon the following topics: the citation index of articles as one of basic criteria in evaluation of science; publications of a researcher and abstracts on them; bibliometric indicators and assessment of science by foreign experts in the process of science evaluation.

January 26-28 – Vice-President Jüri Engelbrecht attended as Invited Speaker the conference “European Science: a Modern Interpretation of Basic and Applied Research”, organised by Academia Europaea in Vienna.

January 27 – Vice-President Jüri Engelbrecht met with President of the Austrian Academy of Sciences Herbert Mang in Vienna.

February 9-10 – officers of the International Relations Service Anne Pöitel and Lehti Veeväli participated in a conference, organised by the Latvian Academy of Sciences in Riga. A paper “Mapping the European Landscape: Instruments of Inter-Academy Cooperation” was presented by A. Pöitel and “Estonian Network of Mobility Centres as a part of ERA-MORE” by L. Veeväli.

February 15-16 – Programme Manager for International Relations Lehti Veeväli attended the 10th conference of contact organisations of the European Network of Mobility Centres ERA-MORE in Brussels. The main topics under discussion were the annual activity plan of the Network and instruments for performance analysis.

February 17 – Vice-President Jüri Engelbrecht attended the session of the European Research Advisory Board (EURAB) in Brussels.

February 18-20 – Assistant Secretary General Galina Varlamova attended the meeting of the “Science and Media” working group of the European Federation of National Academies of Sciences and Humanities ALLEA in Brussels on the premises of the Royal Academy of Sciences and Arts of Belgium.

February 22 – Ambassador of Finland Jaakko Kalela visited the Academy and met with Vice-President Jüri Engelbrecht. They discussed Finnish-Estonian research relations as well as co-operation among the Academies and throughout the Baltic Sea Area, incl. Helsinki-Tallinn Euregio co-operation network.

February 28 – Estonian Academy of Sciences held a seminar “The Estonian Language of Science and Terminology – *Quo Vadis?*” (see p. 41).

March 1 – Ambassador of Turkey Fatma Sule Soysal visited the Academy and met with President Richard Villems and Vice-President Jüri Engelbrecht.

March 8 – Member of Academy Ain-Elmar Kaasik delivered a public academic lecture “Multidimensional medicine”.

March 14 – session of the Board of the Academy heard a paper by Member of Academy Enn Tõugu and comments by Jüri Allik concerning the new classification of sciences by the Estonian Science Foundation. It was decided to approve the concept of the Academy History Commission together with its work plan and initial budget as well as the statute of the Karl Ernst von Baer Medal of the Estonian Academy of Sciences. The Board approved the 7 March version of the Development Plan of the Academy for 2006-2010, determined to edit its wording and submit for approval to the General

Assembly of April 26. It was considered expedient to proceed in 2006 with the awarding of the Academy's grants for the completion of monographic research works and popular science books and for their preparation for print, corresponding guidelines were approved by the Board. A commission was established for examination of submitted applications for grants and for presentation of proposals to the Board. The editorial board of the "Geology" series of the Proceedings of the Estonian Academy of Sciences was approved. The Board resolved to approve the protocol of the commission for examination of submitted documents for the election of research professors and for presenting the motions of the Academy pertaining to legislation to concerned agencies. In connection with expiration of the powers of Olevi Kull, the representative of Estonia for 2000-2005 in the Standing Committee for the Life, Earth and Environmental Sciences of the European Science Foundation, it was determined upon the proposal of the Estonian Science Foundation to nominate Senior Researcher of the Estonian University of Life Sciences Tiina Nõges as the representative of Estonia to the forenamed standing committee for the following three-year period. It was decided to establish the Estonian Academy of Sciences Fund as a sub-fund in the Estonian National Culture Foundation.

March 17 – seminar "Science and Politics" was held (see p. 42).

March 20 – Vice-President Jüri Engelbrecht delivered a paper "Research Co-operation in ERA and New Member States" at the Euregio conference "Helsinki-Tallinn Knowledge Arena" on the KUMU premises in Tallinn.

March 23 – Vice-President Jüri Engelbrecht and Vice-President of the British Academy Nicholas Mann signed an updated co-operation agreement of the academies for 2006–2009 in Krakow (Poland).

March 23-24 – Vice-President Jüri Engelbrecht and Secretary General Leo Mõtus attended the session of the General Assembly of the European Federation of National Academies of Sciences and Humanities ALLEA, held in Krakow. J. Engelbrecht presented to the General Assembly the final report of the ALLEA working group on cooperation issues. J. Engelbrecht was ceremoniously inaugurated as President of ALLEA on 24 March.

March 27 – Ambassador of the Ukraine Dr Pavlo Kiriakov visited the Academy and had a meeting with President Richard Villems and Secretary General Leo Mõtus. The primary issue under discussion was research co-operation between Estonia and the Ukraine, while distinct measures were devised to give it a fresh impetus.

April 11 – session of the Board of the Academy decided to confer the W. Ostwald Medal to Member of Academy Viktor Palm. Member of Academy Georg Liidja was appointed to represent the Academy on the Estonian Science Popularisation Award panel in 2006. The award is funded by the



Ministry of Research and Education and granted jointly by the Academy and the Archimedes Foundation. The calling of the 2006 contest for student research prizes was resolved and a corresponding panel was established. The Board decided to submit for approval to the General Assembly of the Academy the report on the execution of the consolidated budget of the Academy for 2005 as well as the Academy's consolidated budget for 2006. It was resolved to approve the draft regulation of the Government of the Republic, received from the Ministry of Research and Education regarding the validation of the state program "The Compilation and Publishing of Estonian-language Textbooks for Institutions of Higher Education (2007-2012)".

April 26 – annual session of the General Assembly of the Academy handed over the W. Ostwald Medal and Medals of the Academy. President Richard Villems presented the 2005 Report of the Academy and Secretary General Leo Mõtus spoke on the budgets of the Academy for 2005 and 2006. The session heard a scientific paper by Lembit Allikmets "Pharmacological Science in Explaining Neurotic Diseases and Mental Disorders". Vice-President Ain-Elmar Kaasik presented the development plan of the Academy for 2006-2010, followed by a discussion and negotiations. The annual session was attended by President of the Republic Arnold Rüütel and Prime Minister Andrus Ansip. Prime Minister delivered an address of welcome.

April 26 – special session of the Board of the Academy decided to make a proposal to the Ministry of Research and Education for nomination of new members to the Science Competence Council.

April 28 – prizes of the contest "Science Popularisation Awards 2006", organised by the Estonian Academy of Sciences, the Archimedes Foundation and the Ministry of Research and Education, were handed over in the Academy Hall.

April 28 – Academy made a visit to the Estonian National Museum (see p. 45).

May 1 – Estonian Academy of Sciences Fund was initiated by the Estonian National Culture Foundation (see p. 57).

May 3-4 – Vice-President Jüri Engelbrecht attended as Invited Speaker the conference "Urban Futures 2.0" in Stockholm and delivered a paper "Science, Technology and Talents – Competitive Advantages of the BaltMet Region".

May 5 – Science Day of the Academy was held in Rakvere as a follow-up event to the Science Day of the previous year in the same place (see p. 46).

May 9 – Reijo Vihko, Chairman of the Membership Task Force of the European Science Foundation, visited Academy to discuss with Vice-President Jüri Engelbrecht the role of the Academies in the activities of the European Science Foundation (ESF) and relations between the European Federation of Academies ALLEA and the ESF.

May 11 – Ceremonial Conference “Members of the *Noor Eesti Movement* in Åland 1906-1913. Tuglas 120” was held at the Academy Hall within the joint project “Cultural Bridge of Estonia to Europe at the Beginning of the 20th Century”, incorporating the Under and Tuglas Literature Centre, the Branch of the Estonian Art Museum Adamson-Eric Museum, Tuglas-seura (Finland) and Önningeby Museum (Åland).

May 17 – Professor Mati Karelson delivered a public lecture “Science Policy in Estonia: Where Do We Stand in the World?”

May 17-19 - President Richard Villems attended as Invited Guest the international conference “Innovation Society 2006: How Can Innovative Regions Foster Better Links between Industry and Science” in Stockholm.

May 25 – President Richard Villems (with a paper) and Vice-President Jüri Engelbrecht (as moderator) participated at the conference “Sustainable Estonia” that was organised on initiative of the President of the Republic.

May 25 – Vice-President Jüri Engelbrecht met President of *Academia Europaea* Jürgen Mittelstrass in Tallinn. Issues pertaining to co-operation among the European scientific organisations were discussed at the meeting.

May 26 – Science Day was held in Viljandi County, organised by the Academy and Viljandi County Government (see p. 46).

May 30 - June 1 – Vice-President Jüri Engelbrecht visited Amsterdam and Brussels, where he participated in the plenary session and meeting of a Working Group of the European Research Advisory Board (EURAB).

May 30 - June 3 – Head of the Division of the Humanities and Social Sciences Peeter Tulviste participated in the 80th Annual Meeting of the International Union of Academies/Union Académique Internationale (UAI) in Brussels and moderated a session on raising the role of social sciences in the UAI activities.

June 1-2 – Secretary General Leo Mõtus participated in the meeting of the European Academies Science Advisory Council (EASAC), Energy Working Group, in London.

June 11-17 – Member of the Board and Chairman of the Energy Council of the Academy Mihkel Veiderma attended the International Energy Forum ENERGEX 2006 in Stavanger (Norway).

June 12 – Vice-President Jüri Engelbrecht met Prof. Konrad Osterwalder, Rector of Eidgenössische Technische Hochschule of Zürich, in Tallinn. The discussion was focused on the future tendencies in technology.

June 12-13 – Assistant Secretary General for International Relations Anne Põitel attended the 11th Conference of the European Network of Mobility Centres (ERA-MORE) Bridgehead Organisations in Brussels. Problems rela-

ted to the establishment of the so-called researcher's visa, performance indicators for the Network activities and the arrangement of annual conferences were explicated.

June 13 – extended session of the Board and presentation of the book “Eesti Vabariigi teaduspreemiad 2006” (Science Prizes 2006 of the Republic of Estonia) were held on the premises of the Institute of Technology, University of Tartu. The final redaction of the Academy's development plan was approved. For that reason it was decided to set up five commissions for revision and efficient exercise of distinctive aspects of the operational programme: a commission for coordinative activities between the Ministry of Education and Research and the Estonian Academy of Sciences, a commission for the preparatory measures to establish the Science Foundation to the Academy, a commission for the preparatory measures to establish the Division of Analysis and Future Monitoring to the Academy, a commission for the preparatory measures to establish the Advanced Research Institute to the Academy and a commission to secure sustainable development for the Estonian Academy of Sciences. Grants of the Academy for 2006 for completion of scientific monographs and popular science books were assigned. An organising committee for the International Year of the Planet Earth celebration in Estonia was established.

June 13 – public discussion was arranged by the Board of the Academy on the topic of “Study Programmes of Estonian General Education Schools: Current Situation and the Future” on the premises of the Institute of Technology, University of Tartu (see p. 47).

June 21-22 – Vice-President Jüri Engelbrecht attended as Invited Speaker the festivities to celebrate the 40th anniversary of the University of Konstanz (Germany) and delivered a speech “Academia and Society”.

June 25-28 – Member of Academy Loit Reintam attended as Representative of the Academy the 4th General Assembly and Scientific Sessions of the Union of European Academies for Science applied to Agriculture, Food and Nature (UEAA) in Bucharest and delivered a paper.

June 26–28 – President Richard Villems and Secretary General Leo Mõtus made a visit to the Polish Academy of Sciences in Warsaw. Presidents of the Academies signed an updated cooperative research protocol on 27 June, whereby they accepted the list of joint projects to be supported by the Academies for 2007-2009.

July 6 – Professor Toomas Timusk delivered a public lecture “From the Big Bang to the Musk Ox – Infrared Light in Physics”.

July 15 – Member of Academy Jüri Engelbrecht participated in the General Assembly of the Initiative for Science in Europe (ISE) in Munich.

July 16-19 – Vice-President Jüri Engelbrecht participated in the conference “Euroscience Open Forum 2006” in Munich.

August 29 – Members of Academy Rein Küttner and Mihkel Veiderma attended the Conference of the Nordic and Baltic Academies of Engineering in Helsinki.

August 31 – Short Conference to Commemorate Member of Academy Ernst Öpik, arranged by the NGO Euroscience Estonia at the Residence of Tallinn City Government, was attended by Members of Academy Endel Lippmaa, Mihkel Veiderma, Georg Liidja and Karl Rebane.

September 8 – Presentation of the book “Teadusmõte Eestis. Täppisteadused” (Scientific Thought in Estonia. Exact Sciences) was held at the Atlantis Conference Centre in Tartu.

September 11-13 – Vice-President Jüri Engelbrecht visited Brussels, presented a paper at a seminar of the European Organisation for Current Research Information Systems (EuroCRIS) and participated in a meeting of the Expert Assessment Group on the ERA-NET Coordinating Scheme of the European Commission.

September 15 – Academy was visited by Jussi Nuorteva, Secretary General and Irina Kauhanen, Scientific Secretary of the Representation of the Finnish Academies of Science and Letters. The guests were received and introduced to the Academy and its experience in the work of international organisations by Vice-President Jüri Engelbrecht and Secretary General Leo Mõtus.

September 19 – Academy was visited by Foreign Member of Academy Janis Stradinš, Chairman of the Senate of the Latvian Academy of Sciences, who was received by Members of the Board Mihkel Veiderma and Peeter Tulviste. They discussed issues concerning the organisation of the following Baltic Conference on Intellectual Co-operation.

September 20 – Members of Estonian Academy of Sciences paid a visit to the industrial complex of Kohtla-Järve (see p. 48).

September 21-23 – Vice-President Jüri Engelbrecht participated in the 18th Annual Conference of *Academia Europaea* in Budapest.

September 22 – Vice-President Jüri Engelbrecht and President of the Hungarian Academy of Sciences E. Sylvester Vizi signed an updated research co-operation protocol in Budapest, whereby they specified the conditions for the exchange of researchers and the joint projects to be supported for 2007-2009.

September 22 – Researchers' Night was for the first time celebrated in Estonia within the EU framework. The AHHA Science Centre appeared as the coordinator of the project with the Estonian Academy of Sciences and Estonian TV as co-partners (see p. 50).

September 27 – joint seminar “Member of Academy Viktor Palm 80 and Member of Academy Ülo Lille 75” was conducted at the Council Hall of the University of Tartu (see p. 43).

October 3-4 – Vice-President Jüri Engelbrecht participated in the session of the European Research Advisory Board (EURAB) in Brussels.

October 4 – public academic lecture by Member of Academy Enn Mellikov “Solar Energy: A Myth or Inevitability” at the Academy Hall.

October 11-13 – Vice-President Jüri Engelbrecht attended an international conference “Peer Review – Its Present and Future State” in Prague.

October 18-19 – Vice-President Jüri Engelbrecht participated in the meeting of the Expert Assessment Group on the ERA-NET in Brussels.

October 20 – Vice-President Jüri Engelbrecht participated in a conference for the European member organisations of the International Council for Science (ICSU) in Paris, dedicated to the enhancement of the links between ICSU and European scientific community, incl. European science organisations, and analysed the need for co-ordination of the ICSU activities at the European level.

October 24-28 – Vice-President Jüri Engelbrecht visited Great Britain, was received at the Royal Society of Edinburgh and delivered a paper on the science policy of Europe.

October 26-27 – Secretary General Leo Mõtus and Assistant Secretary General for International Relations Anne Põitel attended the opening meeting for the project “Complexity-NET” within the domain of co-ordination activities of the EU 6th framework programme for R&D activities in London. Academy is representing the Ministry of Education and Research in that project.

October 29-31 – President Richard Villems participated in the 8th Baltic Development Forum Summit in Helsinki.

November 1 – the 6th seminar in the series “New Trends in Research”, this time on “Complex Systems” was held at the Academy Hall (see p. 43).

November 6 – Chairman of the Energy Council of Academy Mihkel Veiderma and Member of Council Andres Siirde (Tallinn University of Technology) participated in the meeting of the oil shale working group for the European Academies’ Advisory Council (EASAC) in London.

November 7 – Academy was visited by a delegation of Georgian scientists and science managers, incl. Vice-President of the Georgian Academy of Sciences Pridon Todua. Vice-President Jüri Engelbrecht gave an overview of the problems of Estonian science and the Academy’s role in the Estonian research landscape, the meeting was attended by Vice-President Ain-Elmar Kaasik and Secretary General Leo Mõtus.

November 8 – public academic lecture “Chemistry of Signal Transfer in the Brain” was given by Jaak Järv at the Academy Hall.

November 15 – Vice-President Jüri Engelbrecht participated in the meeting of the Expert Assessment Group on the ERA-NET Coordinating Scheme of the European Commission in Brussels.

November 16-17 – Member of the Board of the Academy Jaan Ross and Assistant Secretary General for International Relations Anne Pöitel attended a conference in London organised by the British Academy on matters relating to bilateral co-operation agreements and exchange of researchers.

November 21 – report for the 1st working year of Research Professor Ilmar Koppel was heard at the session of the Board. The activities of the Academy History Commission pertaining to the study of the history of the Academy and the preparation schedule of the jubilee issue of the Academy were examined. The proposal of the Academy Publishing Council concerning the change of titles for the serial journals “Proceedings of the Estonian Academy of Sciences” was discussed and a commission for development of the publishing strategy was formed.

November 21 – conference of the winners of the students’ research work contest was held, wherein the laureates of the best works delivered their papers and received the diplomas (see p. 39).

November 23 – forum for Post-doctors on the topic “Institution of Post-doctors in Europe and Estonia” was held at the Academy Hall (see p. 39).

November 29 – conference “Centres of Excellence of Estonian Science II” was conducted at the Academy Hall (see p. 39).

December 2-5 – Vice-President Jüri Engelbrecht attended the General Assembly of the InterAcademy Panel on International Issues (IAP) in Alexandria (Egypt). The activities of the IAP in 2004–2006 were discussed.

December 6 – welcome speech to the session of the General Assembly of the Academy was made by President of the Republic Toomas Hendrik Ilves. President Richard Villems delivered a speech “On the Emphases”. A scientific paper on the topic “Applications of Fluidized Bed Technique in Chemical Technology” was presented by Member of Academy Mihkel Veiderma. Member of Academy Olav Aarna delivered a paper on the higher education strategy.

December 7-8 – Secretary General Leo Mõtus participated in a meeting of the European Academies’ Advisory Council (EASAC) in Krakow. Reports on the activities of working groups as well as the activity of the EASAC on a broader level were heard at the meeting.

December 8 – Vice-President Jüri Engelbrecht met Dr Myqerem Tafaj, Secretary General of the Council of Ministers of Albania in Tallinn.

December 8 – meeting of the Council of the International Exchange Foundation of the Academy was held to examine the received applications for 2007 concerning the exchange of scientists on the basis of bilateral co-operation agreements.

December 9 – Plenary Session of the conference of Secondary School Students' Scientific Society was conducted at the Academy Hall. The opening address was delivered by President of the Academy Richard Villems.

December 12 – report of Research Professor Malle Krunk was heard at a special session of the Board.

December 12-14 – Vice-President Jüri Engelbrecht visited Brussels and participated in the session of the European Research Advisory Board (EURAB).

December 15 – Vice-President Jüri Engelbrecht attended a seminar of the European Heads of Research Councils (EuroHORCs) in Hague, dedicated to the issues of co-operation among European research institutions.

December 21 – association agreement between the Estonian Academy of Sciences and the Estonian National Museum was signed.

## **MEMBERSHIP OF THE ACADEMY**

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The Estonian Academy of Sciences included 57 Members of Academy and 16 Foreign Members of Academy as of 31 December 2006. Their affiliation with the four divisions was the following:

### **DIVISION OF ASTRONOMY AND PHYSICS (15 Members of Academy, 4 Foreign Members)**

Members of Academy: Jaak Aaviksoo, Jaan Einasto, Ene Ergma, Vladimir Hizhnyakov, Harald Keres, Georg Liidja, Endel Lippmaa, Ülo Lumiste, Cheslav Lushchik, Karl Rebane, Peeter Saari (Head of Division), Mart Saarma, Arved-Ervin Sapar, Gennadi Vainikko, Richard Villems.

Foreign Members: Richard R. Ernst, Charles Gabriel Kurland, Jaan Laane, Indrek Martinson.

### **DIVISION OF INFORMATICS AND ENGINEERING (13 Members of Academy, 4 Foreign Members)**

Members of Academy: Olav Aarna, Hillar Aben, Jüri Engelbrecht, Ülo Jaaksoo, Lembit Krumm, Valdek Kulbach, Rein Küttner (Head of Division), Ülo Lepik, Enn Mellikov, Leo Mõtus, Arvo Ots, Enn Tõugu, Raimund-Johannes Ubar.

Foreign Members: Antero Jahkola, Gérard A. Maugin, Endrik Nõges, Michael Godfrey Rodd.

### **DIVISION OF BIOLOGY, GEOLOGY AND CHEMISTRY (18 Members of Academy, 4 Foreign Members)**

Members of Academy: Jaak Järv, Ain-Elmar Kaasik, Dimitri Kaljo, Ilmar Koppel (Head of Division), Hans Küüts, Agu Laisk, Ülo Lille, Udo Margna, Jüri Martin, Viktor Palm, Erast Parmasto, Anto Raukas, Loit Reintam, Valdur Saks, Hans-Voldemar Trass, Raivo Uibo, Mart Ustav, Mihkel Veiderma.

Foreign Members: Carl-Olof Jacobson, Johannes Piiper, Jānis Stradiņš, Helmut Schwarz.

### **DIVISION OF THE HUMANITIES AND SOCIAL SCIENCES (11 Members of Academy, 4 Foreign Members)**

Members of Academy: Mihhail Bronshtein, Raimund Hagelberg, Arvo Krikmann, Arno Kõörna, Uno Mereste, Juhan Peegel, Jaan Ross, Huno Rätsep, Karl Siilivask, Peeter Tulviste (Head of Division), Haldur Õim.

Foreign Members: Els Oksaar, Päiviö Tommila, Endel Tulving, Henn-Jüri Uibopuu.

During 2006 the majority of Members of Academy carried on their research and academic activities as leading experts for their branch of knowledge.



Indicative of the performance of Members of Academy in research were their numerous publications.

Quite a few Members of Academy acted as experts and advisers additionally to their principal job. The following Members of Academy sat on expert panels and councils of national significance:

Riigikogu – Ene Ergma (Deputy Speaker), Olav Aarna (Chairman of the Culture Commission), Peeter Tulviste;  
Academic Council of the President of the Republic (up to December 2006) – Jaak Aaviksoo, Jüri Engelbrecht, Ene Ergma, Ülo Jaaksoo, Ain-Elmar Kaasik, Endel Lippmaa, Mihkel Veiderma, Richard Villems;  
Think Tank of the President of the Republic (starting from December 2006) – Jüri Engelbrecht, Jaan Ross, Mart Saarma, Richard Villems;  
Research and Development Council – Jaak Aaviksoo, Mart Saarma, Richard Villems;  
Science Competence Council – Enn Mellikov;  
Council of the Estonian Science Foundation – Leo Mõtus;  
Commission of the Estonian Science Prizes – Richard Villems (Chairman), Rein Küttner, Enn Mellikov, Peeter Saari, Mart Saarma, Raimund-Johannes Ubar, Raivo Uibo.

Members of Academy Richard Villems and Ain-Elmar Kaasik sat on the Commission of the Sustainable Development Program, reporting to the Government of the Republic.

Members of Academy Endel Lippmaa and Jaan Ross were (up to the end of 2006) members of the Higher Education Evaluation Council.

Members of Academy Jaak Järv, Rein Küttner, Enn Mellikov and Richard Villems represented Estonia on the committees of the Sixth Framework Programme (2002-2006) of the European Community for Research, Technological Development and Demonstration Activities. Member of Academy Richard Villems was Counsellor to the EU R&D framework programme.

Member of Academy Leo Mõtus was a member of the Estonian National Commission for UNESCO.

Member of Academy Mihkel Veiderma was a member of the Estonian National Committee to the World Energy Council (WEC).

Under the Ministry of Education and Research: Members of Academy Olav Aarna, Ilmar Koppel, Rein Küttner, Peeter Saari and Peeter Tulviste were members of the Research Policy Advisory Committee; Member of Academy Richard Villems belonged to the working group for co-ordinating the preparation of the operational programme for the development of infrastructure in education, R&D and health services; Member of Academy Dimitri Kaljo was

Chairman of the Steering Committee of the national programme “Collections of Humanities and Natural Sciences”.

Under the Ministry of Economic Affairs and Communications: Members of Academy Ülo Jaaksoo, Rein Küttner and Richard Villems were members of the Innovation Policy Committee, Member of Academy Endel Lippmaa was member of the Steering Committee on the Development Strategy for Energy Technology, Member of Academy Ülo Jaaksoo was member of the Informatics Council, Members of Academy Arvo Ots and Mihkel Veiderma were members of the Energy Council; Member of Academy Olav Aarna was Chairman of the Council for Information and Communications Technology.

Under the Ministry of the Environment: Member of Academy Anto Raukas was Chairman of the Steering Committee for preparing “National Development Plan for the Use of Oil Shale 2007-2015”, Member of Academy Dimitri Kaljo was a member of the foresaid Committee; Member of Academy Raivo Uiibo was a member of the Commission on Gene Technology.

Member of Academy Dimitri Kaljo was Chairman of the Estonian Mineral Resources Commission.

Members of Academy Peeter Tulviste (Chairman) and Leo Mõtus were members of the Scientific Council for the Ministry of Defence.

Member of Academy Jüri Engelbrecht was a member of the Think Tank of the Commander-in-Chief of the Defence Forces up to December 2006.

Member of Academy Ain-Elmar Kaasik was Chairman of the Registration Committee of the State Agency of Medicines.

Members of Academy Richard Villems (Chairman of the Council), Ain-Elmar Kaasik, Jüri Martin and Mart Saarma were members of the Council for the Estonian Genome Project.

Member of Academy Haldur Õim was a member of the Estonian Language Council.

Several Members of Academy continued their activities on the editorial boards of international scientific organisations and scientific journals.

The following Members of Academy appeared as Heads of the Centres of Excellence of Estonian Science:

Jüri Engelbrecht – Centre for Nonlinear Studies;

Ilmar Koppel – Centre of Excellence in Chemistry and Materials Science;

Raivo Uiibo – Centre of Molecular and Clinical Medicine.

In the year under review Member of Academy Mihkel Veiderma was awarded the National Science Prize for long-standing achievements in research and development (see p. 64).

Member of Academy Hans-Voldemar Trass was granted the title of Honorary Citizen of the City of Tartu.

Member of Academy Raimund Ubar was awarded the Golden Core Member Prize of the Institute of Electrical and Electronic Engineers (IEEE) Computer Society.

Foreign Members of Academy proceeded to participate in the activities of the Academy and research institutions of Estonia in compliance with time-honoured relations, contacts, and research alliances.

# **GENERAL ASSEMBLY, BOARD, DIVISIONS, COUNCILS, COMMISSIONS**

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## **GENERAL ASSEMBLY**

The General Assembly of the Academy convened twice in 2006:

- |            |   |
|------------|---|
| April 26   | Annual meeting<br>Address by the Prime Minister of the Republic<br>Scientific paper by Lembit Allikmets “Pharmacological Science in Explaining Neurotic Diseases and Mental Disorders”<br>Paper by Richard Villems “2005 Report of the Estonian Academy of Sciences”<br>Report by Leo Mõtus “Budgets of the Academy for 2005 and 2006”<br>Paper by Ain-Elmar Kaasik “Development Plan of the Academy for 2006-2010” |
| December 6 | Address by the President of the Republic<br>Paper by Richard Villems “On the Emphases”<br>Research paper by Mihkel Veiderma “Application of the Fluidised Bed Combustion Technology in Chemical Engineering”<br>Paper by Olav Aarna “Higher Education Strategy”   |

The first session of the General Assembly was held as an annual meeting, being the 60th in succession. As ever the session focused on summing up the activities of the Academy in the previous year. The General Assembly approved the consolidated report of the financial activities of the Academy for 2005 and the budget for 2006. Detailed data on the activities of the Academy in 2005 were made available in the newly published Estonian Academy of Sciences Year Book XI (38), which had previously been mailed to Members of Academy.

The annual meeting of the Academy was attended by President of the Republic of Estonia Arnold Rüütel, Mrs. Ingrid Rüütel and Prime Minister Andrus Ansip.

After opening the session the floor was given to Prime Minister Andrus Ansip, who emphasised the significant role of research and researchers in the development of Estonian economy.

Member of Academy Jüri Engelbrecht as President of the European Federation of National Academies of Sciences and Humanities delivered a short address on behalf of the ALLEA.

President Richard Villems conferred to Member of Academy Viktor Palm the W. Ostwald medal of the Estonian Academy of Sciences.

The General Assembly paid tribute to the memory of the departed Members of Academy Pavel Bogovski and Lennart Meri.

As a keynote paper of the annual session President Richard Villems presented the Report 2005 of the Estonian Academy of Sciences. In his paper the President underlined the important role of the Divisions in the activities of the Academy and deliberated at length on the immediate future of the Estonian science in general.

On the motion of the President, the General Assembly approved the report of 2005 of the Academy, based on the report of the President and materials presented in the Year Book.

Secretary General Leo Mõtus presented the overview on the execution of the budget of the Academy for 2005 and presented the budget for 2006, which was approved by the General Assembly.

Research paper on the topic “Pharmacological science in clarification of the essence of neurotic diseases and mental disorders” was delivered by Professor Lembit Allikmets. The speaker was interrogated by Members of Academy Arvo Ots, Viktor Palm, Peeter Saari and Dr. Jüri Kann.

Vice-President Ain-Elmar Kaasik presented the development plan of the Academy for 2006-2010. The following discussion was attended by Members of Academy Anto Raukas, Richard Villems, Viktor Palm and Dimitri Kaljo.

During the discussion comments were made by Members of Academy Karl Siilivask, Olav Aarna, Valdek Kulbach, Peeter Saari, Jaak Aaviksoo and Lembit Krumm.

The second regular session of the General Assembly was held on 6 December. President of the Republic of Estonia Toomas Hendrik Ilves participated in the first half of the session and delivered a speech, emphasising the role of researchers in the society and called on the Academy to contribute the knowledge and skills of its members for solving the problems, facing the Estonian society.

President of the Academy Richard Villems presented a paper “On the Emphases”, where he considered the productive participation of Estonian scientists in the 6th Framework Programme of the European Union, highlighting the efficiency of knowledge-intensive small entrepreneurship. The President linked the success of scientists to the need to work out and implement the strategy of “Knowledge-based Estonia II”. He cast a critical glance at the allocations of the EU structural funds in Estonia, in particular for purchasing the research apparatus. Richard Villems underlined the importance of making

the activities of the Academy visible outside the academic space. He also stressed the necessity to make politicians aware of the urgency to increase the expenditure per scientist per year, and of the problems caused by the dropping number of scientists.

A research paper on the topic “Applications of the fluidised bed technique in chemical technology” was presented by Member of Academy Mihkel Veiderma – Laureate of the 2006 Estonian prize for long-standing achievements in research and development. Questions were asked by Members of Academy Anto Raukas, Agu Laisk, Jaak Järv and Ülo Lille.

Member of Academy Olav Aarna presented the higher education strategy of Estonia for 2006–2015. Questions were asked by Members of Academy Jaak Järv, Anto Raukas, Valdek Kulbach, Ain-Elmar Kaasik, Mihhail Bronshtein, Jüri Martin, Viktor Palm, Agu Laisk and Mihkel Veiderma, Mr. Jüri Kann and Ms. Elsa Pajumaa.

During the discussion the floor was taken by Members of Academy Peeter Tulviste, Ilmar Koppel, Peeter Saari, Rein Küttner, Hillar Aben, Anto Raukas, Ülo Jaaksoo, Ein-Elmar Kaasik, Dimitri Kaljo, Erast Parmasto and Jaak Järv.

## BOARD

In 2006 the Board of the Estonian Academy of Sciences was working in the following composition:

President	<i>Richard Villems</i>
Vice-President	<i>Ain-Elmar Kaasik</i>
Vice-President	<i>Jüri Engelbrecht</i>
Secretary General	<i>Leo Mõtus</i>
Head of the Division of Astronomy and Physics	<i>Peeter Saari</i>
Head of the Division of Informatics and Engineering	<i>Rein Küttner</i>
Head of the Division of Biology, Geology and Chemistry	<i>Ilmar Koppel</i>
Head of the Division of the Humanities and Social Sciences	<i>Peeter Tulviste</i>
Non-Executive Members	<i>Ene Ergma</i>
	<i>Endel Lippmaa</i>
	<i>Enn Mellikov</i>
	<i>Jaan Ross</i>
	<i>Enn Tõugu</i>
	<i>Mart Ustav</i>
	<i>Mihkel Veiderma</i>
	<i>Haldur Õim</i>

The Board held 12 working meetings in that year. A decision was passed by electronic opinion polling on 5 occasions.

The schedule of events of the Academy for 2006 was discussed and approved at the first session, taking into account the proposals of the Divisions. For the most part the schedule was carried out by the end of year.

Due to the expiration of the third working year Raimund-Johannes Ubar as Research Professor, his report for the 3rd year in office was heard and approved by the Board on January 24.

At its session in March the Board heard a review on the activities of the Commission on Revision of the Election Procedures for Research Professors by Ain-Elmar Kaasik, Chairman of the Commission, approved the minutes of the Commission meeting and assigned for the Commission to proceed with its activities. At the end of the year the reports of Ilmar Koppel and Malle Krunks, elected as Research Professors in the previous year, for their 1st year in office, were heard by the Board. The Board also examined the written report of Ülo Niinemets, who himself was abroad at that time, and opened up the financing for the 2nd working year of the Research Professors.

Regarding the memorial medals of the Academy, the Board decided to award the Wilhelm Ostwald Medal to Member of Academy Viktor Palm for outstanding achievements in the area of chemistry. It was decided to award the Medal of the Estonian Academy of Sciences to Member of Academy Valdek Kul-

bach, Foreign Members of Academy Antero Jahkola and Els Oksaar and to Mati Ereht – a long-standing Chairman of the Estonian Mother Tongue Society associated with the Academy.

The new research classification, presented by the Estonian Science Foundation and the Ministry of Education and Research, was twice discussed by the Board. The Board approved a draft ordinance of the Government of the Republic concerning the preparation and publication of higher school textbooks in the Estonian language during the years 2007-2012. The Board submitted a proposal to the Ministry of Education and Research concerning nomination of members to the Science Competence Council.

Information on the results of the competition among the best student research works, presented by Chairman of the Competition Committee on Student Research Papers and Member of Academy Georg Liidja, was heard at the session of the Board on November 21. The Board decided to grant scholarships through competition for completion of research monographs and popular science books and for preparation of them for publication; a corresponding commission was established to examine the submitted applications (with Member of Academy Loit Reintam as Chairman) and scholarships were assigned on the proposal of the commission (see p. 53). Although according to the initial decision a prize for popular science works was to be conferred as well and even a respective commission was formed, the decision was set aside at a later stage, instead prizes for popularisation of Estonian research were conferred by the Academy jointly with the Ministry of Education and Research and the Foundation Archimedes. Member of Academy Georg Liidja was nominated as a representative of the Academy to the contest committee for 2006. The Statute of the Karl Ernst von Baer Medal of the Academy was approved. A decision was taken by the Board to organise elections for the Membership of the Academy in 2007 and Heads of the Divisions were assigned the task to submit proposals of the Divisions as to specialities of the vacancies to be opened.

Discussions and decision-making in issues related to current commitments constituted a considerable part of the Board's work. Thus the execution of the consolidated budget for 2005 and the budget for 2006 of the Academy was examined and presented to the General Assembly and at the end of the year an overview on the execution of the budget of the expiring year was heard. The Board established salaries for the management, assigned holiday benefits and approved structural changes of the Academy Office. Secretary General Leo Mõtus was appointed as a member of the Energy Council of the Academy. A working committee for preparation of a new version of the Estonian Academy of Sciences Act (chaired by President Richard Villems) and the History Commission of the Academy were established. At the end of the year the Board heard an overview of the activities of the Commission as well as preparation of the jubilee publication of the Academy, presented by the



chairman of the commission, Vice-President of the Academy Ain-Elmar Kaasik. The Board approved the composition of the editorial board of the “Geology” series of the Proceedings. On the basis of an application by the Publishing Council of the Academy, the Board agreed to change the name of the journal “Geology”. A commission (chaired by Vice-President of the Academy Jüri Engelbrecht) was set up for development of a new publishing strategy of the Academy. The Board heard an overview of the work results of the Commission on Biological Security Assurance, presented by Vice-President of the Academy Ain-Elmar Kaasik and approved the work report of the Commission. The Board approved the composition of an organising committee for celebrating the International Planet Earth Day (chaired by Member of Academy Dimitri Kaljo). It was decided to support the study tour of the Youth Club of the Estonian Geographical Society to Siberia as well as the publication of a jubilee book of the Tallinn House of Scientists and the encyclopaedic work *Estonica* by Johann Christoph Brotze. The Board authorised a new salary for the Director of the Under and Tuglas Literature Centre and the Director of Estonian Academy Publishers. Repeated discussions were involved with the finalization of the Academy development plan (2006–2010), which was started in 2005, resulting in the submission of a draft development plan to the General Assembly Session for approval. The Board discussed and approved the agenda of the sessions of the General Assembly. Publication of a series of interviews with Members of Academy in the magazine *Keskus* was considered.

A decision was taken to establish the Estonian Academy of Sciences Fund as a sub-fund in the Estonian National Culture Foundation and members were appointed to the administrative council of the fund.

The Board discussed at its sessions various issues related to the work of international science organisations and the nomination of Estonian representatives to commissions. Chairman of the Estonian Science Foundation Jüri Allik was nominated as the Estonian representative to the Governing Council of the European Science Foundation. Senior Researcher of the Estonian University of Life Sciences Tiina Nõges was appointed as the representative of Estonia to the Standing Committee on Life and Environmental Sciences of the European Science Foundation.

## DIVISIONS\*

### DIVISION OF ASTRONOMY AND PHYSICS

A seminar “The Estonian Language of Science and Terminology – *Quo Vadis?*” was held upon the initiative of the Division on February 28 (see p. 41).

Head of Division Peeter Saari attended a conference at Waide on November 2 in order to follow up his terminological work and with the aim of framing an activity plan required for the administratively co-ordinated and funded development of the Estonian-language terminology.

Compilation of the compendium “Scientific Thought in Estonia. Exact Sciences” (in Estonian, edited by Ilmar Koppel and Peeter Saari) was continued by the Division in co-operation with the Division of Biology, Geology and Chemistry. Pre-presentation of the publication was held on September 8 at the Conference Hall “Atlantis” in Tartu.

The agenda of the meeting of the Division of February 6 was the following:

- Forming a position towards the development trends of the Physics and Mathematics Series of the Proceedings of the Estonian Academy of Sciences;
- Need for the Estonian-language university textbooks, among others for mathematics and physics.

Regarding the Proceedings of the Academy, it was decided to approve the present activity plan of the journal in general on the basis of the report by Georg Liidja, Chairman of the Editorial Board and the presentation of a probe survey by Peeter Saari. As for the Estonian-language university textbooks, the floor was taken by Member of Academy Jaak Aaviksoo. It was decided following discussion to endorse the intentions of the University of Tartu towards the publication of textbooks. The necessity and opportunity for funding of the infrastructure of those research areas represented in the Division within the fiscal period 2007-2013 and other issues were dealt during an exchange of views. The report of the activities of the Division for 2005 and the plan for 2006 were approved.

Members of the Division represented the Academy or the Division at several decision-making bodies for science administration (see “Membership”).

### DIVISION OF INFORMATICS AND ENGINEERING

The development plan of the Academy was discussed at the meeting of the Division in January. The plan was endorsed by Members of the Division, while the following motions were made for amendment:

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\* Compiled on the basis of reports, presented by Heads of Divisions: Peeter Saari, Rein Küttner, Ilmar Koppel and Peeter Tulviste.

- The vision and future tasks should be brought into conformity with one another. The vision in its present form is not including any references to significant expansion of the functions of the Academy;
- It would be expedient at the present stage to submit the development plan in a multiple choice version, e.g. in the form of divergent development scenarios. Each scenario would be matched with a set of distinct additional functions to be included in the future tasks;
- Each variant scenario should additionally be provided with an analysis of its actual advantages for the Academy, for the entire society of Estonia and for the R&D system.
- The development plan should be furnished with a financial projection.

A necessity to carry on the publication of a scientific journal of the Academy of Sciences in engineering was pointed out.

Activities aimed at the enhancement of the ranking attributed to the journals of the Proceedings of the Academy series and widening of their distribution area were once again discussed at the meeting of the Division in December. Members of the Division suggested:

- Affiliation with the Publishers International Linking Association and integration with the Crossref system to enable uniform registration of information concerning the articles and to provide their easy access.
- Joining the Google programme for digitalisation of the journal archives. Incorporation of the journals of the Academy of Sciences into the Directory of Open Access Journals.
- Complementation of the instructions for authors with explanations concerning the publication of coloured illustrations afforded by the Web version.
- Involvement of the Vice Rectors for Research of Estonian public universities into the Publishing Council of the Academy.

The necessity to proceed with the publication of special issues dedicated to distinct fields of study was pointed out as well as the mission of Members of Academy to publish for themselves and invite their colleagues in Estonia and abroad to publish their research articles in the journals of the Academy.

The state of affairs in relation to possible new candidates for the membership of the Academy was discussed. It was decided to pronounce a new vacancy in the field of engineering.

Members of the Division attended and delivered papers at several oil shale power industry related meetings, incl. meetings of the Nordic countries and Academies of the Baltic States.

Compilation of the compendium “Scientific Thought in Estonia. Engineering II” (in Estonian), intended to be published in February 2007, was one of the high priority activities of the Division in 2006.

Several larger conferences and seminars, like a Forum for Post-doctors, seminars “Science and Politics” and “New Trends in Research – Complex Systems” (see p. 42-43) as well as a summer school on tensions in the glass were held under the guidance of members of the Division and with their immediate participation.

A public academic lecture “Solar Energy: A Myth or Inevitability” was held by member of the Division Enn Mellikov.

Members of the Division represented the Academy and the Division at several decision-making bodies for science administration (see “Membership”).

#### DIVISION OF BIOLOGY, GEOLOGY AND CHEMISTRY

Three extended meetings of the Council, one extended general meeting and three electronic meetings of the Division were held during 2006.

The management report of the Division for 2005, preparation of the work schedule for 2006, issues related to compilation of “Knowledge-based Estonia II” and awarding of memorial medals of the Academy, a draft development plan of the Academy and organisation of the General Meeting of the Division were discussed at the extended meeting of the Council held on January 9.

An extended General Meeting of the Division was held on January 25. The first part of the meeting (attended additionally by Professors of the Medical Department and Clinic of the University of Tartu, representatives of the Ministry of Education and Research as well as the Ministry of Social Affairs and Member of Academy Peeter Saari, Head of the Division of Astronomy and Physics) was dedicated to the study programmes of the Medical Department of the University of Tartu. The keynote speech was delivered by Professor Toomas Asser, Dean of the Medical Department of the University of Tartu, comments were made by Annika Tina, Representative of the Ministry of Education and Research.

Issues related to the development of the study programmes of general education schools were handled in the second part of the meeting. Adviser to the Minister of Education and Research Urve Läänemets spoke about general education as a sphere of social life by and large as well as about hard decisions to be made concerning the content of education in the information overflow of the present world, about study programmes in the world as a whole and in Europe in particular and finally about the study programmes of general education schools, currently developed in Estonia.

The 2005 report of the Division and its 2006 work plan were approved, the draft development plan of the Academy was discussed, the principles of the “Knowledge-based Estonia II” strategy as well as the issues related to the Proceedings of the Academy were considered in the third, closed part of the meeting. The motion of Member of Academy Dimitri Kaljo to re-establish the

K. E. v. Baer Medal was endorsed and a commission was formed to prepare the statute with Loit Reintam, Erast Parmasto and Hans-Voldemar Trass as members. The statute worked out by the Commission and was approved by the Board of the Academy on March 14. At the end of the year the Division nominated Member of Academy Loit Reintam as a candidate for the Medal.

As a result of an intra-Division electronic voting within the period of March 26-27, a motion was made to the Board of the Academy to award the W. Ostwald Medal to Member of Academy Viktor Palm (see p. 52).

On November 29 an interdivisional conference, dedicated to the former activities and potential future development of Centres of Excellence was held on the initiative of the Division (see p. 39).

On September 27 a seminar/conference “Viktor Palm 80 and Ülo Lille 75” was arranged under the leadership of the Division (see p. 43).

Two public academic lectures were delivered by members of Division: “Multi-dimensional Medicine” by Ain-Elmar Kaasik and “Chemistry of Signal Transfer in the Brain” by Jaak Järv.

On September 8 a presentation was held for the compendium “Scientific Thought in Estonia. Exact Sciences” (in Estonian) of the *Blue Books* series, prepared in collaboration by this Division and the Division of Astronomy and Physics (editors Ilmar Koppel and Peeter Saari), .

Members of the Division participated in the preparation of the programme “Knowledge-based Estonia II” and the development plan of the Academy (Chairman of the Commission Member of Academy Ain-Elmar Kaasik).

Members of the Division represented the Academy and the Division at several decision-making bodies for science administration (see “Membership”).

The Commission for Nature Conservation and the Commission of Meteoritics proceeded with their activities under the auspices of the Division.

THE COMMISSION FOR NATURE CONSERVATION (chaired by Urmas Tartes) continued to work at the Institute of Agriculture and Environmental Protection of the Estonian University of Life Sciences in the premises of the Baer House.

The 45th Day of Speeches of the Commission and a General Meeting were organised, compilation of a new Red Book was started in co-operation with the Ministry of Environment.

The General Meeting of 18 December focused on development activities and the importance of public concern in an ecologically sensitive region.

The 45th Day of Speeches, dedicated to conservation of nature and research, was held in Tallinn on May 24. Speeches were delivered by Urmas Tartes, Marek Sammul, Kaarel Orviku, Are Kont, Üllas Ehrlich, Inno Salasoo (of

New-South Wales University, Australia), Arno-Toomas Pihlak and Mart Külvik. Preparation of a compendium of articles based on the text of the speeches was started. Jaan Eilart memorial exhibition was on display at the same time. To compile the Red Book, a project application (which was satisfied) was submitted by the Commission to the Centre of Environmental Research through the Estonian University of Life Sciences and a working group was formed (Chairman Urmas Tartes). The estimated duration of the work was two years and the book was planned to be released in June 2008.

The Commission for Nature Conservation of the Academy organised several public exhibitions during the year, among them Nature and Folk Culture on Postcards, Jaan Eilart Memorial Exhibition, Nature-related Activities of Jaan Eilart, Review Exhibition on Tiit Randla. The curator of the exhibitions was V. Hang.

A well-known ornithologist, outstanding figure of nature conservation, official of nature protection authority, author of several books and nature photographer Tiit Randla was elected as laureate for the Kumari Prize in 2006.

THE COMMISSION OF METEORITICS (chaired by Member of Academy Anto Raukas) proceeded with the research of the morphology of pulverised spherules of Kaali, their chemical composition and genesis in collaboration with the French scientist Professor F. Marini. The study of the main and small craters of Kaali was continued on the basis of a co-operation project and exchange programme between the Academy of Sciences of Poland and the Estonian Academy of Sciences.

The Commission proceeded with the research and description of the craters of Neugrund and Kärkla and the pulverised matter, originating from them.

The exhibits of the Ilumetsa meteoritics pavilions were updated. The stands of the exhibition were prepared by Scientific Secretary of the Commission Reet Tiirmaa.

The Commission attended the jubilee meeting of the Estonian Nature Conservation Society, Reet Tiirmaa delivered a speech on the fall of the Kaali meteorite and about the largest meteorite craters of the world. Ants Kraut and Reet Tiirmaa spoke about meteoritics and relevant history to visitors of the Kaali Guest Centre on the Family Day in August. They also conducted guided excursions to the main crater and the adjacent Crater 4.

A booklet "Estonian Meteorite Craters" (in Estonian) was released as a joint publication of Tallinn University of Technology, the Institute of Geology and the University of Turku.

#### DIVISION OF THE HUMANITIES AND SOCIAL SCIENCES

The keynote event of the Division was the conference “The Åland Phenomenon. Members of the *Noor Eesti* Movement in Åland 1906-1913” in the Academy House on 11 May, held as a joint project with the Under and Tuglas Literature Centre to commemorate the 120th anniversary of Member of Academy Friedebert Tuglas (see p. 38).

On April 28 the Board of the Academy visited the Estonian National Museum on the initiative of the Division (see p. 45).

On the initiative of the Division various activities were held as a follow-up event to the Science Days of the Academy at several educational institutions in Rakvere and on May 26 in Viljandi (see p. 46).

The work for commemoration of Members of Academy was carried out throughout the year as well as preparations for the 80th anniversary of the Academy.

Members of the Division represented the Academy or the Division at several decision-making bodies for science administration (see “Membership”).

## COUNCILS

### ENERGY COUNCIL

(on ground of materials, presented by Member of Academy Mihkel Veiderma)

The Energy Council of the Estonian Academy of Sciences includes 14 scientists and specialists of power engineering and adjacent fields. According to the Statute, the task of the Council is to analyse the development strategy of the Estonian energy system, to discuss energy-related scientific and technical issues, to hear reports on the results and plans towards research and development activities, to bring its positions and suggestions to the notice of relevant institutions, enterprises, national departments and boards.

Two meetings were held by the Council in 2006: on March 17 and December 19. Oil shale mining capacities, solutions and usage tendencies up to 2015-2020 were the key issues at both of the meetings.

A research work on the usage tendencies of Estonian oil shale as a base material for development of the national usage strategy of oil shale, concluded at the Mining Institute of Tallinn University of Technology, was discussed at the first meeting on March 17. A review of research results was submitted by Alo Adamson and Enno Reinsalu. Additionally to the members of the Council, the discussion was attended by Einari Kisel (Ministry of Economy and Communications), Rein Raudsep (Ministry of the Environment), Henn Pärn (Riigikogu), Mati Jostov (Eesti Põlevkivi), Mati Uus (Narva Elektriijaamad), Ants Laos and Jaanus Purga (Viru Keemia Grupp).

While the Council acknowledged the merits of executed work concerning the disposition of oil shale resources and evaluation criteria, the districting of a deposit, the extension of the extractable reserve and the development of mining technologies, several shortcomings of the research were pointed out in the same way, whereby the most critical drawbacks were:

- Inadequate co-operation with oil shale consuming enterprises, especially in the sphere of shale oil production and in determination of the need and quality of oil shale;
- Undue hastiness concerning reduction of the extractable oil shale reserve to 30 GJ/m<sup>2</sup> and conversion of regions with nature conservation restrictions into the so-called unconstrained reserve without a substantial integrated analysis of the entire system as for its technical, financial and environmental aspects;
- Insufficient consideration of the logistic changes while estimating the development of the oil shale complex (relocation of extractable fields, expansion of the proportion of deep-level mines, decline of the bed quality, extension of transport distance);
- Lack of the temporal dimension concerning change in conditions and undertakings necessary for continued development.



Granting new mining permits without reasoned justification of the objectives, solutions and logistic communications was declared unacceptable. The Council insisted that all the issues presented by the Council had to be thoroughly studied prior to starting with the preparation of the national strategy for oil shale usage.

At the same meeting the Council expressed their indignation towards the deletion of power engineering from the List of Research Objects of the Science Foundation and addressed a submission to the Ministry of Education and Research as well as the Science Foundation, applying for the provision of “power engineering” as a research object in the area of the Sciences and Engineering.

A draft national development plan for oil shale usage in 2007-2015 was discussed at the meeting of December 19 on the ground of the report by Anto Raukas, Chairman of the draft preparation committee. In addition to members of the Council, the discussion was attended by Dimitri Kaljo (Mineral Resources Commission), Rein Raudsep (Ministry of the Environment), Jüri Soone (Tallinn University of Technology) and Vello Kattai (Estonian Geological Centre).

On the strength of the discussion and subsequent adjustments the Council agreed to recognise the work of the draft preparation committee on the national development plan for oil shale usage, yet the following issues were noted:

- Recommendations on the maximum permitted level of oil shale extraction for 2015 and its further reduction as well as the partition of consumption between the production of electricity and oil, presented in the draft, were not appropriately studied and substantiated. In place of strictly prescribed quantitative restrictions, national interests towards oil shale usage should be preferably expressed in complex solutions, based on the analysis of impact factors (financial, social, security of energy supply, environmental protection);
- In view of the lack of definiteness concerning the formation of capacities based on other energy sources (primarily nuclear energy) and depending on the limited potential of renewable energy sources as well as distributed energy production, the production of electrical energy in the amount to guarantee the power supply and security of the entire country could now than ever before be regarded as a priority development for the usage of oil shale;
- The designed volume of oil shale usage in oil industry according to the draft as well as a large scale refinement of oil to obtain motor fuels had not been adequately reasoned and prepared;
- Oil shale losses in the extraction and concentration processes under the conditions of declining bed quality had not been duly reckoned in estimation of the oil shale resource, therefore the extractable reserve of

the mining areas would be depleted earlier than predicted and the necessity to open new areas would occur sooner as well. For that reason the development of new criteria for the assessment of reserves and extraction by taking into consideration the oil shale complex as a whole would be a matter of vital importance;

- Revision of the price formation concept for oil shale and establishment of a quality based pricing scale is needed, however declarative dramatic raising of environmental taxes and taxation of energy consumption without a thorough analysis of the impact of the measure on national economy and power supply security could not be accepted;
- Formation of an oil shale utilization centre with an aim to join forces in research and development activities, to foster a rising generation of scientists and engineers and to develop oil shale related competence was to be supported.

The Council decided to address the Ministry of the Environment with a submission to consider the observations and proposals of the Council in further development of the national strategy for oil shale usage, pointing out the necessity for conducting an analysis of the entire chain of oil shale extraction and usage from the standpoint of its technical and financial efficiency, environmental protection and sustainability in accordance with the national energy strategy as an integral whole, prior to determination of production volumes and optimum solutions. The minutes of the meeting of the Council were at the same time forwarded to other relevant authorities, institutions and enterprises.

Mihkel Veiderma participated as the representative of the Academy to the Estonian national committee of the World Energy Council (WEC) in preparation of a session of the WEC General Assembly in Tallinn. He moderated the Estonian Day within the programme and visited the Olkiluoto nuclear station in Finland.

#### COUNCIL OF POPULATION AND PUBLIC HEALTH

(on ground of materials, presented by Chairman, Member of Academy Ain-Elmar Kaasik)

The Council of Population and Public Health includes 9 members.

The Council established substantive co-operation relations with the Public Health Division of the Ministry of Social Affairs, the Estonian Centre for Health Education and the Centre for Political Studies "Praxis". A draft version of the document "Health Policy of the Population" and the base material for the "National Health Strategy 2003-2010" appeared among the outcome of this co-operation. Deplorably though, the documents were never presented to the legislative power and the whole activity in that direction was discontinued

on account of the changes in the management of the Ministry of Social Affairs as well as the foundation of the Institute of Health Development on May 1, 2003. The latter development was an important step for the state, but brought along further changes in the structure and distribution of tasks and was primarily involved with the need for the collaboration of (a few) people concerned with the sphere. 39 parties signed the Estonian Public Understanding Memorandum on February 20, 2003 and the Public Understanding Foundation was registered on April 10, 2003, followed by the establishment of working groups, among others the public health working group, to the Public Understanding Forum. Supervision over the working group was assumed by Member of Academy Raivo Uibo as the representative of the Estonian Academy of Sciences, who resigned at the end of 2004 for reason of poor health (still remaining member of the working group). Ain-Elmar Kaasik proceeded as the head of the working group. It was inevitable in the given situation that the tasks of the Council of Population and Public Health of the Estonian Academy of Sciences were transferred to the working group of the Public Understanding Foundation. The latter was a broader based organisation – additionally to scientists it was including health managers, officials of the Ministry of Social Affairs and representatives of various associations. The working group, currently including 33 members, was excessively large, however practical activities had been carried out by 6-8 members. The working group was supported by the establishment of the Public Understanding Foundation, wherein the public health direction was currently the concern of a trained physician Kai Siinmaa, who had been earlier engaged in the private sector (as head of the representation of a pharmaceutical company MSD Estonia).

The activities of the year 2006 were in reality developed essentially in the directions, which the Council of Population and Public Health had started together with the Ministry of Social Affairs as early as 2001.

On February 2, 2006 the first version of the consensus document (the so-called consensus position) “Policy of Public Health – An Investment into Health” was presented at the Ministry of Social Affairs. On February 14, 2006 the document was discussed at a session of the public health working group of the Public Understanding Forum (in full composition) and on 08 June 2006 by the Social Affairs Committee of the Riigikogu. From February to April public discussions of the draft document were held in towns and counties through the mediation of the Public Understanding Foundation. A public health consensus conference was held on June 30, 2006, whereat the concept of health policy was discussed with participation of presidential candidates. Hopefully the outlook for the present document would appear more favourable than for the original one and it would serve as a source for conclusions to form a basis for long-standing activities, unaffected by the political “winds of change”.

On November 24, 2006 a discussion on the perspectives and renovation of the Public Understanding principles was organised by Peep Mühl, Head of the Public Understanding Foundation, who had recently assumed the office. It was decided that the Public Understanding Foundation should continue to perform its mission in a niche of the Estonian society not particularly noted for its high level of activity – lead the communication process with political parties at an equivalent hierarchical level – constituting the main task of civil society.

# CONFERENCES, SEMINARS, LECTURES, DISCUSSIONS

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## CONFERENCES

On May 11, a ceremonial conference “Members of the *Noor Eesti* Movement in Åland 1906-1913. Tuglas 120” was held at the Academy Hall as a joint project “Cultural Bridge of Estonia to Europe at the Beginning of the 20th Century”, incorporating the Under and Tuglas Literature Centre, the Branch of the Estonian Art Museum Adamson-Eric Museum, Tuglas-seura (Finland) and Önningeby Museum (Åland). The project was the largest common cultural project between Estonia and Finland in 2006.

Jaan Undusk, Director of the Under and Tuglas Literature Centre, spoke in his opening address about the Åland phenomenon as a research project and the birth of the idea about a series of various activities to follow. Member of Academy Mihkel Veiderma talked over the academic activities of Friedebert Tuglas. He focused on a scarcely known fact that the research and critical work of Tuglas exceeded his fictional production in total volume. Participants of the conference were greeted by Jaakko Kalela, Ambassador of Finland in Estonia.

Papers were delivered by:

- K. Ekström* of Önningeby Museum Åland,
- K. Koll* of Adamson-Eric Museum and curator of the exhibition “Åland phenomenon”,
- R. Grünthal* of the University of Helsinki,
- J. Undusk* of the Under and Tuglas Literature Centre,
- H. Rätsep*, Member of Academy of the Estonian Academy of Sciences,
- T. Haug* of the magazine “Looming”,
- M. Hinrikus* of the Under and Tuglas Literature Centre.

On August 31, a scientific session-conference to commemorate Professor Ernst Julius Öpik (1893-1985) – an Estonian astronomer of worldwide renown – was conducted at the Residence of Tallinn City Government as an event of the NGO Euroscience Estonia. Speeches were made by Professor Emeritus Fred Singer – an old-time fellow staff member and co-author of E. Öpik of the University of Maryland (USA) and his younger colleagues.

Other speakers at the conference were:

- I. Pustölnik* of Tartu Observatory,
- F. Singer* of the University of Maryland,
- E. Walker* of the University of Maryland,
- K. Heiss* of the University of Maryland.

On November 21, a conference of the winners of the Students' Research Work Contest was held at the Academy Hall. Monetary research prizes of the Academy are awarded with the aim of giving recognition to students, who have achieved outstanding results in research and encouraging capable students for independent research in the future as well. The conference was opened by President of the Academy Richard Villems; the laureates were presented with diplomas.

Authors of the best works delivered their papers:

- H. Valtna* of the University of Tartu: Experimental Realizability of Superluminally Propagating Localised Waves
- G. Hudjashov* of the University of Tartu: Peopling of Sahul Evidence from mtDNA and Y-chromosome.
- E. Soosaar* of Tallinn University of Technology: Numerical Modeling of Upwelling Filaments in the Gulf of Finland.
- K. Kotta* of Tallinn University: Ideological Coercion and Supervision in Feature Film Creation of the Estonian SSR: the Prohibited Project "Mahtra sõda" ("The War of Mahtra") 1955–1959.

On November 23, a forum for Post-doctors on the topic "Institution of Post-doctors in Europe and Estonia" was held at the Academy Hall as a follow-up event to the conference "Formation of the Young Generation of Scientists in Estonia – the Institution of Post-doctors" conducted at the Academy in November 2003.

The forum discussed broader aspects of the issues and problems related to the Post-doctorate programme (corresponding activities in Estonia started in 1998) in the research space context of Estonia as well as Europe. The forum was opened by President of the Academy Richard Villems and moderated by Member of Academy Enn Tõugu.

The following papers were included in the programme:

- Member of Academy *J. Engelbrecht*: European Research Structures and Science Policy.
- Member of Academy *O. Aarna*: Does Knowledge-based Equal to Science-based?
- I. Ots* of the Ministry of Education and Research: Post-doctorate Programme in Estonia: Opportunities Now and in the Future.
- M. Wyrwas* of Tallinn University of Technology: How to be a Post-doc in Estonia.
- U. Johanson* of the University of Tartu: Estonian Post-doctor's Weal and Woe.

On November 29, the conference "Centres of Excellence of Estonian Science II" was conducted at the Academy Hall. The previous conference on the Centres of Excellence was held at the Academy in April 2005. The Estonian Prog-

ramme for Centres of Excellence was launched in 2001, when a goal was set to establish a local network of Centres of Excellence and to integrate it with the international network. The conference was moderated by Vice-President of the Academy Ain-Elmar Kaasik. Each one of the existing ten Estonian Centres of Excellence was represented at the Conference, participated in the discussion and exchange of their experience and opinions:

Centre of Excellence for Gene and Environmental Technologies – *J. Sedman*,  
Centre of Excellence of Analytical Spectrometry – *R. Stern*,  
Centre for Nonlinear Studies – *J. Engelbrecht*,  
Estonian Centre of Behavioural and Health Sciences – *J. Harro*,  
Institute of Physics of the University of Tartu – *E. Nõmmiste*,  
Centre of Excellence in Chemistry and Materials Science – *I. Koppel*,  
Centre of Molecular and Clinical Medicine – *R. Uibo, A. Kaasik*,  
Centre for Basic and Applied Ecology – *Ü. Mander*,  
Centre of Cultural History and Folkloristics in Estonia – *M. Kõiva*,  
Centre for Dependable Computing – *J. Penjam*.

At the beginning of the discussion *Kristjan Haller*, Deputy Secretary General of the Ministry of Education and Research, presented a future vision for the Estonian Centres of Excellence. The following debate expanded upon the role of the research centres of excellence in the society, the interest of the authorities towards balancing of separate areas of research while securing the sustainability of the state, the Estonian Centres of Excellence as a definite as well as essential object in the research funding system of Estonia, the necessity for integration and/or co-operation of centres of excellence in Estonia, etc.

## SEMINARS

On February 28, a seminar “The Estonian Language of Science and Terminology – *Quo Vadis?*” was held by the Estonian Academy of Sciences with a goal of considering the issues and decisions of earlier language discussions and enhancing the position of the language of science within the area of research and linguistic performance in Estonia. The seminar was arranged as a follow-up event to long-term heated discussions, which on the one hand attempted to secure the international level of education and the work of Estonian scientists by means of the English language, yet on the other hand acknowledged an urgent need to protect the Estonian science language as part of the mission to preserve and develop Estonian as a cultural language.

The seminar was moderated by the author of the whole idea – Member of Academy Peeter Saari, Head of the Division of Astronomy and Physics of the Academy. In his opening speech he formulated three goals of the seminar: 1) to provide an overview of the terminology work, 2) to discuss the principles of the debate on the language of education and science, 3) to hear different opinions in the matter and strive for better mutual understanding and co-operation among the incompatible confessions in the linguistic issues concerning research.

The following papers were presented:

- P. Tulviste*, Head of the Division of the Humanities and Social Sciences of the Academy: Introductory Reminder of the Beginning of the Language Debate.
- U. Sutrop* of the Institute of the Estonian Language: Regarding Some Principles and Strategic Problems with Reference to the Strategy of the Estonian Language Development and in Regard of Certain Linguistic Issues and Hazards.
- H. Käämbre*, representing the Institute of Physics of the University of Tartu and the Estonian Mother Tongue Society: Regarding the Terminology of Physics in Estonian.
- V. Sinisalu*, representing the magazine “Estonian Physician”: Estonian Medical Terminology and Medical Science Language – the Present State and a Vision for the Future.
- M. Abel* of the University of Tartu: Regarding the Formation and Present State of the Mathematical Terminology in Estonian.
- J. Kübarsepp* of Tallinn University of Technology: Development of the Language of Science and Terminology in Tallinn University of Technology.
- J. Kangilaski* of the University of Tartu: Enhancement of Estonian Science Language in the University of Tartu.
- P. Päll* of the Institute of the Estonian Language: Regarding the Terminology Work at the Institute of the Estonian Language.



The presentation of papers was followed by comments, delivered by J. Engelbrecht, H. Karik, E. Pajumaa, P. Nemvalts, G. Liidja, A.-E. Kaasik and several others. The comments were succeeded by a discussion, wherein the thoughts that the Estonian and English languages should not be opposed in the Estonian science area, but should contrariwise be at the service of science as different linguistic instruments to function side by side and support one another. Meaning that in the small community of Estonia, greater effort should be made to enable Estonian scientists approach the international public, while at the same time the significance of the Estonian printed word, education and science from the standpoint of maintenance and development of the Estonian language on a broader scale must not be dismissed. The discussion highlighted also the need to compose Internet-based terminology dictionaries and to co-ordinate the activities in relation to the language of science. The idea of establishing a top-level scientific and methodological journal in Estonia was rendered as wishful thinking. Materials of the seminar were issued in the form of a booklet.

On March 17, a seminar "Science and Politics" was held at the Academy House, which was aimed at hearing the opinions of the representatives of the European Parliament, the Riigikogu, Estonian universities and the Academy towards the experience of researchers and politicians in cooperative administration of the society – in securing social and economic welfare and security in the contemporary world. The seminar also presented a forum for researchers and politicians, offering them an opportunity to design feasible and preferable forms of co-operation in Estonia.

The following papers were included in the programme:

- M. Reps*, Minister of Education and Research: Relation of Research and Politics in Estonia.
- E. Ergma*, Member of Academy and Chairman of the Riigikogu: Politics Seen Through the Eyes of a Scientist.
- A. Tarand*, Member of the European Parliament: Impressions and Opinions about the State of Counselling at the European Parliament and Recommendations for the Development of the Counselling Service to the Estonian Parliament.
- R. Vaikmäe*, Vice Rector of Tallinn University of Technology: The Role of a University in the Society or Why Astrology is More Popular than astronomy.
- M. Ainsaar*, Head of the R&D Division of the University of Tartu: Problems concerning the Research and Public Policy in Estonia.
- J. Engelbrecht*, Vice-President of the Academy and President of ALLEA: The Role of the EURAB and ALLEA in the Formation of the European Research Policy.
- L. Mõtus*, Secretary General of the Academy: The Operational Principles of the European Academies' Science Advisory Board (EASAC).

The papers were followed by a discussion on the topic “What Advisory Boards would the State of Estonia Need?”

On September 27, a joint seminar dedicated to the 80th anniversary of Member of Academy Viktor Palm and the 75th anniversary of Member of Academy Ülo Lille was held at the Hall of the Council of the University of Tartu. Formal addresses were presented by Members of Academy Richard Villems and Ilmar Koppel and Professor Margus Lopp.

The programme of the seminar included the following papers:

Member of Academy *Viktor Palm*: Regarding Some Problems of Research Methodology.

Member of Academy *Ülo Lille*: Things Done and in Progress.

Member of Academy *Jaak Järv*: Physical-organic Chemistry and Viktor Palm.

Professors *Margus Lopp and Nigulas Samel* of Tallinn University of Technology: Prostaglandines and Other Bioactive Compounds – Applied and Fundamental Research.

On November 1, the 6th seminar of the series “New trends in Research” with a subtitle “Complex Systems” was held. The seminar was opened by Members of Academy Richard Villems and Jüri Engelbrecht.

The following issues were on the agenda:

*J. Kalda* of the Centre for Nonlinear Studies: Physics: Does Random Mutability Obey Limits?

*M. Vendelin* of the Centre for Nonlinear Studies: Biological Complex Systems.

Member of Academy *L. Mõtus*: Complex Systems in Computer Science.

*R. Kitt* of the Centre for Nonlinear Studies: Econophysics and Complex Systems.

*T. Lints* of Tallinn University of Technology: Simple Models –Striking Results.

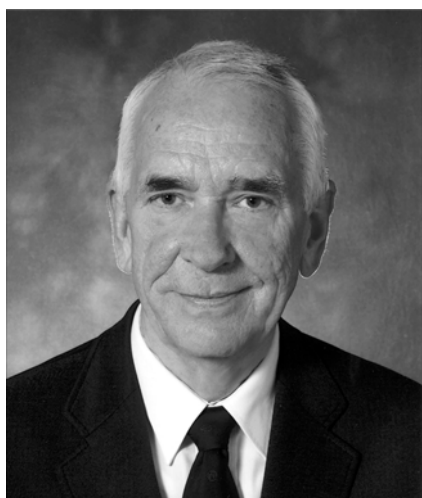
*J. Engelbrecht and L. Mõtus*: ERA-NET Complex Systems.

Paper presentations were followed by a discussion, moderated by Jüri Engelbrecht.

## PUBLIC ACADEMIC LECTURES

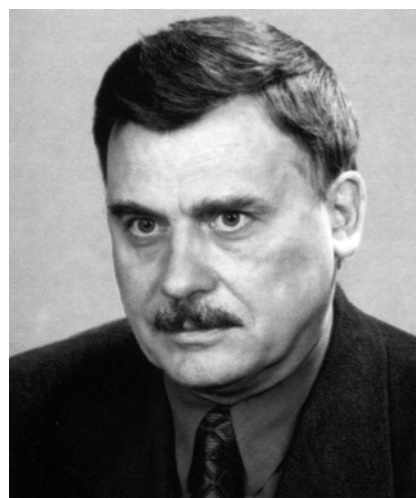
The traditional series “Public Academic Lectures of the Estonian Academy of Sciences” were complemented by four lectures in 2006:

March 8  
“Multi-dimensional Medicine”



Member of Academy *Ain-Elmar Kaasik*

May 17  
“Science Policy in Estonia: Where  
Do We Stand in the World?”



Professor *Mati Karelson*

October 4  
“Solar Energy: A Myth or Inevitability”



Member of Academy *Enn Mellikov*

November 8  
“Chemistry of Signal Transfer in the  
Brain”



Member of Academy *Jaak Järv*

## DISCUSSIONS

On April 28, the delegation of the Estonian Academy of Sciences made a visit to the Estonian National Museum (ENM) within the field-day discussion series. The delegation was given an intimate and detailed overview of the activities of the Museum, the plans and development in relation to its new main building designed to be constructed at Raadi. The delegation also introduced itself to the local cultural and educational activities as well as the scientific researches and the most recent methods applied by the museum.

In the exhibition house (Kuperjanovi St 9) the delegation looked at the standing exposition and the exhibition “Ise sööme, ise joome...” presenting the nutritional culture of the Soviet period, which in coffee shops was manifested by the ever-present sign “We eat, we drink and we also collect the dirty dishes”; they learned of the publishing activities of the ENM and its educational programmes and visited the Museum’s repositories (Veski 32). As an exceptional favour the Museum’s textile collection, collections of beer mugs and other wood-ware were open for Members of Academy. The ancillary buildings of the manor and the repositories accommodated therein were visited at Raadi. The location of the new main building of the ENM, its project, progress of works and problems were discussed. Conversations were focused on the research and development ability of the Museum, opportunities of cooperation with universities and the Academy as well as museums of the neighbouring countries, feasible interdisciplinary research projects, the idea of establishing a peer-reviewed journal to the Museum and several other issues.

At the standing exposition Members of Academies were given as a “home task” to ponder on a fundamental question “What could and should be the cultural model of the Estonian people that would grant the highest results in the new conditions of the Museum?” The museum is waiting for new ideas, opportunities and ways of thinking, for realization of which an active museum space is created in the form of a cultural centre, a support point and a meeting place.

Members of Academy were received (in the time sequence of meetings & talks) by Director of the Museum Krista Aru, Manager of the Exhibition House Kristjan Raba, Educator at the Museum Virve Tuubel, Organiser of Events Terje Puistaja, Scientific Secretary Toivo Sikka, Curator of Standing Expositions and Research Scientist Vaike Reeman, Head of the Collection Management Riina Reinvelt, Economic Director Ülo Siimets, Senior Keeper of Collections Eevi Astel and Project Manager Agnes Aljas. From the administration of the Academy the visit was attended by President Richard Villems, Vice-President Ain-Elmar Kaasik, Secretary General Leo Mõtus, Head of the Division of Astronomy and Physics Peeter Saari, Head of the Division of Informatics and Engineering Rein Küttner and Head of the Division

of the Humanities and Social Sciences Peeter Tulviste, also present were Members of Academy Arvo Krikmann and Arved-Ervin Sapar.

On May 5, a Science Day was held in Rakvere as a follow-up event to the previous year visit of the Academy, received with lively interest. In the framework of the Science Day, Members of Academy Arvo Krikmann and Arved-Ervin Sapar had a meeting with the students of Rakvere Gymnasium.

On May 26, a Science Day of the Academy was held in Viljandi County. It was another undertaking in the series of science days, started at the beginning of 1999, which were aimed at introducing at various locations of Estonia the activities of the Academy and the world of research on a broader scale both in and outside Estonia on the one hand, while on the other hand the opportunity to see and hear about the development of separate counties, towns and villages and to discuss the feasible problems and opportunities of co-operation is of utmost significance and interest for the Academy. Science days have so far been held in Kuressaare, Pärnu, Võru, Valga-Valka (in co-operation with the Latvian Academy of Sciences) and Rakvere, now in Viljandi as well.

The Science Day started with a meeting at the hall of the time-honoured decorous house of Viljandi County Government (a former bank building), where the following papers were delivered:

Viljandi County Governor *K. Küttis*: Innovative Economic Development in Viljandi County.

Vice-President of the Academy *J. Engelbrecht*: Estonian Academy of Sciences and Its Tasks.

Member of Academy *U. Margna*: Period of Instruction at the Rural Gymnasium of Viljandi – a Foundation for a Lifetime.

Member of Academy *Ü. Jaaksoo*: Internal Security Related Scientific Research.

Head of the Estonian Folklore Archives *E.-H. Västriik*: Oskar Loorits and the Finno-Ugrian world outlook.

The Academy visited Suure-Jaani Gymnasium in the afternoon, where Members of Academy were received by Headmaster of the gymnasium Peeter Sadam. Members of Academy were introduced to a beautiful, functional and extremely child-friendly school, which additionally to the tasks of an educational centre was in fact operating as a public cultural and sports centre and a communal centre. It was a significant experience to see and feel that Estonian schools were diligently proceeding with the praiseworthy keeping of education and literacy in Estonia despite the complicated situation of our current educational policy.

Other places visited during the Science Day were the house museum of the Kapp family, the church and the cemetery of Suure-Jaani.

The Science Day was attended by the following Members of Academy: Jüri Engelbrecht, Ene Ergma, Ülo Jaaksoo, Ain-Elmar Kaasik, Arvo Krikmann, Georg Liidja, Udo Margna, Leo Mõtus, Erast Parmasto, Huno Rätsep, Peeter Saari, Arved-Ervin Sapar, Peeter Tulviste, Mihkel Veiderma.

On June 13, a public discussion on the topic: “Study programmes of the Estonian general education schools: current situation and future” was conducted by the Board of the Academy at the hall of the Institute of Technology of the University of Tartu. In his opening address President of the Academy Richard Villems emphasised the lack of communication and information in regard to national study programmes, for which the heated passionate declarations, widely disseminated by the media channels fail to provide practical remedy. The President also raised a question, whether a public discussion should always be conceived as a prerequisite for competence-based recommendations. The discussion among the Members of Academy served the aimed informative goal to obtain an actual picture of the issues and problems related to the programmes, the current situation, changes and future directions in the educational landscape.

A comprehensive report was delivered at the discussion by Counsellor to the Minister of Education and Research Urve Läänemets, who presented an overview on the state and progress as well as the time schedule of the organisation work concerning national curriculum, on contemporary requirements for schools in the environment of redundant information in combination with time deficit, on the general structure of the curriculum and the application programme (together with a wide scale presentation of the curriculum and in-service training), on the promotion of natural science subjects and information on the agenda of the conference of the IAACS (International Association for the Advancement of Curriculum Studies) in Tampere as well as the underrepresentation of Estonia at the conference. The speaker brought to the notice of the audience the current state of affairs, whereat new projects for the curriculum and subject syllabuses had been composed under coordination of the National Examinations and Qualification Centre supported by the academic competence of the University of Tartu, disclosed on the website and open for suggestions up to 1 July 2006. The following procedures would include expert assessment and making of the last necessary corrections and updates in order to enable the submission of the complete version to the Government in September. The new curriculum is planned to be implemented in September 2007.

Additionally to exchange of views on the significance of contemporary curriculum, the discussion dealt with questions concerning the necessity of appropriate school textbooks to respond to new requirements and the scarcity of competent textbook writers, also about the importance of co-operation between the scientists and teachers in the process of preparing study aids, about the involvement of a school student as an expert to the testing of

textbooks in the future. The participants of the forum had a discussion over the practical programmes of chemistry, physics, biology and other subjects under the common denominator of discovery study and about the creative freedom of a teacher to apply diversified study forms and methods within the obligatory curriculum. Furthermore, the participants of the seminar pondered on the organisation of the study programmes as an endless, time-consuming and future-oriented activity, closely integrated with the cultural background and the changing world.

At the closing the participants reverted to the subject of broad discussion and knowledge based decisions, raised in the opening address of Urve Läänemets, who forwarded to Members of Academy the proposal of the Ministry of Education and Research to participate in the expert assessment of study programmes and presented an idea about the establishment of an Institute for Study Programmes or a similar unit for further consideration. President of the Academy confirmed the professional interest of Members of Academy in co-operation in relation to the study programmes, subject syllabuses and preparation of textbooks. The discussion was attended by Members of Academy Anto Raukas, Viktor Palm, Georg Liidja and Richard Villems.

On September 20, the Estonian Academy of Sciences visited and introduced themselves to the activities of the Viru Keemia Grupp (at Kohtla-Järve) and held a joint discussion with enterprises producing the shale oil. In the first half of the day Chairman of the Board of the Viru Keemia Grupp Janek Parkman spoke about the structure, current state and development plans of the company and answered to the numerous questions of the Members of Academy. The visit included an excursion to VKG Oil AS, a subsidiary of the Viru Keemia Grupp, whose principal activity is the production of shale oil, phenol water and gas.

In the afternoon an exchange of views production was organised upon the initiative of the Academy on the topic of shale oil, where representatives of Narva Elektriijaamad AS, Kiviõli Keemiatööstuse OÜ and the Institute of Oil Shale had been invited in addition to the Viru Keemia Grupp. The discussion was moderated by Member of Academy Mihkel Veiderma.

Development Director of the Viru Keemia Grupp Jaanus Purga, Development Director of Narva Elektriijaamad AS Mati Uus and Managing Director of Kiviõli Keemiatööstuse OÜ Robert Karpelin characterised shortly the current situation of the shale oil production and the development plans for the next 10 years of the companies. It was acknowledged that the production of shale oil is economically efficient and there is an adequate market for the products. All three oil producers were planning the expansion of their production within the nearest decade on the basis of the existing technology (solid thermal transfer agent method). Expansion of the production however would only be possible through increasing the volume of oil shale excavation. That very fact specified

the direction of the following exchange of opinions. Members of Academy Anto Raukas, Leo Mõtus, Enn Mellikov, Peeter Tulviste and Loit Reintam touched upon divergent aspects related to the expansion of oil shale excavation: national and company interests, disposition of the media, opposition of the population, etc. Member of Academy Mihkel Veiderma pointed out as a summary that the option of expanding the volume of oil shale excavation called for a deeper analysis from the point of view of the optimal use of the reserves and the preservation of the environment with additional consideration of the whole spectrum of oil shale use (electricity, thermal energy and oil production) and integration with the development of the national energy sector as a whole.

The field-day was attended by: President Richard Villems, Vice-President Ain-Elmar Kaasik, Secretary General Leo Mõtus, Members of Academy Mihkel Veiderma, Enn Mellikov, Anto Raukas, Loit Reintam, Arved-Ervin Sapar, Peeter Tulviste – representing the Estonian Academy of Sciences; Chairman of the Board Janek Parkman, Development Director Jaanus Purga, Technical Director Rein Rahe – representing the Viru Keemia Grupp; Development Director Mati Uus – representing the Narva Elektriijaamade AS; Managing Director Robert Karpelin, Nikolai Kutašov – representing the Kiviõli Keemiatööstus OÜ; Priit Ploompuu, Harri Mikk, Alo Kelder – representing Eesti Energia; Jüri Soone – representing the Oil Shale Institute of Tallinn University of Technology.



## **RESEARCHERS' NIGHT 2006**

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In 2006 the European Researchers' Night was for the first time celebrated in Estonia. The project was co-ordinated by the Estonian Science Centre AHHA and co-partnered by the Estonian Academy of Sciences and the Estonian Television.

The Researchers' Night is a pan-European public event established upon the initiative of the European Commission, bringing together various scientific organisations – universities, academies, research centres, museums, laboratories and other academic institutions, wherein numerous scientific occasions and activities, presenting science and researchers in an attractive and amusing key, are held throughout one (day and) night.

Several activities were organised by the Academy in Tallinn:

The Researchers' Night at Tallinn Zoo: morning and evening strolls around the Zoo and a lecture about activities for the protection of species. Research activities at the Zoo were introduced in the speeches of Academic Secretary of the Zoo Tiit Maran and Madis Põder in the gallery for protection of species and the conservation grounds of the mink. "Night" excursions were arranged after the lecture.

The Researchers' Night at the Estonian Drama Theatre: the first reading of Andrei Hvostov's new spectacle "Henrik" under the direction of Raimo Pass. The reading was followed by a talk show upon the topic "He who remembers the past ...". Conversations were moderated by Member of Academy Peeter Tulviste, Head of the Division of the Humanities and Social Sciences of the Academy and attended by a journalist and historian Andrei Hvostov, an archaeologist Marika Mägi, historians Marek Tamm and Linda Kaljundi and Jaan Undusk, a literary critic and historian of culture.

The Researchers' Night at Tallinn City Theatre: "Genome" by Jaanus Rohumaa/Triin Sinissaar. The play was followed by a talk show in the company of Estonian gene researchers, dedicated to the miracle of life, theatre, rock'n'roll, God and Man – about all the things of vital importance, which are usually not discussed at lecture halls. The talk show was moderated by Jaan Tootsen of the Night University and attended by Professors Erkki Truve and Priit Kogerman of the Institute of Gene Technology at Tallinn University of Technology and Triin Sinissaar of Tallinn City Theatre.

A night excursion to Jäneda Musical Observatory in co-operation with the Nature Omnibus: a concert of astromusic was presented by Urmas Sisask, followed by a talk show on stars and music. The talk show was moderated by Jaan Riis (Manager of the Nature Omnibus) and Urmas Sisask and was

attended by Members of Academy Jaan Einasto and Arved-Ervin Sapar – both of them specialising in astrophysics.

Several events were organised by the AHHAA in Tartu, Rakvere and Narva and a special programme was presented on television by Estonian TV.

## **MEDALS, AWARDS, SCHOLARSHIPS**

### **MEDAL OF THE ACADEMY**

In 2006 the Medal of the Estonian Academy of Sciences for services to the Academy was awarded to

Member of Academy *Valdek Kulbach*

Foreign Member of Academy *Antero Jahkola*

Foreign Member of Academy *Els Oksaar* and

Professor *Mati Erelt*

### **MEMORIAL MEDALS OF THE ACADEMY**

The tradition of memorial medals of the Academy was started in 2004, when the first Karl Schlossmann medal was conferred for outstanding achievements in medicine and related areas. The first Paul Ariste medal (in social sciences and the humanities) and the first Nikolai Alumäe medal (in informatics and engineering) were conferred in 2005.

The Wilhelm Ostwald medal to acknowledge Estonian scientists with outstanding achievements in chemistry and related areas was added in 2006.



The first Wilhelm Ostwald medal (metal artist Margus Kadarik) was handed over to Member of Academy *Viktor Palm* at the annual meeting of the Academy.

### **LETTER OF APPRECIATION OF THE ACADEMY**

In 2006 the Letter of Appreciation of the Estonian Academy of Sciences was conferred to:

Academic Library of Tallinn University in connection with the 60th anniversary and for effective activities as a keeper of the word of science.

## SCHOLARSHIPS OF THE ACADEMY

In 2006 the Estonian Academy of Sciences assigned 4 scholarships by way of public competition for completion of monographic research works and popular science books. The Assessment Commission, chaired by Member of Academy Loit Reintam and including Members of Academy Hillar Aben, Ülo Lumiste and Haldur Õim, examined 11 applications received for the competition by the Academy. On the basis of the proposal of the Commission, the Board of the Academy assigned scholarships to the following researchers (Resolution of the Board of 13 June 2006, Minutes No. 7 § 32):

*Valdek Kulbach* (Member of Academy) – 20 000 kroons, for completion of the manuscript and publishing of the monograph “Design and Static Analysis of Different Cable Structures”. The manuscript has been handed over to Estonian Academy Publishers.

*Raimo Pullat* (Professor Emeritus of Tallinn University) – 20 000 kroons, for publishing of the work *Estonica* of Johann Christoph Brotze. The book appeared in 2006.

*Kristi Viiding* (University of Tartu) – 20 000 kroons, for completion and publishing of the anthology “Oo, Tartu, muusadele pühendatud linn (*O ergo Dorpat, urbs addictissima musis...*). Tartu humanistlik juhuluule 17. sajandil” (Humanist Occasional Poetry of Tartu in the 17th C) The anthology is practically edited and pursuant to an agreement with the Foundation of the Estonian Language the book is to be issued in the spring of 2007.

*Kuulo Kalamees* (Estonian University of Life Sciences) – 20 000 kroons, for completion of the popular science book “Estonian White-spored Agarics” (in Estonian). The text has been transferred into a computer file, requisite parts have been translated into English and drawings of the types of agarics have been prepared by the artist of the book.

## STUDENT RESEARCH PRIZES

On May 8, 2006 the Board of the Estonian Academy of Sciences announced a student research prize contest. 47 papers were received by the Academy within the established deadline, 22 of them were Master’s level theses and 25 Bachelor’s level theses. Speaking of educational institutions, the proportion of the universities of Tallinn had increased in comparison with the previous years – 14 papers were presented equally by the students of Tallinn University of Technology and Tallinn University, whereas 17 papers by the students of the University of Tartu. One paper derived from the Central European University and one from Private University Academy Nord.

The papers were examined by the appraisal board of the Academy including Members of Academy Georg Liidja (Chair), Arvo Krikmann, Udo Margna and

Enn Tõugu (the latter did not participate as member of the board in the appraisal of the paper of his supervision). Outside experts were involved in the appraisal process. The board decided at its session on 27 October to award four first prizes of EEK 5000 (net) value and fifteen second prizes of EEK 2600 (net) value.

The first prize of the Estonian Academy of Sciences was awarded to the following student papers:

*Pavel Grigorenko* (Tallinn University of Technology) Master's thesis "Attribute Semantics of Visual Languages" (in English, supervised by Member of Academy Enn Tõugu);

*Eero Heinloo* (University of Tartu) Bachelor's thesis "Southern Suburb of Tartu During Middle and Early Modern Ages Based upon Archaeological Information" (in Estonian, supervised by Lecturer Ain Mäesalu);

*Georgi Hudjashov* (University of Tartu) Master's thesis "Peopling of Sahul Evidence from mtDNA and Y-chromosome" (in English, supervised by Prof. Toomas Kivisild and Member of Academy Richard Villems);

*Anneli Veisson* (Tallinn University) Master's thesis "The Openness of Ethnic Identity in Estonia" (in English, supervised by Dr. Aune Valk).

The second prize was awarded to the following student papers:

*Kaili Anier* (University of Tartu) Master's thesis "Elaboration of HPLC-based Method for Determination of Activeness of Methyltransferase of Tiopurin in Estonian Population and Prediction of Medicine Interactions on the Basis of *in vitro* Experiments" (in Estonian, supervised by Associate Professor Uno Mäeorg and Dr. Kersti Oselin);

*Katre Kasemets* (Tallinn University) Master's thesis "The Rhetoric of Theatre Reviews in Estonian Daily Newspapers" (in Estonian, supervised by Associate Professor Reet Kasik);

*Kelli Keevend* (University of Tartu) competition paper "Elaboration of Precursors for Biomorphous Carbide Materials" (in Estonian, supervised by Master's candidate Martin Järvekülg, Doctoral candidate Valter Reedo and Head of Laboratory Ants Lõhmus);

*Eeva Kesküla* (Central European University) Master's thesis "'Is There a Moon in Estonia?' The Ethnic Identity of New Zealand Estonians" (in English, supervised by Prof. Prem Kumar Rajaram and Michael Stewart);

*Mairy Killing* (Tallinn University of Technology) Master's thesis "Frequency Patterns of Early Palaeozoic Chitinozoans: Scientific and Applied Aspects" (in English, supervised by Professor Emeritus Enn Pirrus, consulted by Senior Researcher Olle Hints);

*Kristel Kotta* (Tallinn University) Bachelor's thesis "Ideological Coercion and Supervision in Feature Film Creation of the Estonian SSR: The Prohibited Project "Mahtra sõda" ("The War of Mahtra") 1955-1959" (in Estonian, supervised by MA Ilmar Raag);

*Annika Paabut* (University of Tartu) Master's thesis "The Effects of Human Capital on Economic Growth" (in Estonian, supervised by Prof. Raul Eamets and Doctoral candidate Egle Tafenau);

*Merle Randrüüt* (Tallinn University of Technology) Master's thesis "Modelling of Deformation Waves in Microstructured Solids" (in English, supervised by Member of Academy Jüri Engelbrecht);

*Liis Rebane* (Tallinn University of Technology) Master's thesis "Applications of the Orbital Angular Momentum of Light for Imaging" (in English, supervised by Dr. Pearu Peterson and Prof. Juan P. Torres);

*Edith Soosaar* (Tallinn University of Technology) Master's thesis "Numerical Modeling of Upwelling Filaments in the Gulf of Finland" (in English, supervised by Dr. Urmas Raudsepp);

*Kairit Zovo* (Tallinn University of Technology) Master's thesis "Metal-binding Properties and Structure of Metal-thiolate Clusters of Epithelium-specific Metallothionein-4" (in English, supervised by Prof. Peep Palumaa);

*Kert Tamm* (Tallinn University of Technology) Master's thesis "Interactions of Deformation Waves in Microstructured Solids" (in Estonian, supervised by Prof. Andrus Salupere);

*Heli Valtna* (University of Tartu) Master's thesis "Experimental Realizability of Superluminally Propagating Localised Waves" (in Estonian, supervised by Member of Academy Peeter Saari and Dr. Kaido Reivelt);

*Lilian Vanem* (Tallinn University) Master's thesis "Estonian Phrasal Verbs and Their Russian Equivalents. Dictionary and Some Didactic Suggestions" (in Estonian, supervised by Prof. Anu-Reet Hausenberg);

*Mari-Liis Velberg* (Tallinn University) Master's thesis "Forum Theatre's Applicable Possibilities Through the Example of Schoolviolence Preventionwork" (in Estonian, supervised by Associate Professor Anne Tiko).

Research prizes together with corresponding diplomas were handed over at the Conference for the Winners of competition of student papers on November 21. Four prize winners delivered their papers at the conference.

## **PRIZE FOR POPULARISATION OF ESTONIAN SCIENCE**

The prize for popularisation of Estonian science was in 2006 for the first time conferred as a joint prize of the Estonian Academy of Sciences, the Archimedes Foundation and the Ministry of Education and Research. The prize is awarded by way of competition with the aim of calling attention to the popularisation of science and giving recognition for outstanding work to individuals and collectives, who have manifested remarkable performance in the popularisation of science, research achievements and the work of researchers as well as in making their world easier to understand for the public or who have efficiently attracted the interest of young people to research activities and to the profession of a scientist.

The board for the appraisal assessing of the submitted work at the competition included Member of Academy Georg Liidja, Member of Academy Ene Ergma, Adviser to the Ministry of Education and Research Sirje Kivi, Director of the School of Research at the University of Tartu Viire Sepp, representative of the Estonian Academy for Young Researchers Dmitri Terepik, Member of the Board of the Archimedes Foundation Ülle Must and Editor-in-chief of the daily *Maaleht* Peeter Ernits.

The first prize 2006 for popularisation of Estonian science was awarded to the Estonian Physical Society for their Research Bus “Ursa Major” and the Physics Minutes within the morning programme “Terevision” on Estonian TV (would be presented for candidacy in an appropriate category of the Descartes Communications Prize of the European Union).

The second prize in the category of printed matter was awarded to Rein Veskimäe and a collective of editors for a series of books on the Universe and to Ülo Valk and a collective of authors for a compendium composed of a handbook, text and sound anthology “From Folk Poetry to Internet Jokes”.

The second prize for science popularisation activities was awarded to the Astronomical Circle of Tartu Observatory working upon the initiative of Jaak Jaaniste.

The Board highlighted the projects of the Scientific Centre AHHA, a broadcast programme “Pähklipurejad” (Nutcackers) by Haridusmeedia OÜ, the versatile activities of Asko Lõhmus in popularisation of science in Estonia and the book series “Lehed ja tähed” (Leaves and Stars) by the NGO Loodusajakiri.

The competition was attended by 26 researchers and collectives, who had published books, made films, television productions, radio programmes, electronic newsletters, event and exhibition series as well as written series of articles for popularisation of science.

## **ESTONIAN ACADEMY OF SCIENCES FUND**

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The Estonian Academy of Sciences Fund was set up to the Estonian National Culture Foundation on May 1 with the aim of supporting the research work of Estonian researchers with a doctoral degree in conformity with the activities of the Estonian National Culture Foundation to support Estonian national culture in a wider context.

The start-up capital for this sub-fund of the Estonian National Culture Foundation was formed by a donation of the Academy in the amount of EEK 400,000, acquired from the sale of the Academy holiday home on the island of Vormsi.

With the help of the Foundation, the Academy aims to mobilize material resources with a view to pave the road to a knowledge-based society in Estonia. At the same time the Academy calls on other organisations, enterprises, institutions and individuals to enter into co-operation for the purpose of contributing to the economic, social and cultural development of Estonia today and in the future through specific measures – top-level knowledge, research activities and support to young scientists.

The first grants of the Estonian Academy of Sciences Fund will be conferred at the end of 2007.

An administrative council has been established on the proposal of the Academy for designation of grants, including Members of Academy Ain-Elmar Kaasik, Leo Mõtus, Jaan Ross and Peeter Saari.



## **PUBLICATIONS OF THE ACADEMY**

Published by the Academy in 2006 were

Books:

- “Estonian Academy of Sciences Year Book XI (38)” in Estonian\* and English\*;
- The tenth book in the series “National Science Prizes” (in Estonian), providing an overview of the award-winning scientists of 2006 and their research papers
- The third book in the series “Scientific Thinking in Estonia. Exact Sciences” (in Estonian)\*

The foreword to the book reads:

... Research objects of exact sciences – problems and even the language – are overly abstract and complicated, and the more theoretical-mathematical the domain, the more abstract its findings. So much so that even the colleagues, by specialty somewhat distant find it hard to understand the meaning and content of the research work done, to say nothing about people having majored in some other specialties at university or a wider public. When designing this volume and inviting the authors our vision was that articles should be written at least partly for the general reader, without entangling him in intricacies of the topic, that a compromise should be found between the report style and a popular science opus, resulting in reviews about what is being done and what has been achieved in exact sciences of the again independent Estonia, comprehensible to the most wider readership. More specifically, we visualize as addressees of this volume, besides the colleagues in exact sciences, representatives of other areas of research and all those, who are or should be, due to their job duties, interested in an integrated view of the situation of exact sciences in this country. ...

Brochures:

- “The Estonian Language of Science and Terminology – *Quo Vadis?*” (in Estonian)\* Proceedings of the seminar of the Estonian Academy of Sciences (28.02.2006), ISSN 1406-9148;
- “New Trends in Research. Complex Systems” (in Estonian)\* Proceedings of the seminar of the Estonian Academy of Sciences (1.11.2006), ISSN 1406-9148.

Scientific journals – cf. p. 98.

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\* In electronic format cf. <http://www.akadeemia.ee>

## **INTERNATIONAL SCIENTIFIC RELATIONS**

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The Estonian Academy of Sciences represents Estonia in several international organisations that bring together science community on issues that cross specialties, at the level of top researchers and science policy makers. In 2006 the Academy was actively involved with the following institutions.

Vice President Jüri Engelbrecht headed the ALLEA (European Federation of National Academies of Sciences and Humanities “ALL European Academies”) working group on research co-operation and submitted the final report at the General Assembly of ALLEA in Krakow. Jüri Engelbrecht was inaugurated as the new President of ALLEA for the years 2006-2009 at the General Assembly.

The European Academies’ Science Advisory Council (EASAC) consists of individual members authorised by the academies. Estonia is represented by Secretary General Leo Mõtus, who attended the meetings of the Council and participated in energy working group. The Academy nominated representatives to two more working groups: Senior Researcher Tanel Tenson of the University of Tartu to the WG on Antimicrobial Resistance (intended submission of the working group report is in spring 2007) and Chairman of the Academy Energy Council Mihkel Veiderma and Professor of Tallinn University of Technology Andres Siirde to the WG on EU Oil Shale Industry. The latter evolved from the energy WG and has completed its work in the main part, the report has been submitted to the European Parliament (ITRE committee) for hearing and discussions in March-April 2007.

In the European Science Foundation (ESF) the Academy works together with the Estonian Science Foundation (ETF). While payment of the membership fee is executed through the Academy, the ETF funds the participation in programmes. Common representatives of the Academy and the ETF act in the governing council and standing committees. Estonian researchers participated in 12 ESF Research Networking Programmes during 2006. The ETF has joined several ESF EUROCORES (*European Collaborative Research*) programmes that are currently at various preparatory stages. Applications of Estonian research groups were approved within the framework of two of them (EuroDIVERSITY and BOREAS) and their funding started in 2006.

In October an annual meeting of the European member academies – the fourth in succession – was convened by the International Council for Science (ICSU) in Paris. The strategic emphasis of the ICSU on global problems and the developing countries triggered a dispute on the role of the ICSU in Europe and deliberations over the need for co-ordination on the background of the diversity and specific features of pan-European scientific organisations. The meeting was attended by Vice-President Jüri Engelbrecht.

The International Union of Academies/Union Académique Internationale (UAI), incorporating the academies engaged in the so-called “soft” sciences and focusing its activities primarily on the humanities, held its 80th annual meeting in Brussels in spring. Head of the Division of Social Sciences and the Humanities Peeter Tulviste attended the meeting as the delegate of the Academy and moderated a session that addressed the issue of restoration the share of social sciences in the UAI.

The Academy continued to support the contacts of Estonian scientific community with international scientific unions, giving preference to member organisations of the ICSU. The Academy organised the payment of membership fees with the help of a targeted allocation from the Ministry of Education and Research and supplied the Ministry with a review on the activities of respective national committees (see the list in Appendix 2 p. 173). National committees disseminated information materials obtained from the original sources, attended conferences and symposia and organised them in Estonia within international series of events, participated in working groups, networks, research projects; recommended and nominated Estonian researchers to the steering bodies of international unions (as well as expert panels, as candidates for prize winners, etc.). To promote co-operation with the European Organisation for Nuclear Research (CERN) the Academy signed a Memorandum of Understanding with CERN in July and nominated Member of the Board Endel Lippmaa as its representative for the experiment TOTEM.

In common with other European academies, the Estonian Academy of Sciences supports and finances international mobility through a scientific exchange programme. Bilateral co-operation agreements (full list of partners is presented in Appendix 3 p. 175) serve as the formal basis for the exchange of scientists. In 2006 co-operation agreements were renovated (a new protocol was signed) with the Spanish Council for Scientific Research (CSIC), the Polish Academy of Sciences and the Hungarian Academy of Sciences. A prior call for joint projects was announced in all three cases. A new agreement was signed with the British Academy as well. The Academy acts upon the traditional cost-sharing principle (the receiving party covers the living costs in the host country) and gives preference over individual research to reciprocal visits within bilaterally accepted joint projects. The programme is supervised by the Council for International Exchanges, comprising representatives of the Divisions of the Academy and four main public universities – the University of Tartu, Tallinn University of Technology, the Estonian University of Life Sciences and Tallinn University.

In 2006 Estonian scientists made 190 study and conference visits using in total of 1409 days. At the same time 92 visiting scientists working at Estonian universities and research institutions in the total of 923 days were hosted by the Academy. Quantitative data as per partner by agreement have been presented in the following table.

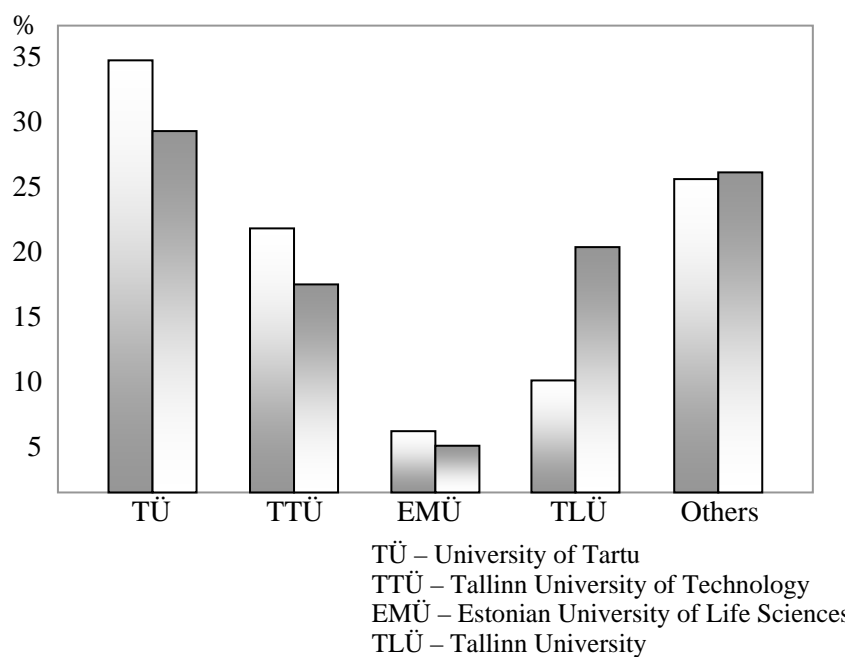
Exchange of scientists upon co-operation agreements of the Estonian  
Academy of Sciences in 2006

Foreign partner	Annual quota (number of days)	Trips to Estonia		Trips abroad	
		Number of trips	Number of days	Number of trips	Number of days
Austrian Ac.Sci.	56	2	29	1	4
British Academy	90	1	38	5	63
Bulgarian Ac.Sci.	86	5	57	7	53
Flemish Ac.Sci.	28	-	-	-	-
Spanish Council for Sci. Research (CSIC)	98	3	27	5	37
Israel Ac.Sci.	28	-	-	-	-
Lithuanian Ac.Sci.	75	10	46	10	54
Latvian Ac.Sci.	75	11	60	18	73
Montenegro Ac.Sci.	21	-	-	-	-
Norwegian Ac.Sci.	84	2	21	5	46
Polish Ac.Sci.	100	8	72	13	104
French Ac.Sci.		-	-	1	14
Royal Swedish Ac.Lett.Hist.&Ant.	28	-	-	4	27
Slovak Ac.Sci.	35	2	21	2	17
Slovenian Ac.Sci.		-	-	1	14
Academy of Finland	600	17	215	80	529
Swiss Ac.Sci.	60	-	-	1	21
Czech Ac.Sci.	70	7	66	6	47
National Ac.Sci. of Ukraine	50	1	38	3	54
Hungarian Ac.Sci.	203	16	148	18	170
National Ac.Sci. of Belarus	30	1	8	1	7
Russian Ac.Sci.	75	5	77	9	75
<b>TOTAL</b>	<b>1892</b>	<b>92</b>	<b>923</b>	<b>190</b>	<b>1409</b>

On the background of the record-shattering year 2005 the volume of inbound visits has notably decreased, still the number of receptions exceeds the average of the past 10 years by 7%. Fluctuation around the average is an inherent tendency of the dynamics characterizing the exchange of scientists and the absolute figures primarily depend upon large scientific events in Estonia. The total of 534.6 thousand kroons were expended to cover the living costs of visiting scientists. The amount of the outbound trips of Estonian researchers has also decreased to 6% less than the average of the previous 10 years. When analysing the changes per partner institutions, a significant decline in the number of visits to Finland (by 22% less as against the previous year) stands out beside regular deviations – a logical outcome of the stricter selection criteria introduced by the Academy for reduction of the so-called

library visits and for enhancement of actual collaboration. The Academy of Finland has nevertheless remained the leading partner for the exchange of scientists (followed by the Hungarian Academy of Sciences and the Polish Academy of Sciences).

The participation of researchers in the humanities and social sciences has been growing year by year, however in 2006 it remained at the same level as the previous year (53%). Estonian scientists can participate in the exchange programme irrespective of their institutional affiliation. For comparative data of the averages per larger Estonian universities for the last five years see the following figure. Among extra-university research institutions the opportunities for exchange have been eagerly used by the staff members of the Estonian Literary Museum – the intra-group share amounts to 46%. The same group includes the Institute of the Estonian Language, the Estonian Art Academy, the National Institute of Chemical Physics and Biophysics, Tartu Observatory, the National Institute for Health Development and several others, among them the Academy (incl. Under and Tuglas Literature Centre).



The average indicators for hosted visits (left columns) and outbound visits (right columns) during 2002-2006.

The co-operation of the Academy with institutions of the European Union as well as its participation in the EU structures has become noticeably more effectual. Vice-President Jüri Engelbrecht for instance, is a member of the

European Research Advisory Board (EURAB). He participated in the working groups and the Expert Review Group on the ERA-NET Scheme, whose final report was published in December 2006.

In 2006 the Estonian Academy of Sciences participated in three EU 6th Framework Programme projects. The Ministry of Education and Research authorised the Academy to represent the Ministry in the ERA-NET on Complexity, initiated for European co-ordination of national complexity research and training activities. The project is co-ordinated by the Engineering and Physical Sciences Research Council (EPSRC), Great Britain. Altogether 11 countries (Great Britain, Belgium, Denmark, Estonia, Greece, Hungary, Ireland, Italy, Holland, Portugal and Spain) participate as partners and two more (France and Germany) as observers. After a time-consuming phase of negotiations the project was launched on 1 September 2006 with the intended duration of 42 months.

The Academy participated as a partner in the SSA (Specific Support Action) project "Researchers' Night 2006", for greater detail see p. 50.

The Academy is a Bridgehead Organisation within the European Network of Mobility Centres ERA-MORE starting from 2004. The Mobility Centres provide information and advice on administrative and practical issues to mobile researchers moving across country borders either to work or study in another country. The Archimedes Foundation co-ordinates the Estonian network activities (publication of reference material, trainings and information days, conferences, etc.) that are up to April 2007 co-funded by the European Commission.

## **NATIONAL AWARDS TO MEMBERS OF THE ACADEMY**

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### **NATIONAL SCIENCE PRIZE**

Awarded by Ordinance of the Government of the Republic of Estonia, upon proposition by the Commission for National Science Prizes, no 113 of 16th February 2006.

FOR LONG-TERM ACHIEVEMENTS IN RESEARCH AND DEVELOPMENT



*Mihkel Veiderma*

Mihkel Veiderma has created a research laboratory of natural phosphates. He has been closely involved with the study and analysis of oil shale utilization as well as broader issues pertaining to the state and development of power industry, supervised the drawing of the first energy development plan of the newly re-established Republic of Estonia.

He has headed the Energy Council of the Estonian Academy of Sciences for a long-time period and participated in preparation of the national energy strategy. M. Veiderma is a highly valued expert in research, technology and environmental protection, possessing extensive knowledge.

He has made a significant contribution to the formation of Estonia's presidential institution in 1992-1994 and to the work of the Academic Council of the President of the Republic and the Sustainable Development Commission of the Government.

Beside research publications M. Veiderma has published articles on various topics related to the history of culture and science, has participated in the activities of scientific societies and publication of several works in the field of the Humanities. He has worked as Vice-President or Secretary General of the Estonian Academy of Sciences for 17 years (1988-2004).

#### NATIONAL SCIENCE PRIZE IN ENGINEERING

*Enn Mellikov* (head of collective), Mare Altosaar, Sergei Beresnev, Andres Öpik for the research work

“New Materials and Structures of Solar Elements“.

### **NATIONAL DECORATIONS TO MEMBERS OF THE ACADEMY**

Awarded by Resolution of the President of the Republic No. 976, of 6 February 2006

Order of the White Star 2nd class

Member of Academy *Jaak Aaviksoo*

Member of Academy *Richard Villems*

Order of the White Star 3rd class

Member of Academy *Mihhail Bronshtein*

Member of Academy *Ilmar Koppel*

Member of Academy *Arno Käärna*

Member of Academy *Cheslav Lushchik*

Member of Academy *Karl Rebane*

Order of the White Star 4th class

Member of Academy *Udo Margna*

Member of Academy *Enn Mellikov*

Member of Academy *Valdur Saks*

Member of Academy *Arved-Ervin Sapar*

Order of the National Coat of Arms 3rd class

Member of Academy *Peeter Tulviste*



## ANNIVERSARIES

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85



Member of Academy *Ülo Lepik*

Ülo Lepik was born on 11 July 1921 in Tartu.

He graduated from H. Treffner Gymnasium in 1940 and the same autumn enrolled as a student of the Faculty of Mathematics and Natural Sciences, the Department of Mathematics at the University of Tartu. His studies were suspended twice for the reason of war – in 1941-1942 Ülo Lepik worked as a primary school teacher in the parish of Pala, in 1944-1945 he was called to the German Army and ended his service in a prisoner-of-war camp. He succeeded to complete his studies at the University of Tartu in 1948, majoring in physics. Ülo Lepik has been a faculty member of the University of Tartu since 1947, having passed through a professional career from an assistant to a professor. He defended his candidate's thesis in 1952. He completed his doctoral work through 1956-1958 and defended his doctor's thesis in 1959 at Moscow University. Ülo Lepik was granted the Professorship in 1960.

During 1959–1990 he was Head of the Department of Theoretical Mechanics at the University of Tartu, from 1996 Professor Emeritus of the University of Tartu. In 1993 Ülo Lepik was elected Member of the Estonian Academy of Sciences.

Ülo Lepik is an internationally recognised scientist in the area of plasticity theory as well as the dynamics and optimisation of structures. The topic of his research work has extended to the domain of calculating elastic-plastic rods, plates and crusts. He has elaborated new calculation methods for the conditions of statistic and dynamic loads. A considerable part of his work is involved with optimum design of structures. Ülo Lepik has supervised one doctor's thesis and 12 candidate's theses. He has authored over 150 scientific articles, two monographs and co-authored several textbooks.

Member of Academy Lepik belongs to several international science organisations of his speciality; he has worked on the editorial board for the series "Physics. Mathematics" of the Proceedings of the Estonian Academy of Sciences for a long time and is an editorial board member of "Mathematical Modelling and Analysis", issued in Vilnius.

Ülo Lepik was awarded the 4th class Order of the National Coat of Arms in 1998 and the Medal of the Estonian Academy of Sciences in 2001.

On top of his professional occupations Member of Academy Lepik has always had a fancy for various forms of active recreation – kayaking and mountain hiking, swimming and skiing as well as for playing bridge in a good company.



Member of Academy *Arno Kõörna*

Arno Kõörna was born on 2 February 1926 in Tartu County.

His educational path started in the home borough – Nõo, which was the place of residence for several faculty members of the University of Tartu, who acted as mediators of the impact of the University as a spiritual centre of Estonia in all aspects and exerted a distinct impression on the course of Arno Kõörna's future life. He still remembers a certain composition written at the elementary school "What do I want to become?" and the chosen profession – a Professor. The future showed that his prediction came true. Regardless of the fact that the normal pattern of his young days and education were disrupted by the war, Arno Kõörna graduated from the Department of History and Linguistics of the University of Tartu in 1955, majoring in history and remained working at the university. At the same time he started the first scientific research into the history of Estonian economy. In his work Arno Kõörna followed the saying: he who knows not of the past, shall live without future, and delved into archival materials for years.

By 1961 he had completed a treatise concerning the economy of Estonia from the end of the 19th to the beginning of the 20th century, on the ground of the

thesis Arno Kõörna obtained the Candidate Degree in Economics. In 1970 he defended his doctoral dissertation in Economics on the subject of quality economics and was awarded the Professorship.

He was elected Member of the Estonian Academy of Sciences in 1972.

Member of Academy Kõörna has written about himself and communicated that his manhood was passed in research institutions and Universities as a scientist, administrator and faculty member. Over one third of the past century, however, his activities have been connected with the Academy as Director of the Institute of Economics, Scientific Secretary General, Vice-President and President in 1990-1994. Arno Kõörna has worked as a professor at EuroUniversity for years, and is Professor Emeritus now.

In research work he has studied industrial economics, besides history of economy, incl. economical problems of the quality of industrial production. Several omnibus volumes have appeared under his editorship on research results in economics, altogether he has authored over 300 scientific publications.

Member of Academy Kõörna has written about his thoughts on life and people in a book, published in 2002 under the title “A Servant of Prometheus” and narrating the story of a man, who cherishes the destiny, which has brought him to the service of science and herewith the humanity in the widest possible meaning. He has witnessed different times and developments of the society, has accepted inevitable factors making him and his compatriots walk the line between potentiality and impossibility during a politically complicated time and yet invariably abstaining from desertion of the humanity and generally accepted ethical principles. The same mentality applies to difficult circumstances of the past century as well as the more recent tendencies of the 21st century, which are according to the author sometimes shocking, but highly challenging on the whole. His utterly positive attitude towards the worldly things and people is the essential reason, which has helped Arno Kõörna maintain his inner and outer brilliance up to this day throughout times of contradiction.



Member of Academy *Viktor Palm*

Viktor Palm was born on 17 September 1926 in Tartu.

He studied at Nõmme Gymnasium in Tallinn, was evacuated and lived behind the front line of the USSR, served in the reserve regiment of the Estonian Corps until 1947, when demobilised by reason of enrolment to Tallinn University of Technology. In 1948 Viktor Palm continued his studies at Leningrad State University and graduated from the Department of Chemistry in 1952.

Since that time Viktor Palm's life has been integrated with the University of Tartu. He has worked at the Chair of Organic Chemistry in the positions of Senior Lecturer, Associate Professor and Head of the Chair-Professor. Viktor Palm is Professor Emeritus of the University of Tartu from 1994.

In 1956 Viktor Palm defended his Candidate's thesis and in 1966 his Doctoral thesis "Quantitative Research in the Reactive Capacity Sphere of Organic Compounds" in Moscow, at the Institute of Elementary Compounds of the Academy of Sciences of the USSR. In 1968 he got the Professorship in organic chemistry.

Viktor Palm was elected Member of Estonian Academy of Sciences in 1978.

The problem range of Viktor Palm's internationally renowned research work incorporates acid catalysis and super-acid environments, quantitative experimental and theoretical study of dependencies deriving from the structure of the reactivity and other characteristics of chemical compounds and from solvents, as well as chemical information technology, computer chemistry and statistical processing of data. He has also dealt with issues related to the methodology of science.

Viktor Palm has authored close to 200 scientific publications, including three monographs and one textbook. 15 Candidate theses have been defended under his supervision. In 1964 Viktor Palm established a new scholarly serial "Reactive Capacity of Organic Compounds". An English-language version of the journal under the title "Organic Reactivity" has been available since 1978.

Viktor Palm was awarded the Estonian Science Prize for long-term achievements in science in 1997. In 2002 the activity of Member of Academy Palm was recognised by the 4th class Order of the White Star. On top of his internationally acknowledged long-term research activities, Member of Academy Palm is equally honoured for his fervent struggle for the recovery of Estonian independence.



Member of Academy *Karl Rebane*

Karl Rebane was born on 11 April 1926 in Pärnu.

In 1947 he graduated from Tallinna Reaalkool (Tallinn Secondary Science School) and in 1952 from St. Petersburg State University, where he defended the candidate thesis in physics in 1955. Karl Rebane defended his Doctoral thesis in physics and mathematics at the Institute of Physics of the Belarus Academy of Sciences in 1964. He was awarded the Professorship in physics of theoretical and mathematical physics and physics of solids in 1968.

In 1961 Karl Rebane was elected Member of the Estonian Academy of Sciences, in 1976 Corresponding Member of the Academy of Sciences of the USSR (since 1992 the Russian Academy of Sciences) and in 1987 Member of Academy in optics. Karl Rebane is also Member of the European Arts and Sciences Academy (Salzburg) and Member of the European Academy (London).

In 1958-1968 Karl Rebane was a faculty member of the University of Tartu, teaching theoretical physics, organising and heading the Department of Experimental Physics. In 1976-1993 he organised together with the Institute of Physics and headed the Joint Chair of Laser Optics. Since 1956 his activities have been involved with the Estonian Academy of Sciences. He worked as

Senior Researcher and Deputy Director for Research at the Institute of Physics and Astronomy during 1956-1964, as Academician-Secretary of the Division of Physics, Mathematics and Engineering in 1964-1968, as Vice-President in 1968-1973 and President in 1973-1990. Karl Rebane was Director of Institute of Physics in 1973-1976, Head of Laboratory and Chief scientist in 1990-1992, Chief scientist of the Estonian Biocentre in 1993-1996. Karl Rebane is Professor Emeritus of the University of Tartu from 1994.

The main spheres of scientific work Karl Rebane has been occupied with in a broader sense are: theoretical physics as applied in optics and physics of solids; optical covers; secondary irradiation of impurity centres, zero-phonon lines as an optical analogue of Mössbauer  $\gamma$ -resonance line; persistent spectral hole burning and its applications; single impurity molecule spectroscopy; etc.

He has further published papers on issues relating to connections between philosophy and physics: problems of entropy pertaining to environmental conservation, to the search of extraterrestrial civilisations, the causality and free will in physics and the exposure of the contemporary world to high-tech terrorism.

Karl Rebane has authored about 300 titles of scientific publications. He has obtained Certificate on Discovery of hot luminescence together with Members of Academy Vladimir Hizhnyakov and Peeter Saari.

In 1965 Karl Rebane as a member of collective received the Estonian State Science Prize for the theory of impurity spectra of solids. In 1981 he was awarded the P.N. Lebedev Physics Golden Medal of the USSR Academy of Sciences for the achievements in physics. In 1996 he received, as member of a team the Estonian Science Prize for single molecule spectroscopy.

In 2001 he was awarded the Estonian Science Prize for long-term achievements in science. In 2006 he was awarded the 3rd class Order of the White Star.





Member of Academy *Ülo Lille*

Ülo Lille was born on 16 September 1931 to a farmer's family in Pärnu County.

In 1950 he graduated from Rapla Secondary School and in 1955 from the Department of Chemistry and Mining of Tallinn University of Technology. Thereafter he worked as a shift foreman and technologist in Kiviõli Oil Shale Chemistry Combine for two years. During 1957-1959 he passed through a postgraduate programme at Tallinn University of Technology and went to work as Senior Researcher at the newly established Oil Shale Institute in Kohtla-Järve.

In 1960 Ülo Lille defended his Candidate's thesis on oil shale pyrolysis. He pioneered the implementation of spectral methods in the research of shale oil composition and genesis. In 1973 Ülo Lille defended his Doctor's thesis in chemistry on the subject of alkylresorcines.

He has been working for the Institute of Chemistry of the Estonian Academy of Sciences (currently of Tallinn University of Technology) since 1975 in the successive positions of Head of Laboratory, Head of Department and Senior Researcher up to the present time. From 1992 Ülo Lille was simultaneously

holding the Professorship in Chemistry, since 1997 he has been Professor Emeritus of Tallinn University of Technology.

Ülo Lille has been supervising exploration into the chemistry of bioactive substances – prostaglandins. By virtue of the topical nature of their research object, the Institute had established extensive co-operation with several medical research centres in Estonia and the former USSR. The Institute's experimental plant launched the production of prostaglandins both by biochemical and fully chemical synthesis methods.

In 1983 Ülo Lille was elected Member of the Estonian Academy of Sciences. He was awarded the Estonian Science Prize for his works on the chemistry, technology and applications of prostaglandins in 1987.

11 Candidate's theses have been defended under Ülo Lille's supervision.

Ülo Lille has jointly with colleagues authored over 150 articles in refereed scholarly journals. Starting from 1993 Ülo Lille has been Chairman of the editorial board of the journal "Proceedings of the Estonian Academy of Sciences. Chemistry".

Ülo Lille was awarded the 5th class Order of the White Star in 2001.



Member of Academy *Arvo Ots*

Arvo Ots was born on 26 June 1931 in Pärnu.

In 1950 he graduated from Tallinna Reaalkool (Tallinn Secondary Science School) and in 1955 the Department of Mechanics of Tallinn University of Technology, majoring in heat engineering. Thereafter he worked until 1960 as Junior Researcher at the Energy Research Institute of the Estonian Academy of Sciences. In that period he also took a postgraduate programme, completed by defending his Candidates' thesis "Burning of Pulverised Oil Shale" in 1958. Arvo Ots defended his Doctoral thesis in 1968 at the Estonian Academy of Sciences and got the Professorship in 1969.

The research and academic activities of Arvo Ots have been involved with Tallinn University of Technology from 1960 up to now. Until 1968 he was Associate Professor of the Department of Heat Engineering, from that time on he has worked as Director and Professor of the Department of Heat Engineering and the Institute of Heat Engineering. Arvo Ots has been extraordinary Senior Researcher at Tallinn University of Technology since 2003.

Arvo Ots was elected Member of the Finnish Academy of Technology in 1966 and Member of the Estonian Academy of Sciences in 1983.

Several doctoral and candidate's theses have been defended under his supervision. Arvo Ots has authored nearly 350 scientific articles, three monographs, and several textbooks. He is a co-author of a comprehensive handbook on heat engineering.

The research activities of Arvo Ots have been related to the study of steam boilers of thermal power plants. The main results of his investigation include: formation of a theory concerning polyfractional constant volume combustion of fuels; explication of the effect of a thermal boundary layer on transmission of irradiation heat in a furnace; determination of the corrosive-erosive wear of steam generator heating surfaces and the state of metal in the conditions of flash cooling.

In 1981 Arvo Ots was awarded the title of Merited Scientist. In 2002 his work was recognized with the 4th class Order of the White Star and in 2006 with the title of Engineer of the Year 2005.

Together with his colleagues he has twice been awarded the Estonian Science Prize for their works: "Utilization of Estonian Oil Shale at Power Plants" in 1970 and "Corrosive-erosive Wear of Steam Generator Heating Surfaces" in 1980.

At leisure time, away from work and everyday routine, Member of Academy Arvo Ots enjoys listening to the music (he has an impressive collection of music recordings) or involves himself heartily in sports, preferably skiing and orienteering.



Foreign Member of Academy *Els Oksaar*

Els Oksaar was born on 1 October 1926 in Pärnu.

In 1944 she graduated from the Second Girls Gymnasium of Pärnu. She majored in Germanic, Anglistic and Slavic Studies at Stockholm University, studied general linguistics, phonetics and communicational science at Bonn University and graduated from Stockholm University in 1950.

In 1958 Els Oksaar obtained her PhD degree in the semantics of German from Stockholm University. She worked at the same university as Assistant Professor and Professor Extraordinary of German and German literature, while holding the office of the Head of the Sociology and Political Linguistics Department.

At the same time she was Visiting Professor at Hamburg University during 1965-1966, from 1967 Professor of General and Comparative Linguistics – a position newly established with Hamburg University, and Head of the first Research Centre of Multilingualism and Language Contacts in Germany. In 1997 Els Oksaar was Visiting Professor of Canberra University.

In 1988-1994 Prof. Oksaar belonged to the composition of Higher Council of Science Experts of Germany in the position of an adviser to the Government in the issues of science and higher education.

The directions of research of Els Oksaar embrace theoretical and practical aspects of linguistics, the Estonian language, grammar of German and Swedish. She has been a pathfinder in several areas of linguistics: semantics, sociolinguistics, psycholinguistics, pedolinguistics, language contacts, multilingualism and intercultural communication.

Scientific conclusions of this linguist of international renown are based on long-term labour-intensive projects, e.g. during the project of bilingualism of 12 year duration that was concluded in 1980, the Estonians in Sweden, Australia, Canada and the USA, and the Germans in Sweden and Australia were studied.

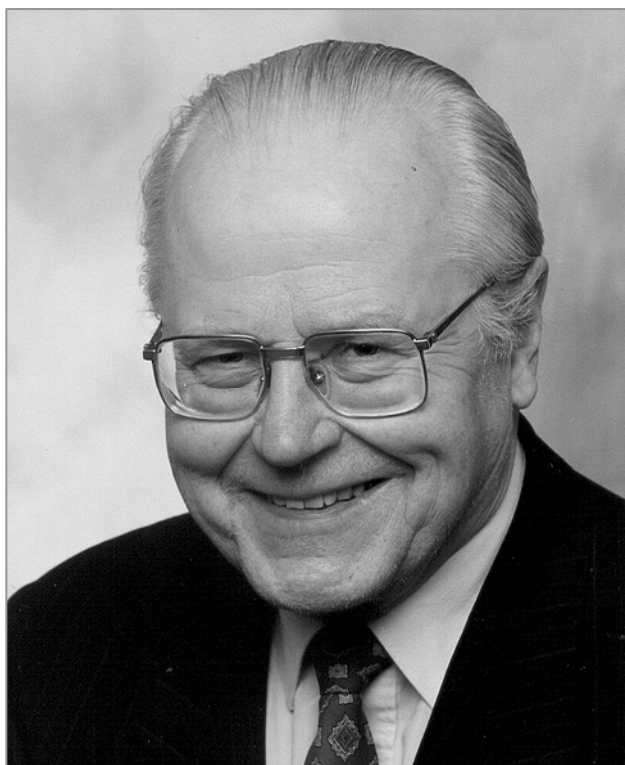
Els Oksaar has authored over 350 publications, incl. books and monographs and she sits on editorial boards of several German and international scholarly journals. Her research effort and performance have brought her celebrity throughout the whole world.

Closer co-operation of Professor Oksaar with Estonian scientists and faculty members evolved at the end of the 1980s, when she was delivering lectures at the University of Tartu. A cross-culture communication centre was established at the University upon her initiative.

In 1998 Els Oksaar was elected Foreign Member of the Estonian Academy of Sciences.

She is also Foreign Member of the Academy of Finland and the Academy of Sciences of Norway, Vice-President of Joachim Jungius Academy of Sciences (Germany), Doctor Honoris Causa of Helsinki University, Linköping University and the University of Tartu, a laureate of several Swedish and German science prizes and the largest international award for Germanic Studies – the Konrad-Duden-Preis.

Els Oksaar was awarded the 4th class Order of the White Star in 2001.



Foreign Member of the Academy *Antero Jahkola*

Antero Jahkola was born on 5 February 1931 in Korpilahti, Finland.

In 1956 he graduated from Helsinki Technical University as a certified engineer in power industry. After graduation he worked at Imatran Voima OY as an engineer and Deputy Head of the Planning Department. In 1957-1963 Antero Jahkola was also Researcher at the Laboratory of Power Installations of Helsinki Technical University and in 1971-1974 Alternate Professor of Energy Economics and Power Installations.

Starting from 1974 he has been Professor and Head of Laboratory at the same institution. Antero Jahkola has been Professor Emeritus since 1995, however he is proceeding with his research activities at the Laboratory of Energy Economics and Power Installations at the present time.

Antero Jahkola's scientific work is related to the combustion and gasification of solid fuels and the economics of the heat schemes of power installations. He has authored over 150 scientific publications in that area and obtained 2 patents.

Antero Jahkola has had close contacts with Tallinn University of Technology and Estonian Academy of Sciences since 1970. He has frequently delivered

papers in Tallinn, participated in joint research, organised energy related Finnish-Estonian joint seminars and scientific conferences, dedicated to the EU energy policy and its application in the Baltic countries. Antero Jahkola has been member of the Joint Estonian-Finnish working group on power industry since its foundation in 1991 and is the present Chairman for the Finnish side.

In 1998 he was elected Foreign Member of the Estonian Academy of Sciences.

Antero Jahkola is Member of the Finnish Academies of Technology, New York Academy of Sciences, the Finnish Union of University Professors, member of several Finnish as well as international professional unions and Doctor Honoris Causa of Tallinn University of Technology.

He was awarded the 3rd class Order of Merit Terra Mariana Cross in 2004.





Foreign Member of the Academy *Päiviö Tommila*

Päiviö Tommila was born on 4 August 1931 in Jyväskylä, Finland.

He majored in history at Helsinki University and defended his Doctoral thesis in 1964. During 1965-1976 he was Professor of History and Head of the Department of History at the University of Turku, thereafter he worked at Helsinki University as Professor of the History of Finland, Dean of the Department of History and Philology and Rector for the period of 1988-1992. He is Professor Emeritus of Helsinki University since 1994.

Although Päiviö Tommila has dealt with several aspects of the history of Finland, his scientific work is mainly related to the history of culture and science. Päiviö Tommila is the author or senior editor of over fifty works. Several major projects of research in the history of Finland have been carried out under his supervision, resulting in the publication of an impressive set of serial issues dedicated to the history of Finnish culture (3 volumes: 1979-1982), urban institution (3 volumes: 1981-1984), the press (10 volumes: 1985-1992), rulers (2000) and science (4 volumes: 2000-2003).

Päiviö Tommila has held working relations with Estonian historians from the beginning of the 1970ies, closer co-operation was developed with the Institute

of History of the Academy and the University of Tartu. Estonian historians were given the opportunity to attend history symposiums on the history of the Baltic Sea area, held in Turku during 1971-1988, largely by virtue of Päiviö Tommila's mediation. Close co-operation between the researchers of the of Finnish and Estonian press history ranged from personal contacts to organisation of joint seminars.

Päiviö Tommila has been Member of the Finnish Academy on Sciences and Letters since 1970. He is the initiator of the establishment of the Estonian Foundation in Finland and one of the founders of Tallinn Training Centre ESKO of that Foundation. His notably fruitful activities in the development of Finnish-Estonian collaborative research have extended to this day.

Päiviö Tommila was elected Foreign Member of the Estonian Academy of Sciences in 1991.

In 2001 he was awarded the 3rd class Order of Merit Terra Mariana Cross.

In 2004 Professor Tommila was bestowed with the highest honour accorded to Finnish scientists – the honorary title of Academician.

Päiviö Tommila has managed to uphold the alertness of his researcher's mind, overwhelmingly absorbed in interpreting of the past, by means of fascinating hobbies – photography, philately and medal collecting.



Foreign Member of the Academy *Charles Gabriel Kurland*

Charles Gabriel Kurland was born on 14 January 1936 in New York.

He graduated from Cornell University, majoring in biochemistry, obtained his Doctor's degree from Harvard in 1961 and passed a post-doctorate programme with Copenhagen and Stanford Universities. His first professorship was passed in Wisconsin during 1968-1971, thereafter he was elected the first Professor of Molecular Biology in Sweden (and Scandinavia), worked for a long-term period as Head of the Institute of Molecular Biology at Uppsala University and Head of the Genome Centre of Lund University. Charles G. Kurland has been Professor Emeritus of Uppsala University since 2001. He is carrying on his research activities at the Division of Microbiological Ecology of the Natural Sciences Department at Lund University.

Charles G. Kurland's scientific works belong to the sphere of molecular biology, wherein investigation of the translation accuracy of the ribosomal structure and genetic code form an outstanding episode. The current conception of molecular mechanisms allowing the translation accuracy of the genetic code was elaborated by him simultaneously with Hopefield. He also provided a qualitative and quantitative explanation to biological implications of that pro-

cess. Through the latest decade, inspired by the new trends of molecular biology of bacteria, he has set to research the development of endoparasitic bacteria and cell organelles.

One of the authors of the appeal, launched by the European Molecular Biology Organization on the issues of genetically modified organisms and the public, Professor Kurland is among other activities engaged in the presentation and clarification of the goals, achievements and hazards of scientific research. Charles G. Kurland has authored over 170 scientific publications and belongs to the most frequently cited natural scientists of the world.

A possibility to conduct their fellowship program with Professor Kurland enabled young Estonian scientists in the 1970ies to establish contacts for world-wide collaboration. Upon his recommendation several Estonian molecular biologists were provided with an opportunity for professional development at renowned research laboratories in the USA, England, Germany and Sweden.

In 1991 Charles G. Kurland was elected Foreign Member of the Estonian Academy of Sciences.

Charles G. Kurland is Foreign Member of the Danish Academy of Sciences and the Swedish Academy of Sciences, member of the European Molecular Biology Organization and multiple-period chairman of commissions, Vice-Chairman of the Swedish Natural Sciences Foundation, Member of the Royal Swedish Society of Sciences in Uppsala, Member of the Royal Physiographic Society in Lund as well as a laureate of numerous academic awards and prizes.

More anniversaries in 2006:

65th anniversary

15 December – Member of Academy *Leo Mõtus*

16 December – Member of Academy *Raimund-Johannes Ubar*

60th anniversary

21 June – Foreign Member of Academy *Michael Godfrey Rodd*

## MEMBERS OF THE ACADEMY

As of February, 2007

**Olav AARNA**, born 4.11.1942, elected 1990, informatics. Tallinn University of Technology 1965. Riigikogu (Parliament); Lossi plats 1a, 15165 Tallinn ESTONIA, Tel: +372 631 6480, Fax: + 372 631 6485, E-mail olav.aarna@riigikogu.ee. HOME ADDRESS Nooruse 1-45, 76901 Tabasalu, Harku vald, Harju maakond ESTONIA, Tel: +372 603 2060. Widower, three sons and a daughter.

**Jaak AAVIKSOO**, born 11.01.1954, elected 1994, exact sciences. University of Tartu 1976. Professor of Optics and Spectroscopy, University of Tartu (1992); Tähe 4. 51010 Tartu ESTONIA, Tel: +372 737 6737, Fax: +372 737 5858, E-mail: jaak.aaviksoo@ut.ee. HOME ADDRESS Tähe 91a-7, 50107 Tartu ESTONIA, Tel: +372 734 9000. Married, two sons and a daughter.

**Hillar ABEN**, born 3.12.1929, elected 1977, mechanics. Tallinn University of Technology 1953. Head of the Laboratory of Photoelasticity, Institute of Cybernetics at Tallinn University of Technology (1987); Akadeemia 21, 12618 Tallinn ESTONIA, Tel: +372 620 4180, Fax: +372 620 4151, E-mail: aben@cs.ioc.ee. HOME ADDRESS Hiiu-Maleva 30-2, 11619 Tallinn ESTONIA, Tel: +372 657 2407. Married, two sons.

**Mihhail BRONSHTEIN**, born 23.01.1923, elected 1975, agricultural economics. St. Petersburg State University 1949. Professor emeritus, University of Tartu (1993). HOME ADDRESS Kolde pst 104-44, 10316 Tallinn ESTONIA, Tel: +372 5662 9275. Widower, a son and a daughter.

**Jaan EINASTO**, born 23.02.1929, elected 1981, astrophysics. University of Tartu 1952. Senior Researcher, Department of Cosmology, Tartu Observatory (2004); 61602 Tõravere, Tartu maakond ESTONIA, Tel: +372 741 0110, Fax: +372 7 410 205, E-mail: einasto@aai.ee. HOME ADDRESS Observaatoriumi 6-3, 61602 Tõravere, Tartu maakond ESTONIA, Tel: +372 741 0151. Widower, a son and two daughters.

**Jüri ENGELBRECHT**, born 1.08.1939, elected 1990, mechanics. Tallinn University of Technology 1962. Vice-President, Estonian Academy of Sciences (2004); Kohtu 6, 10130 Tallinn ESTONIA, Tel: +372 644 2013, Fax: +372 645 1805, E-mail: J.Engelbrecht@akadeemia.ee. HOME ADDRESS Trummi 34J, 12617 Tallinn ESTONIA, Tel: +372 672 6045. Married, a son and a daughter.

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\* Organisations are presented according to their current names.

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**Raimund HAGELBERG**, born 7.02.1927, elected 1981, economics. Tallinn University of Technology 1950. Professor emeritus, University of Tartu (1995). HOME ADDRESS Uus-Tatari 16-39, 10134 Tallinn ESTONIA, Tel: +372 646 1253, E-mail: hage@hot.ee. Widower, a daughter.

**Vladimir HIZHNYAKOV**, born 25.05.1938, elected 1977, physics. University of Tartu 1960. Senior Researcher, Institute of Physics at University of Tartu (2004); Riia 142, 51014 Tartu ESTONIA, Tel: +372 738 3017, Tel/Fax: +372 737 5570, Fax: +372 738 3033, E-mail: hizh@fi.tartu.ee. HOME ADDRESS Aardla 154-6, 50415 Tartu ESTONIA, Tel: +372 747 5290. Married, a son and two daughters.

**Ülo JAAKSOO**, born 16.04.1939, elected 1986, informatics. Tallinn Tallinn University of Technology 1962. Chief Executive Officer, Cybernetica AS (1997); Akadeemia tee 21, 12618 Tallinn ESTONIA, Tel: +372 639 7991, Fax: +372 639 7992, E-mail: ulo.jaaksoo@cyber.ee. HOME ADDRESS Trummi 30N, 12617 Tallinn ESTONIA, Tel: +372 672 6009. Married.

**Jaak JÄRV**, born 05.11.1948, elected 1997, natural sciences. University of Tartu 1972. Professor of Organic Chemistry, University of Tartu (1992); Jakobi 2, 51014 Tartu ESTONIA, Tel: +372 737 5246, Fax: +372 737 5247, E-mail: jaak.jarv@ut.ee. HOME ADDRESS E. Wiiralti 1, 51011 Tartu ESTONIA. Married, a son and two daughters.

**Ain-Elmar KAASIK**, born 2.08.1934, elected 1993, neurology. University of Tartu 1959. Vice-President, Estonian Academy of Sciences (2004); Kohtu 6, 10130 Tallinn ESTONIA, Tel: +372 645 2528, Fax: +372 645 2742; Nooruse 1, 50411 Tartu ESTONIA, Tel: +372 697 7452, E-mail: Ain-Elmar.Kaasik@akadeemia.ee. HOME ADDRESS Ülase 14, 50412 Tartu ESTONIA, Tel: +372 742 5426. Married, a son.

**Dimitri KALJO**, born 12.10.1928, elected 1983, geology. University of Tartu 1953. Head of the Department of Basic Research, Institute of Geology at Tallinn University of Technology (1990); Ehitajate tee 5, 19086 Tallinn ESTONIA, Tel: +372 620 3016, Fax +372 620 3011, E-mail: kaljo@gi.ee. HOME ADDRESS Raja 7A-6, 12616 Tallinn ESTONIA, Tel: +372 672 6551. Married, a son and a daughter.

**Harald KERES**, born 15.11.1912, elected 1961, theoretical physics. University of Tartu 1936. Professor emeritus, University of Tartu (2000). HOME ADDRESS L. Koidula 6, 51006 Tartu ESTONIA, Tel: +372 742 2383. Widower, two daughters.

**Ilmar KOPPEL**, born 16.01.1940, elected 1993, natural sciences (physical chemistry). University of Tartu 1963. Research Professor, Institute of Chemical Physics, University of Tartu (2005); Jakobi 2, 51014, Tartu ESTONIA, Tel: +372 737 5263, Fax: +372 737 5264, E-mail: [ilmar@chem.ut.ee](mailto:ilmar@chem.ut.ee). HOME ADDRESS Kaunase pst 16-10, 50704 Tartu ESTONIA, Tel: +372 748 4351. Married, a son.

**Arvo KRIKMANN**, born 21.07.1939, elected 1997, the humanities. University of Tartu 1962. Senior Researcher, Estonian Literary Museum (2000); Vanemuise 42, 51003 Tartu ESTONIA, Tel: +372 742 0079, Fax: +372 742 0426, E-mail: [kriku@folklore.ee](mailto:kriku@folklore.ee). HOME ADDRESS Kastani 59-2, 50410 Tartu ESTONIA, Tel: +372 742 0079. Married, three sons.

**Lembit KRUMM**, born 20.07.1928, elected 1987, energetics. Tallinn University of Technology 1952. Tallinn University of Technology, Institute of Electrical Power Development (2004); Ehitajate tee 5, 19086 Tallinn ESTONIA Tel: +372 620 3759, [krumm@starman.ee](mailto:krumm@starman.ee) HOME ADDRESS Trummi 4-19, 12616 Tallinn ESTONIA, Tel: +372 672 6513. Married, two sons and two daughters.

**Valdek KULBACH**, born 6.04.1927, elected 1986, mechanics. Tallinn University of Technology 1951. Professor emeritus, Tallinn University of Technology (1998); Ehitajate 5, 19086 Tallinn ESTONIA, Tel: +372 620 2408, Fax +372 620 2405, E-mail: [valdek.kulbach@ttu.ee](mailto:valdek.kulbach@ttu.ee). HOME ADDRESS Rõõmu 14-9, 10921 Tallinn ESTONIA, Tel: +372 677 8207. Married, two daughters.

**Arno KÖÖRNA**, born 2.02.1926, elected 1972, economics. University of Tartu 1955. Professor emeritus, Eurouniversity (2005); Mustamäe tee 4, 10621 Tallinn ESTONIA, Tel/Fax: +372 650 5120. HOME ADDRESS A. Kapi 9-22, 10136 Tallinn ESTONIA, Tel: +372 662 0628, E-mail: [arno.koorna@mail.ee](mailto:arno.koorna@mail.ee). Married, a son and a daughter.

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**Hans KÜÜTS**, born 20.12.1932, elected 1994, agricultural sciences. Estonian University of Life Sciences 1956. Senior researcher, Jõgeva Plant Breeding Institute (1999); Aamisepa 1, 48309 Jõgeva alevik, Jõgeva maakond ESTONIA, Tel: +372 776 6914, Fax: +372 776 6902, E-mail: [ylle.tamm@jpbi.ee](mailto:ylle.tamm@jpbi.ee). HOME ADDRESS Tihase 11, 48309 Jõgeva alevik, Jõgeva maakond ESTONIA, Tel: +372 772 1375. Married, three daughters.



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**Ülo LEPIK**, born 11.07.1921, elected 1993, mechanics. University of Tartu 1948. Professor emeritus, University of Tartu (1996); J. Liivi 2-426, 50409 Tartu ESTONIA, Tel: +372 737 5443, E-mail: ulo.lepik@ut.ee. HOME ADDRESS Lunini 3, 50406 Tartu ESTONIA, Tel: +372 738 0023. Married, two sons and a daughter.

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**Viktor PALM**, born 17.09.1926, elected 1978, organic chemistry. St.Petersburg State University 1952. Professor emeritus, University of Tartu (1994). HOME ADDRESS Mõisavahe 22-10, 50707 Tartu ESTONIA, Tel: +372 748 8584, E-mail: viktor.palm@ut.ee. Married, a son and a daughter.

**Erast PARMASTO**, born 23.10.1928, elected 1972, botany. University of Tartu 1952. Extraordinary senior Researcher, Institute of Agricultural and Environmental Science, Estonian University of Life Sciences (1991); Riia 181, 51014 Tartu ESTONIA, Tel: +372 738 3027, Fax: +372 738 3013, e.parmasto@zbi.ee. HOME ADDRESS Uus 3-85, 50603 Tartu ESTONIA, Tel: +372 740 2772. Married, two sons and three daughters.

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**Anto RAUKAS**, born 17.02.1935, elected 1977, geology. University of Tartu 1958. Professor, Estonian Maritime Academy (1993); Mustakivi 25, 13912 Tallinn ESTONIA, Tel: +372 501 1827, Fax: +372 631 2074, E-mail: anto.raukas@mail.ee. HOME ADDRESS Trummi 32N, 12617 Tallinn ESTONIA, Tel: +372 672 6031. Married, two daughters.

**Karl REBANE**, born 11.04.1926, elected 1961, theoretical physics. St. Petersburg State University 1952. Professor emeritus, University of Tartu (1993); Institute of Physics at University of Tartu, Riia 142, 51014 Tartu ESTONIA, Tel: +372 742 8159, +372 742 8882, Fax: +372 738 3033, E-mail: rebanek@fi.tartu.ee. HOME ADDRESS Sihi 7, 50411 Tartu ESTONIA, Tel: +372 738 0347. Widower, a son and a daughter.

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## ESTONIAN ACADEMY PUBLISHERS

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Address: Kohtu 6, 10130 Tallinn, ESTONIA  
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Director: Ülo Niine, Tel: +372 645 4504, Fax +372 646 6026  
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In 2006 Estonian Academy Publishers continued issuing ten peer-reviewed scientific journals, indexed and abstracted in international review publications and databases. The Publishers' main mission has been to maintain a high standard as regards the contents of journals, their typographic performance, timely release and availability of the electronic version alongside with the hard copy for all journals.

In 2006 the journals were issued in the following volume:

Title	Number of issues per year	Total volume in printed sheet
Proceedings of the Estonian Academy of Sciences	20	103.0
whereof the series		
Biology. Ecology	4	22.5
Physics. Mathematics	4	16.0
Geology	4	20.0
Chemistry	4	14.5
Engineering	5*	30.0
Oil Shale	4	25.0
Linguistica Uralica*	4	20.0
Trames	4	24.3
Acta Historica Tallinnensia	1	14.5
Estonian Journal of Archaeology	2	10.5
<b>Total</b>	<b>35</b>	<b>182,8</b>

\* Number 3 in the series of Engineering appeared as a double issue 3-1 and 3-2, one of them as a special issue.

The impact of Estonia in the scene of world research is formed by the publications of our scientists in international scientific journals, scientific conferences held in Estonia and scientific journals issued in Estonia. All the components appear as essential aspects of science for each country. Issuing of scientific journals means active participation in international scientific communication.

The journals issued by the Publishers are predominantly in English, providing presentation of the results of works published therein at the same time to the Estonian scientific community and worldwide to the scientific public of other countries, offering thus an opportunity for collaborating to every person desirous to do so, both in the homeland and abroad. The journals are internationally peer-reviewed and they are recognised as such by the Estonian Science Foundation and the Science Competence Council. All the titles are electronically available at the website of Estonian Academy Publishers and through mediation of the electronic publishers EBSCO and C.E.E.O.L. Starting from 2006 the website of the Publishers offers free access to full texts of all the articles of the journals.

The articles in the journals are reflected in numerous international databases. The series “Physics. Mathematics” has been rated as a “recognised journal” by the European Union of Physics for the following 5-year period as well. The series “Biology. Ecology” and “Geology” have been included in the ISI database Thomson Scientific Master Journal List. The journal “Oil Shale” has been included in the ISI database Web of Science for several years.

The impact factor is currently representing a vital quality indicator of scientific journals. The impact factor shows the ratio of the number of citations published in one year (in all Web of Science journals) to the number of articles of the journal published in two previous years. Hundreds of scientific journals with impact factor less than 0.1 are issued in the world, thousands of them have impact factor less than 1 (e.g. in Thomson ISI Web of Science there are hundreds of journals, whose impact factor is less than 0.1). The impact factor 1 is regarded as fairly good and from 2 up – as very good. The impact factor for the Proceedings of the Estonian Academy of Sciences in the previous two years has been as follows:

	2005	2006
Biology. Ecology	0,320	0,280
Chemistry	0,064	0,181
Engineering	0,286	0,109
Geology	0,172	0,225
Physics. Mathematics	0,520	0,350

Several special issues were released in 2006, which is an internationally acknowledged way to publish the materials of international conferences and giving an opportunity to document in a compact manner the results of research work concerning some problems related to Estonia. Special issues are of high interest to the authors and readers alike. The following special issues were released:

Biology. Ecology, no. 2: Special issue on effects of industrial wastes on forest. Guest editor Malle Mandre, Estonian University of Life Sciences.

Physics. Mathematics, no. 3: Special issue on trilinear forms in Hilbert space and other topics. Materials of an international colloquium at the University Lund. Guest editors M. Cwikel, J. Peetre, S. Silvestrov.

Geology, no. 2: Special issue on the Baltic Ordovician and Silurian. Guest editor D. Kaljo, Tallinn University of Technology.

Chemistry, no. 2: Special issue on polymer science. Guest editor A. Öpik, Tallinn University of Technology.

Engineering, no. 2: Special issue on polymer science. Guest editor A. Öpik, Tallinn University of Technology.

Engineering, no. 3–2: Special issue on electronics: selected topics of the 10th Baltic Electronics Conference BEC2006. Guest editor M. Min, Tallinn University of Technology.

Engineering, no. 4: Special issue on engineering materials and tribology, BALTMATTRIB-2006. Guest editor P. Kulu, Tallinn University of Technology.

The demand for special issues is larger than the Publishers can offer.

The journals are released by the Estonian Academy of Sciences in cooperation with public law universities. The editorial as well as advisory boards of the journals are essentially constituted of scientists working for the universities. Therefore the release of journals may be considered as a joint venture of the whole Estonian scientific community. The same pertains to the authorship of the journals, whereat all larger Estonian universities as well as several foreign scientists are involved. The share of foreign scientists has steadily grown, appearing as a token of recognition to the journals.

In total the five series of the journal “Proceeding of the Estonian Academy of Sciences” in 2006 comprised 126 articles by 353 authors from:

	No. of authors %	
Tallinn University of Technology	114	32.0
University of Tartu	53	15.0
Tallinn University	2	0.6
Estonian University of Life Sciences	34	9.6
Institute of Chemical Physics and Biophysics	11	3.1
Other institutions in Estonia	6	1.7
Abroad	133	38.0
Total	353	100.0

All in all 42 pieces of writing, incl. 17 scientific researches, 14 reviews, 11 overviews and miscellaneous pieces of information, etc. appeared in the journal “Linguistica Uralica” in 2006. The total of 16 contributions came from Estonia, of them 10 from Tartu and 6 from Tallinn. 26 contributions derived from the Finno-Ugrian research centres in Russia (from Mari 10, Komi 5, Udmurt 3, Mordvin 3, Karelia 1, Khanty autonomous district 1, Tomsk 1, Novosibirsk 1 and Moscow 1). Other submissions were from Finland – 3, Hungary – 1 and Italy – 1.

Out of the total volume of the entire annual volume (20 sheets) 52% appeared in Russian, 32% in English and 16% in German. The journal “Linguistica Uralica” forms a part in the policy of the state of Estonia to support the kindred peoples located in the territory of the former Soviet Union. 42 scientific articles by Estonian, Chinese, Turkish, Jordan, Spanish, Lithuanian authors and 6 overview articles, 3 of them from abroad – by the US, Australian and Russian authors appeared in the journal “Oil Shale” during 2006. Scientific articles were published by Members of the Estonian Academy of Sciences A. Raukas (2) and E. Lippmaa (2).

The website of the journal “Oil Shale” at <http://www.kirj.ee/oilshale> comprises much appreciated electronic educational material and the website at <http://www.studysphere.com> is popular among school and university students and teachers. It has been continually updated, upgraded and renovated by complementing oil shale related knowledge with the data on Estonia, especially on North-Eastern Estonia.

22 articles authored by scientists from Estonia, Great Britain, the US, Russia, Germany, Sweden, Finland and the United Arab Emirates appeared in the journal “Trames” in 2006. The articles were dealing with philosophy, linguistics, history, political science, religion sciences, green technology, pedagogy, mathematics, sociology, suicidology, geography, justice, liberal rights and several other domains. A publication by Tõnu Tannberg and Enn Tarvel in the first issue of 2006 concerning the documents reflecting the Soviet military occupation in Estonia in 1940 found powerful response. The Museum of Occupations has ordered 550 copies of that article.

The share of articles in foreign languages in the journals “Acta Historica Tallinnensia” and “Estonian Journal of Archaeology” is showing a steady rise. In 2006 all scientific articles of “Estonian Journal of Archaeology” were in English. As for “Acta Historica Tallinnensia”, the fact that several articles of relevance to Estonia were in Estonian decreased their international readability, however making them an excellent study aid and contributing to the development of terminology in Estonian. The fourth quarter of the year the Publishers mailed a flier to all subunits of larger Estonian institutions of higher education and research institutions to advertise the journal. The Publishers attended traditional book fairs and other information and sales events in Estonia and abroad with a partial exposition at the joint stand of the Estonian Publishers Union. Special notice should be made of books that appeared in 2006 as commissioned works supported by the Cultural Endowment of Estonia and the Ministry of Culture: a monograph “Texts about art and architecture III. Art writing in Estonia 1900-1918” (J. Keevallik, R. Loodus, L. Viiroja, 360 pages, in Estonian); a monograph “Book thoughts” (A. Valmas, 192 pages, in Estonian) and a monograph “Water objects in the books of Estonian primeval nature” (H. Kink, 144 pages, in Estonian) – supported by the author and Tallinn University of Technology.

## **UNDER AND TUGLAS LITERATURE CENTRE OF THE ESTONIAN ACADEMY OF SCIENCES**

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Established in 1993 (affiliate museum in Nõmme, the former Friedebert Tuglas Museum, established in 1971)

Personnel: 16, including 9 researchers

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Museum: Väikese Illimari 12, 11623 Tallinn, [tuglas@utkk.ee](mailto:tuglas@utkk.ee)

Website: <http://www.utkk.ee>

Director: Jaan Undusk, Tel: +372 644 3147, Fax: +372 644 0177, [jaan@utkk.ee](mailto:jaan@utkk.ee),

Assistant Director: Eneken Laanes, Tel: +372 644 3147, [eneken@utkk.ee](mailto:eneken@utkk.ee)

Head of the Museum: Eha Rand, Tel: +372 672 2847, [eharand@utkk.ee](mailto:eharand@utkk.ee)

The Under and Tuglas Literature Centre is an institution of research and development of the Estonian Academy of Sciences. Its mission is to study Estonian literature both in historical and theoretical perspective, to analyse Estonian texts within the context of historical Baltic-German literary space and world literature, and to promote literary and cultural thought in line with contemporary world trends.

The major areas of research of the Literature Centre are:

- Estonian literature and culture in the 20th C. (including the exile literature and works of F. Tuglas),
- Baltic German research (including literature both in German and Estonian of the 13th-19th C. in the Baltic cultural area),
- History of rhetoric and rhetorical models of culture,
- Drama and theatre research,
- Gender research aspect of literature and culture.

The Literature Centre participates in the work of rhetoric module of the Centre of Cultural History and Folkloristics at the Estonian Literary Museum.

The Literature Centre fulfils the governmental research project “Estonia’s Identity Narrative: Ideological and Rhetorical Models of Cultural Discourse” (2003-2007, supervisor Jaan Undusk). The goal of the project is to find new ways for historical in-depth description of Estonia’s national, ethnic and cultural identity. The range of texts used as sources vary from the belletristic to the historiographical, philosophical essayist and dramatic ones, etc.

In the subdivision “Estonian Culture in the 20th Century” (supervisors Aare Pilv; Rein Ruutsoo of Tallinn University), the aim is to provide an integral treatment of the rise of modern Estonian culture in the 20th century and its situation at the end of the last century. Many commissioned authors from other institutions are involved in the project.

The year of 2006 was productive for the Literature Centre both by organised events and published books. On 11 May, a festive seminar “Members of the *Noor Eesti Movement* in Åland 1906-1913. Friedebert Tuglas 120” took place at the Hall of the Estonian Academy of Sciences in Tallinn to commemorate the 120th anniversary of Friedebert Tuglas (jointly with the Adamson-Eric Museum of the Estonian Art Museum; organisers J. Undusk, K. Koll).

30 September – 1 October the Literature Centre organised at Käsmu the third seminar on modern Estonian literature “A. H. Tammsaare's “I loved a German”” (organiser M. Hinrikus).

Nüpli Spring School “Subject and Literary Text” was held on 3 June in co-operation with the Estonian Literary Museum (organisers A. Pilv and J. Tomberg).

An international workshop “Turn of the Century, Turns in Literature: Estonian and Latvian Literatures in the European Context at the Beginning of the 20th Century” (organiser A. Mihkelev) on 12 October represented ongoing expeditious co-operation of the Literature Centre with Latvian literary scholars relating to the study of the literatures of the Baltic States in the context of European culture.

A broader research trend of cultural studies and cultural theory of the Literature Centre was represented in 2006 by two events. On 6-7 November an international workshop “National culture and its others” was held as the second event of a three-year co-operation project “Autonomy and Dependence of the Arts under Different Social-Economic Conditions: the Estonian Example” (other parties: Department of Finno-Ugrian languages and cultures of the Groningen University and Department of Comparative Literature of the University of Tartu, organisers E. Laanes, J. Tomberg). In co-operation with the Estonian Institute of the Humanities of Tallinn University, an international symposium on social sciences and cultural theory “Contested Modernities” was organised at Käsmu on 14-15 August (organisers E. Laanes, P. Peiker).

Researchers of the Literature Centre delivered 32 scientific papers and expert lectures in 2006. Of those 20 were given at international scientific events. In 2006 the Literature Centre published four books. With the collection of articles “J. Randvere’s “Ruth” in the turn of 19th-20th centuries” (compiled by M. Hinrikus, MEKS 1, Tallinn, 2006, 336 pages, in Estonian) the Literature Centre started a new series of books “Seminar of Modern Estonian Literature”, every issue of which will be dedicated to research on one of the major texts of Estonian literary history. Liina Lukas’s monograph “Baltic

German Literature Field 1890-1918” (CL 20, Tallinn, 2006, 640 pages, in Estonian) was published in the series “Collegium litterarum”.

In co-operation with the Adamson Eric Museum of the Estonian Art Museum, an exhibition catalogue with scientific material “Young Estonian Artists and Writers in Åland in 1906-1913” (compiled by K. Koll, J. Undusk, Tallinn, 2006, 87 pages) was published, which also appeared in English, Swedish and Finnish.

A volume of articles dedicated to the 75th anniversary of the former Head of the Museum of Literature Centre August Eelmäe “Speeches and Writings” (composed by T. Haug, Ü. Kurs, E. Rand, UTKK KK 2, Tallinn, 2006, 256 pages, in Estonian) was published in the series “Collections of Cultural History of the Under and Tuglas Literature Centre”.

In 2006 researchers of the Literature Centre authored altogether 15 scientific publications in foreign languages and 21 in Estonian.

In 2006 a researcher of the Literature Centre Liina Lukas defended her Doctoral thesis “Baltic German cultural field in 1890-1918” (in Estonian) at the Department of World Literature of the University of Tartu.

Co-operation with universities is represented by 7 of its collaborators delivering lectures, supervising over PhD, BA and MA theses, reviewing and opposing them at the University of Tartu, the Stage Art School of Estonian Musical and Theatrical Academy and Tallinn University. Partnership of the Centre with Academic Library of Tallinn University was proceeded in counselling collection development.

Within the framework of a sub-programme “National memory and identity” of the state programme “The Estonian language and national memory”, the Museum has performed since 2004 the research project “Intellectual heritage of Friedebert Tuglas” (supervisor Ülle Kurs). Since 2004 the Museum has executed the project “Scientific collections of the Under and Tuglas Literature Centre” (supervisor Eha Rand) within the state programme “The humanitarian and natural science collections”.

The affiliated Museum was visited by the total of 975 people in 2006. The Museum organised 36 lectures and excursions on literature and culture, and served 75 researchers on the basis of the collections.

In 2006, Literature Centre commemorated F. Tuglas’ 120th anniversary with a seminar and art exhibition “Young Estonian Artists and Writers in Åland in 1906-1913”, opened from 2 March – 28 May in Tallinn in Adamson Eric Museum and from 9 June – 20 August at Önningeby in Åland. At Önningeby, on 9 June there was also opened the monument “Bench” by J. Ojaver dedicated to the Estonian creative persons who had recreational holidays in Åland. On 3 October, there was the first night of H. Sarapuu’s play “Thanks for coming!” staged by theatre Varius and dedicated to the Tuglas’ anniversary.

## FINANCIAL ACTIVITIES

The budget of the Estonian Academy of Sciences for 2006 and its execution (thou kroons)

	Budget	Implement- ation
<b>INCOME</b>		
<b>ALLOCATIONS TO THE ACADEMY OF SCIENCES FROM</b>		
<b>THE STATE BUDGET</b>	17025.00	17025.00
incl. For basic activities of the Academy	11565.00	11565.00
For fees of Members of Academy	3960.00	3960.00
For fees of research professors	1500.00	1500.00
<b>OTHER REVENUE</b>	4605.60	4113.91
Targeted allocations from the Ministry of Education and Research, incl.	1186.44	1186.44
For membership fees to international science organisations	572.75	572.75
For repayment of study loan	73.69	73.69
For publication of books	140.00	140.00
Receipts from letting the premises	300.00	341.99
From social tax prepayments	1200.00	1223.95
From residual funds	899.71	1139.00
From sale of printed matter and commissioned works (Academy Publishers)	423.50	353.88
From residual funds (Academy Publishers)	700.00	688.20
<b>ALLOCATIONS TO UNDER AND TUGLAS LITERATURE CENTRE</b>	2859.10	2859.10
Through the Ministry of Education and Research, incl	2514.50	2514.50
Targeted funding of research	1111.00	1111.00
For infrastructure expenses	397.00	397.00
Basic funding	195.10	195.10
For fulfilment of the state programme	510.33	510.33
For repayment of study loan	26.07	26.07
For investments	275.00	275.00
Targeted allocations	365.60	265.60
From sale of publications	79.00	79.20
<b>TOTAL INCOME</b>	24489.70	23998.01



## EXPENDITURES

### GENERAL BREAKDOWN

Main activities of the Academy (through Academy Office)	9059.71	8871.59
Estonian Academy Publishers	4599.45	4587.65
Fees of Members of Academy	3960.00	3787.73
Fees of research professors	1500.00	1500.00
Publishing of books	140.00	140.00
Repayment of study loan	73.69	73.69
Prizes, grants and medals	210.00	202.76
Scientific societies, incl.	1115.00	1115.00
Estonian Naturalists' Society	430.00	430.00
Mother Tongue Society	140.00	140.00
Estonian Geographical Society	130.00	130.00
Society of Estonian Regional Studies	115.00	115.00
Estonian Union of the Philosophy and History of Science	100.00	100.00
Estonian Literary Society	100.00	100.00
Learned Estonian Society	100.00	100.00
Membership fees to internat. science organisations	572.75	460.49
Prize fund	400.00	400.00
Under and Tuglas Literature Centre	2859.10	2734.10
<b>TOTAL EXPENDITURES</b>	<b>24489.70</b>	<b>23873.01</b>

### MAIN ACTIVITIES OF THE ACADEMY (THROUGH ACADEMY OFFICE)

Wages, incl.	3878.25	3795.45
permanent staff	3381.85	3321.25
other than permanent staff	340.40	315.20
fees of emeritus professors	99.00	99.00
allowances to widows of Members of Academy	57.00	60.00
Social tax and unemployment insurance premium	1291.46	1223.00
Office expenses	495.00	494.68
Maintenance expenses of registered immovable	600.00	577.71
Repair expenditure of registered immovable	600.00	596.78
Maintenance expenses of fixed assets and inventory	670.00	668.38
Maintenance expenses of vehicles	210.00	222.00
Mission expenses	410.00	409.46
Representation and entertaining expenses	160.00	154.44
Training expenses	50.00	52.41
Expenses of commissions and divisions	60.00	60.00
Expenses of Foundation for International Exchange	550.00	534.46
Accounting and auditing	35.00	34.44
Legal services	50.00	48.38
<b>TOTAL OFFICE EXPENDITURES</b>	<b>9059.71</b>	<b>8871.59</b>

ESTONIAN ACADEMY PUBLISHERS		
Wages, incl	2080.00	2105.20
permanent staff	2010.00	2019.80
other than permanent staff	70.00	85.40
Social tax	700.00	701.03
Administration expenses	350.00	347.88
Printing expenses, incl.	410.00	388.00
On publications of the Board of the Academy	155.00	97.90
Acquisition of equipment and inventory	53.00	37.89
Expenses related to commissioned work	1006.45	1007.65
TOTAL EXPENDITURES OF THE PUBLISHERS	4599.45	4587.65
UNDER AND TUGLAS LITERATURE CENTRE		
Wages, incl.	1410.00	1406.60
permanent staff	1310.00	1325.00
other than permanent staff	100.00	81.60
Social tax	470.00	468.40
Research and administration expenses	678.00	683.00
Acquisitions	275.00	150.00
Repayment of study loan	26.10	26.10
TOTAL EXPENDITURES OF LITERATURE CENTRE	2859.10	2734.10

## **ASSOCIATED INSTITUTIONS**

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Pursuant to “Estonian Academy of Sciences Act” passed by the Riigikogu in 1997, the research, development and cultural institutions and scientific societies outside the structure of the Academy, whose activities and objectives however conform to the activities and objectives of the Academy can associate themselves with the Academy. The association of institutions with the Academy is effected under bilateral agreements, which specify the purpose of association as well as the tasks and commitments for both parties.

Mutual exchange of information appears as one form of co-operation between the Academy and an associated institution. Surveys on the activities of the institutions associated with the Academy have been published in the Academy Year Book since 1998. Included reviews differ from one another by their structural composition, exposition and scope. They are practically presented in the same form as submitted, with minor modifications, suggested by the editorial board and kindly accepted by respective institutions.

At the end of 2006 the Estonian National Museum associated with the Academy.

Reviews on the 2006 activities of the institutions associated with the Academy have been presented in the chronological order of their association date:

Tartu Observatory . . . . .	109
Institute of Ecology at Tallinn University . . . . .	112
Academic Library of Tallinn University . . . . .	116
Institute of the Estonian Language . . . . .	120
Estonian Literary Museum . . . . .	123
Institute for International and Social Studies at Tallinn University . .	126
Estonian National Museum . . . . .	128

## TARTU OBSERVATORY

Associated with the Estonian Academy of Sciences  
8.05.1998



Founded 1808

Personnel: 70, of whom 43 researchers

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Research of Tartu Observatory distributed traditionally between three larger areas – Cosmology and physics of galaxies; Physics of stars; Research of atmosphere and surface of Earth.

The concrete research topics, ideas and results are new every year, quite understandably. The grant projects of the Estonian Science Foundation too get renovated on a regular basis. In 2006 they numbered altogether 14. Out of a score of other projects and agreements, a few were related to various practical applications of remote sensing. Among others, the Foundation Enterprise Estonia supported by more than one million kroon the procurement of an infrared camera to the group of remote sensing, thanks to a co-operation agreement with the Centre of Excellence for Basic and Applied Ecology.

The number of scientific articles published in 2006 fell within the regular range of 60 pieces, like also 81 popular science articles. Of the latter, Ain Kallis authored more than a half. Another yearbook appeared from print, for the first time in coloured print, as well as the Observatory Calendar 2007. Putting in an appearance as a new issue, hopefully to become traditional, was the Calendar of Starry Sky 2007 with coloured sky pictures. Member of Academy Jaan Einasto put between covers “The Story of Dark Matter” (in Estonian), published as a 528-page book in the series “Estonian History of Thought” by the Ilmamaa Publishers. About half of it is constituted by an original story of recollections “Per aspera ad astrum”, the second half being populated by the earlier published popular science and publicist articles.

The works carried out in the framework of the cosmology topic and the results obtained are also largely linked to dark matter and dark energy, although one can observe only visible matter, anyhow. For instance, at acoustic frequencies the baryon oscillations occur in the earliest Universe (up to *ca* 380 000 years after Big Bang) leaving a trace in the currently observable cosmic microwave background radiation and in the galaxies’ distribution. Those oscillations were scrutinised in his doctoral thesis defended in Munich by our young scientist

Gert Hütsi. The research of morphology of the cosmological density field revealed that at very large scales (*ca* 40 Mpc) the distribution of galaxies approaches the Gaussian distribution. Our researchers continued the study of super-clusters of galaxies found in databases of sky surveys made public, and comparing them with modelled super-clusters. As yet it remains unclear why the observed super-clusters feature very bright (massive) clusters 10 times more often than the modelled super-clusters. Mathematical description of the cosmic filaments (i.e. slim chains of galaxies) suggested to the researchers curious associations with the wormholes statistics. Research of distant disc galaxies showed that during the past six billion years, there has been no significant evolution with regard to the ratio of mass and brightness of stellar matter of galaxies and central density of the dark matter. Farther galaxies (i.e. those, which we perceive as younger) are however much smaller and bluer – they are the scene of intensive star formation. Dark matter can also be found in our own Milky Way – part of it may have concentrated in the circular structure with radius *ca* 15 kpc (or *ca* 50 000 light years).

The physical processes evidenced in stars shape the evolution of galaxies and thereby also the (chemical) evolution of the whole Universe. For that matter, the cool stars having attained the late evolutionary stage – like CGCS 6857 being under survey in 2006 – yield interesting information regarding the links between metallicity of the star and peculiarities of several physical processes. Classified among cool stars can also be the peculiar variable star V838 Mon, having been several years under survey, although the year of 2006 gave us ever more evidence that it may be a binary star, where the second component is a hot star of special class B. In case of stars located at the hottest end of the temperature scale of stars, one of the most important results, among others was the understanding that outflow of matter generating intensive stellar wind is launched very deep inside the star. For the binary stars containing the so-called EHB objects, we succeeded in finding a simple analytical relation between the velocity of outflow of matter, and the total mass of the system. From the observational aspect, it was interesting to find such signs in the spectrum of a well-studied symbiotic star Z And , suggesting fast (*ca* 1700 km/s) narrowly directed bipolar gas jets emitted from the hot component of the star. Our star researchers continued participation in preparations for the grandiose project Gaia of the European Space Agency. They also improved the technique of resolution of double images caused by gravitation lens effect, and modelled the radiation processes in relativistic plasma.

The atmospheric physics topic is more than others connected with fieldwork and practical applications. Therefore it is worth mentioning, in the first place the upgrading of the apparatus. Besides the above mentioned infrared camera, there were procured some more radiometers for remote sensing of the water bodies, and on the site, there was built a computer controlled airplane spectrometer. Ultraviolet radiation will be a hazard, when there is too much of it, but

the too low radiation density is a problem, too on our latitude – during *ca* 100 days per year the level of UV radiation does not reach the threshold necessary for synthesis of vitamin D. Starting from 2004, we have had at our disposal an automatic system of registration of UV radiation spectra and now we can start studying the variability of radiation. Upgrading of techniques of remote sensing of water bodies together with support measurements in lake Peipsi and in Gulf of Finland allows us quite accurately to determine the amount of chlorophyll in water. In the area of remote sensing of plant canopies, the fundamental research was carried out and the skills obtained were used to solve practical tasks. In order to verify the applicability of the photon recollision probability in models of radiative transfer of the canopy, several field measurements were carried out both in the Järvelja training base of Estonian University of Life Sciences and in Tõravere energy bush plantation. Researchers adjusted the satellite images' calibration coefficients. They developed the statistic structure model of the alder stand. The satellite information was successfully used for establishment of changes of Estonian landscapes and trends of land use.

The year of 2006 was relatively good for the Tartu Observatory as regards the after-growth of scientists. In addition to the above Gert Hütsi, the doctoral theses were also defended by Antti Tamm and Mait Lang. Thanks to the opportunity to provide part time employment to the majority of doctoral and master students connected with us, the number of personnel of the Observatory climbed to the figure of 70, where it had not been for quite some time. University of Tartu MSc student Tiina Liimest was awarded the traditional Ernst Julius Öpik grant, while the Juhan Ross grant, established in 2005 was assigned to doctoral student of the Estonian University of Life Sciences Julia Budenkova.

To sum up, the past year was as they go, and hopefully the same sentiment can be uttered in the future yearbooks of Academy of Sciences.

## **INSTITUTE OF ECOLOGY AT TALLINN UNIVERSITY**



Associated with the Estonian Academy of Sciences  
16.06.1998

Founded 1992

Personnel: 37, of whom 26 researchers

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In 2006, scientific research was carried out within the framework of 26 topics of different levels and projects, incl. 2 target-financed topics by Ministry of Education and Research of Estonia, 7 Estonian Science Foundation grants, 5 international projects of different levels and 12 applied co-operation agreements. In addition, 9 international co-operation agreements were completed. The institute participated in several international programmes.

The most extensive among international co-operation programmes was the participation in the project of the 5th Framework Programme of European Commission Abrupt Climate Changes Recorded Over The Europea Land Mass: multi proxy records of Late-Holocene climate variability in Europe (ACCROTELM) (supervisor on part of Estonia: Edgar Karofeld); 6th Framework Programme of European Commission Action for Training in Land use And Sustainability (ATLAS) (supervisor on part of Estonia: Hannes Palang) and ASTRA Interreg IIIB project funded by European Regional Development Foundation – Developing Policies & Adaptation Strategies to Climate Change in the Baltic Sea Region (supervisor of the working group of Institute Are Kont).

The main research effort of the Institute was carried out within the framework of the following target financed topics:

In the framework of topic “Natural and human induced trends of the lake trophicity development in the Holocene: reconstructions and projections” (supervisor Prof. Jaan-Mati Punning) several research techniques were implemented and novated: for research of temporal-spatial mutability of ecosystem of lakes – macro-remnants, diatom and cladoceran techniques; for description of sedimentation processes of lakes – lithological researches and techniques of granulometric composition analysis of sedimentation; for research of balance of organic matter, the team started determination of fossil

pigments in sediments – the high pressure chromatographic research technique the team applied and developed the carbon particles technique.

Outcome of research:

- Research carried out with the help of deposition traps for making the balance of matter in lakes have showed, that temporal-spatial variations of dry matter, spherical volatile ash particle and pollen grains flows in the lakes are of seasonal nature. Analysis of sestonic flows have showed, that resuspension in small lakes is relatively modest, accounting for *ca* 30% of the accumulated matter. The team proved experimentally the important role of flocculation and coincidental precipitation in sedimentation of seston.
- The research team has studied, in the upper layers of sediments of the Väike-Juusa Lake, the changes in diatom communities, dissemination of subfossil macrophytes and C/N values of organic matter in the upper layers of sediments depending on depth of sediment sample. Results show that the fluctuations of the water level affect through bottom topography the spatial distribution of individual sedimentation areas and configuration and therefore the functional operation of ecosystem of the whole lake. Those changes are particularly clearly manifested in the littoral shelf, where the water depth is less than 3 m.
- Palynological and carbon particles distribution researches of lake sediments have concluded that in the disruptive changes occurring in wooded landscape are represented on pollen profiles when the disruptions took place within the distance of a couple hundred meters from the lake shore and have affected a significant part of the area surrounding the lake.
- It was found that in eu- and mesotrophic lakes the carbon accumulation amounts to 70-125  $\text{gm}^{-2}\text{a}^{-1}$ ; in oligotrophic and dystrophic lakes, respectively *ca* 20 and 40.
- For verification of paleodata, the team researched systematically the upper layers of sedimentation of some small lakes in Estonia (fluorescence analysis of dissolved organic matter, granulometric composition analysis, distribution of pollen and macrophytes), showing that the organic matter content, C/N ratio and change in fossil pigments in sediments formed within the past twenty years is in excellent conformity with the monitoring data.
- Research results of the upper layers of sedimentation provided a picture of the composition and structure of the sediment, also changes in matter circulations and of changes in water level in Lake Väike-Juusa during the Holocene. In the transgressive phase of the lake, influx of nutrients takes place from the catchment area. The results obtained testify that in millennium time scale, the fluctuations of water levels have impacted the ecosystem of the lake.



In keeping with this topic, the team has released from print 18 publications, of which 14 in the journals of the ISI Web of Science database; 5 manuscripts have been accepted for publication in the ISI journals.

Within the framework of the topic “Trends of development of industrial landscapes in North-East Estonian oil shale mining area” (supervisor: Valdo Liblik) there were carried out researches in fitness of recultivated quarry areas for habitats.

It was found, at a tentative estimate that elks prefer young pine groves and naturally renovated forests, the older quarry pine groves (20-30-years old) are less suitable to elk, because they lack sufficient food. The bird monitoring showed that the bird population of the quarry areas manifest, depending on plant coverage of the dumps, significant quantitative and qualitative changes. The most birdless are 20-30 years old pine groves, where the share of pines in the composition of stand is ~100%.

A detailed plant cover analysis performed in Kohtla-Järve and Kiviõli oil shale semicoke dumps revealed that the main inhibitors of plant growth are steep slopes of the coke dumps, on more sloping areas however, as a result of planting suitable tree and bush species (e.g. alder and sea-buckthorn), there have developed the plant habitats of large coverage capacity. The team mapped the areas of stable plant cover and made propositions for preservation of the already evolved plant canopy (10-20 years old stands) in the process of closing down the semicoke dumps.

It was ascertained that the self-restoration of peat moss cover in the milled peat waste field takes place relatively slowly (~15 years) also under favourable conditions, when in the whole vegetation period there is a stable close-to-surface water level and slow flowing of water. It was found out that the composition of macro-remnants of the peat deposit reflect both the fires and relatively drastic changes of climatic conditions as per decades, when fluctuations occur between colder (and drier) than average weather and subsequent rapid warming with profuse precipitations, causing changes in water regime and plant cover of the bog, e.g. in the period *ca* 1770-1530 calibrated years back.

The team clarified the possible correlative link between micro-contents ( $\mu\text{g/l}$ ) of sulfophil microelements (Co, Ni, Zn, Cd, Se, Hg etc.) belonging to the composition of pyrite, determined in mine water and the values of electrode potentials of respective sulfides of those microelements. In order to characterise discharge of microelements from pyrite to mine water (as cations or anions), there were composed the equations of more probable hydrogeochemical reactions.

Surveys of the North-East Estonian coastal areas revealed that coastal destructions east to the Sillamäe tails storage were caused by hydrotechnical

facilities (ash disposal, mole of the old port, etc.), therefore the naturally predominant west-to-east direction of movement of coastal sediments had changed and a deficit of coast sediments was formed east to the tails storage.

21 scientific articles and individual issues were published by the staff members of the Institute in 2006, incl. 10 articles in international scientific publications, 11 articles in Estonian scientific publications, plus popular science articles, theses, etc. 38 papers were delivered at international conferences and negotiations, 13 papers at national events and 32 papers at scientific seminars of the Institute. A collection of articles "Estonia on the path of sustainable development" came out edited by J.-M. Punning.

Majority of applied researches were involved with analysing the status of the environment and its improvement potentialities. The accent of the applied researches has started to incline towards general and more science oriented environmental policy projects.

In autumn, the Institute participated at the national inter-universities symposium of young geographers "Spring" and also at its organisation.

Researchers of the Institute were involved in teaching at Tallinn University and the University of Tartu, whereby 11 researchers of the Institute supervised postgraduate students. Of the Institute personnel, the Doctor's degree in ecology was defended by Aarne Luud. M.Sc. was awarded to two researchers.

## **ACADEMIC LIBRARY OF TALLINN UNIVERSITY**

Associated with the Estonian Academy of Sciences  
17.06.1998

Founded 1946

Personnel: 142, of whom 2 researchers

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In 2006 the new statute of Academic Library of Tallinn University became effective and the development plan of the Library for 2007-2011 was approved. The Council of the Library became operative in a new composition.

The celebration of the 60th year of activity of the Library with a scientific conference and an anniversary exhibition appeared as the most significant occasion of the year.

The Library was involved in the activities to celebrate the 10th anniversary of the Consortium of Estonian Libraries ELNET, in presentation of the products of the Consortium, incl. the electronic catalogue ESTER, and in organisation of the anniversary conference at Tartu University Library. Important landmarks in the development of the Library include its accession to the electronic library system Ellibs, acquisition of the full member status of the Consortium of European Research Libraries CERL, realization of the new design of the Library website and its English version.

The Library is a member of international organisations LIBER (Ligue des Bibliothèques Européennes de Recherche), IFLA (International Federation of Library Associations), Bibliotheca Baltica (Amalgamation of Libraries of the Baltic Sea Countries), CERL (Consortium of European Research Libraries) and ELNET – the Estonian Library Network Consortium.

### **RESEARCH AND DEVELOPMENT ACTIVITIES**

RESEARCH ACTIVITIES in 2006 were proceeded in the directions that had been started in the previous year. Kaja Tiisel continued her research on the topic “History of Mentality in Tallinn of the 1st half of the 19th Century” based on the Baltica collections as a collaborative study with the research working group for the history of mentality headed by R. Pullat at Tallinn University. K. Tiisel supervised several works of the students in information science of Tallinn University, involved with collection studies concerning the Baltica and Rare Books Department and exposition of old books. The research topic of Anne Valmas is concerned with publishing activities of the Estonians in

exile. Preparation of a project for compilation of the national bibliography volume covering Estonian literature in exile was started upon her initiative in 2006.

Among significant scientific events mention should be made of the international scientific conference “60 Years of Academic Library” and the traditional Bibliography Day organised jointly by Academic Library and the Estonian Librarians Union. The history of the Library from the establishment of the Oleviste Library up to this day, development trends of libraries in the 21st century, relations between a university and a library, the role of Academic Library and Tallinn University in the infrastructure of Estonian science, the position of the library in the context of urban space renovation as well as the assets, opportunities and challenges of an academic library were discussed at the scientific conference.

DEVELOPMENT ACTIVITIES were primarily concerned with introduction of innovations into the library system and further developments of the digital library. The e-catalogue ESTER was developed in co-operation with the ELNET Consortium, access was provided to the extended potentialities of “Minu ESTER” (My ESTER), the holdings of the Library were displayed in a more detailed way in the web catalogue. The Library staff members participated in compilation of the ELNET Consortium development plan for 2006-2010 and a new statute of the e-catalogue ESTER as well as in selection and implementation of new products available in the library system.

Libraries of the Institute of History of Tallinn University, the Estonian Institute of the Humanities and the Baltic Film and Media School were integrated with Academic Library. The library system Millennium was installed and adjusted in the affiliate libraries and collections of the libraries were entered into the e-catalogue ESTER on-site. Electronic lending of library holdings was launched at the Baltic Film and Media School.

Online science journals within the licensed databases were made visible for the Google Scholar searches and access to full text articles was made available throughout Tallinn University by the Library in co-operation with the company Google. The goal of the co-operation project with the companies Google and Exlibris is to accumulate scientific information resources under Google search.

#### LIBRARY AND INFORMATION SERVICES

The Reading Room of the Humanities and an exhibition room at the scientific library were reopened after renovation and rearrangement. A security gate was established at the entry of the reading room. Subject librarians supplemented active holdings with publications of the humanities selected from the main stock. The shelving capacity of open access collections in the Reading Rooms of the Humanities and Social Sciences was enlarged, 6 additional workstations were installed. Open access collections of geography and informatics were assembled into the Reading Room of Natural Sciences.

The user database included 39 499 registered readers as of 31.12. 2006. Patrons from Tallinn University accounted for nearly one third of the readership. More than 4000 new users and over 264 000 visits were registered in 2006. According to their specialty or area of knowledge nearly half of active users belonged to the sphere of social sciences, a quarter was formed by users of the humanities and the remaining quarter by readers of natural and applied sciences. In the sphere of applied sciences the library was visited mostly by readers related to engineering.

During the year 1 483 annual volumes (1 675 copies) of journals were delivered to remote users, i.e. science institutes of Tallinn and Tartu. Botanical and environmental journals received the highest usage among remote loans - the leading titles were *The Plant Journal*; *Water, Air and Soil Pollution*; *Biogeochemistry* and *Journal of Theoretical Biology*.

The compilation of original bibliographic databases *Geology*, *Education*, *Nature*, *Finno-Ugrian*, *Publications of Tallinn University* and *Academic Library of Tallinn University* is in progress. Bibliographers were additionally involved with development of the Estonian Research Information System ETIS database.

#### COLLECTIONS AND COLLECTION DEVELOPMENT

The acquisition budget in 2006 was 7.4 million kroons for scientific publications and 0.5 million kroons for items of the archival collection.

The Ellibs circulation system for e-books was made available for users of Academic Library of Tallinn University in February 2006. The collection was formed pursuant to the requests of Tallinn University departments primarily of works in the field of the humanities and social sciences, amounting to more than two hundred titles of e-books by the end of the year.

The expenditure on subscription of foreign language scientific journals formed *ca* 2.1 million kroons of the acquisition budget. The Library subscribed to 316 journal titles, of which 115 were in the area of social sciences, 111 in natural sciences and 80 in the humanities. Additionally to online publications acquired through the ELNET Consortium, e-publications were bought for nearly 900 000 kroons. Academic Library acquired access to 14 electronic databases, among them *SageJournals Online*, *Wiley InterScience* and *Brepolis Online* for the first time, and to *Oxford Reference Online Premium* collections in combination with two additional collections (*Literature Collection* and *Western Civilization Collection*).

The *Baltica Collection* gained 721 units of printed matter. A considerable part of the purchased items were acquired upon recommendations of the humanities scholars. Upon its accession to the Consortium of European Research Libraries CERL, the Library acquired access to the *HPB (Hand Press Book)* database – a shared European database of early printed books, amounting to *ca* 2 million entries. The recataloguing of the holdings belonging to the *Class*

of Theology within the Baltica collections was concluded, work proceeded with the Class of History and commenced with the Class of Philology.

By the end of 2006 the electronic catalogue ESTER reflected nearly one third of the Academic Library collections, the e-catalogue was complemented with the library holdings of three institutions attached to Tallinn University – the Institute of History, the Estonian Institute of the Humanities and the Baltic Film and Media School.

Access to digitalised exile Estonian newspapers *Eesti Post* (Estonian Post) and *Välis-Eesti* (Expatriate Estonia) was provided within the DEA (Digitalised Estonian Newspapers) database framework. Lists of already digitized publications as well as library holdings to be digitized with first priority were prepared and presented to the digitalisation working group of the ELNET Consortium.

Experts of the Library on restoration of printed matter attended the conservation project for the library of the Old Believers Congregation of the Raja village supervised by the restoration shop Kanut, whereby 9 books of the old believers were restored. Other co-partners of the project are the Estonian National Library, the City Archives and the Estonian Historical Archives.

## **INSTITUTE OF THE ESTONIAN LANGUAGE**

Associated with the Estonian Academy of Sciences  
11.05.1999



Founded 1947

Personnel: 82, of whom 36 researchers, 10 editors

Address: Roosikrantsi 6, 10119 Tallinn, ESTONIA, eki@eki.ee

Website: <http://www.eki.ee>

Director: Urmas Sutrop, Tel: +372 641 1443, Fax +372 641 1443

Urmas.Sutrop@eki.ee

Academic Secretary: Hille Pajupuu, Tel: +372 641 1443, Hille.Pajupuu@eki.ee

Institute of the Estonian Language has three departments:

- Department of standard written Estonian grammar and language planning (GRM), Head Dr. Peeter Päll
- Department of standard written Estonian vocabulary (LKS), Head Margit Langemets, MA.
- Department of Estonian dialects and cognate languages (MRD), Head Dr. Kristiina Ross; starting from 01.09.06 acting Head of Department Tuuli Rehemaa.

Starting from 2006 the Institute of the Estonian Language includes the Centre of Estonian Terminology, headed by Tiina Soon.

GRM and LKS perform the target funded research “Lexical and grammatical structure of modern Estonian” (2003-2007), leader of topic Urmas Sutrop, Dr. Phil.; MRD performs the project specifically funded topic “Geographic and diachronic transformation of Estonian” (2003-2007), leader of topic Kristiina Ross, PhD.

DEPARTMENT OF STANDARD WRITTEN ESTONIAN GRAMMAR AND LANGUAGE PLANNING acts in three areas:

- Language Planning And Terminology. Released from print was “Estonian Orthological Dictionary ÕS 2006”. Edited by Tiiu Ereht. Compiled by Tiiu Ereht, Tiina Leemets, Sirje Mäearu, Maire Raadik. Tallinn: Eesti Keele Sihtasutus 2006, see <http://www.eki.ee/dict/qs2006/>). The group offers free of charge language consultation over telephone, answers letters and e-mails, organises language care courses. The place names related information is available at address <http://www.eki.ee/knab/>. Language planning and care is also funded through national programmes, whereas the language care has been funded from 2004 with the help of state budgetary support. An international Conference on Language Planning and Terminology was held.

- Links between grammar and lexicon. A formal grammar for automatic identification of duration and stress was worked out; software was developed and applied in morphology of entries of Estonian-Russian Dictionary (Ülle Viks, Indrek Hein). Syntax of nouns of Estonian were studied (Heete Sakhai), so were the grammaticalisation processes (Helle Metslang). The group continued compilation of word families and related research (Silvi Vare). Contextual research of both verbal and written text on the basis of word categories was carried out (Hille Pajupuu, Rene Altrov).
- language technology. Web-version of ÕS 2006 (ÕS = Orthological Dictionary) (Ülle Viks, Indrek Hein, Andres Loopmann, Kati Sein) was developed. In the area of making synthesised speech more natural, the researchers were engaged in testing the statistical methods in modelling intonation and breaks, they also organised many experiments for modelling by means of nerve nets, the vowel durations of news texts read out by radio announcers (Meelis Mihkla). Research has been done in breathing and speech breaks in read-out texts, preparations have been started for compiling the corpus of emotional speech (Hille Pajupuu, Kairi Tamuri, Rene Altrov).

DEPARTMENT OF STANDARD WRITTEN ESTONIAN VOCABULARY continued, in keeping with the schedule, the editing of large base-dictionaries (those works were partly funded by the national target programme “The Estonian Language and the Popular Memory”). Released from print was Estonian-Russian Dictionary. Volume IV (*R-tip*). Edited by Nelli Melts (senior editor), Tiia Valdre. Institute of the Estonian language. Tallinn: Eesti Keele Sihtasutus, 2006. The group continued editing of the last, 26th fascicle of the Dictionary of Standard Written Estonian (Mai Tiits, Tiia Valdre, Leidi Veskis, Rudolf Karelson), compilation of entries of new words (Merike Koppel) and their editing (Mai Tiits, Tiia Valdre).

Launched has been the Institute’s web-based EELex management system of dictionaries of Institute of the Estonian Language (Andres Loopmann, Ülle Viks, Margit Langemets), which enables organisation of dictionary work in the Institute of the Estonian Language in a modern way: to manage the dictionary data, to compile and edit the dictionaries. Presently there are three dictionaries in the system: Estonian-Russian, ÕS, and the database of new words of standard written Estonian.

In the research works published, handled have been the intra-cultural variation of emotional knowledge of Estonian (Ene Vainik), metaphors of anger (Ene Vainik jointly with Anneli Velt), Bertrand Russell (Urmas Sutrop), problems related to creation of the Institute of the Estonian Language vocabulary system EELex (Andres Loopmann, Margit Langemets, Ülle Viks).



In co-operation with Estonian Association for Applied Linguistics and Tallinn University, there was held the 5th Conference in Applied Linguistics. By the time of the Conference, there appeared “Estonian Papers in Applied Linguistics 2” (peer-reviewed serial issue).

DEPARTMENT OF ESTONIAN DIALECTS AND COGNATE LANGUAGES continued editing the Dictionary of the Estonian dialects. Released from print was Dictionary of the Estonian dialects volume IV, the 18th fascicle (*käi – kõrtsima*). Edited by Anu Haak, Mari Kendla, Piret Norvik, Vilja Oja, Jüri Viikberg. Tallinn: Eesti Keele Sihtasutus, 2006. Continued was the compilation of new entries of etymological dictionary (Meeli Sedrik, Sven-Erik Soosaar, Iris Metsmägi) and editing and analysis of the sample articles (Lembit Vaba, Helmi Neetar).

An important area of the Department is the research into place names and personal names (Marja Kallasmaa, Marit Vesiaid). Researchers participate at joint projects “Onomastica Uralica” (EKI, Helsinki University, Debrecen University). One of the research areas of the Department is impact of translations in the initial phase of standard written Estonian (Kristiina Ross). The Department participates in the joint project “Common Roots of Latvian and Estonian literary languages” (EKI and Latvian University).

The largest project of CENTRE OF ESTONIAN TERMINOLOGY is novation and administration of military, security and defence policy terms base “Militerm” created on account of funding by Ministry of Defence. The Centre also organises the work of interdepartmental terminology commission established by Ministry of Defence. At 24 meetings held in 2006, the terminology commission considered altogether 2081 term equivalents. From Centre of Estonian Terminology, participating in the work of commission are Tiina Soon, Liia Piirmets and Kaur Männiko. Centre of Terminology is oriented to co-operation between areas, for streamlining the terminology, for its novation and updating. Starting from 2005, operating at Department of Philosophy of University of Tartu, through agency of Foundation SA Innove, supported by the EU Structural Fund, is the Doctors’ School “Linguistics and Language Technology”, with Institute of the Estonian Language and Institute of Cybernetics of Tallinn University of Technology acting as partners. There are 5 doctoral students of Institute of the Estonian Language enrolled at Doctors’ School, see <http://www.eki.ee/eki/doktorikool.html>.

## **ESTONIAN LITERARY MUSEUM**

Associated with the Estonian Academy of Sciences  
11.05.1999

Founded in 1909 as Archive Library of the Estonian National Museum  
Personnel: 106, of whom 41 researchers, 13 librarians and bibliographers  
Address: Vanemuise 42, PK 368, 50002 Tartu, ESTONIA, kirmus@kirmus.ee  
Website: www.kirmus.ee  
Director: Janika Kronberg Tel: +372 737 7701, Fax: +372 737 7706,  
janika@kirmus.ee

Estonian Literary Museum comprises additionally to administrative department, the following structural units, of which the first three are based on collections:

- Archival Library, including the Bibliography Department, Head Merike Kiius;
- Estonian Cultural History Archives, Head Piret Noorhain;
- Estonian Folklore Archives, Head Ergo-Hart Västriku;
- Department of Folklore, Head Mare Kõiva;
- Department of Ethnomusicology, Head Triinu Ojamaa.

In 2006 the Estonian Literary Museum fulfilled 5 target-financed topics, of which 1 was concluded, and 8 grants of the Estonian Science Foundation. 4 researchers of the Museum defended their PhD degrees at the University of Tartu. Support for replenishment of stocks and separate projects was obtained from national programmes "Collections in the humanities and natural sciences" and "The Estonian language and national memory", "South Estonian Language and Culture", the Setomaa cultural programme and classics programme, Vanderlin LLC, the Cultural Endowment of Estonia and other institutions. Implementation of a computerized base for the Centre of Estonian Cultural History and Folklore and development of the project LABOR under the support of the Enterprise Estonia Foundation were continued.

Replenishment of the collections of the Archival Library, the Estonian Cultural History Archives and the Estonian Folklore Archives was mainly effected through deposit copies of printed matter and donations. A most significant and voluminous contribution to the present collections was formed of a consignment from the Baltic Archives in Stockholm, which included alongside with books and periodical issues small printed matter scarcely available in Estonia, folders of newspaper clippings reflecting international politics of the occupation period and archival materials. Accessions of the Archival Library during the year amounted to 14023 registered items, the Estonian Cultural History Archives received 11676 and the Estonian Folklore Archives 1330 archival holdings, among them manuscripts, photos, sound and video recor-

dings. Additionally to the research staff of the Estonian Literary Museum the collections were used by 1739 outside researchers, electronic requests for information were served on more than 300 occasions. With the aim of making the collections visible, the Museum continued to carry on various co-operation projects with libraries and other research institutions. Whereas 47% of the Archival Library holdings are available for users of the electronic catalogue ESTER, our local open-access databases BIBIS and ISIK are updated and renewed on a regular basis as well.

22 publications in hard copy and 2 titles in electronic format were published in 2006 by the Estonian Literary Museum or elsewhere under the authorship of the researchers of the Museum. Special mention should be made of the monograph "Reindeer, rodina and reciprocity: kinship and property relations in a Siberian village" (published in Münster in the series Halle Studies in the Anthropology of Eurasia; vol. 7) by senior researcher of the Department of Folklore Aimar Ventsel, "Collaborative representations: interpreting the creation of a Sami ethnography and a Seto epic" (Helsinki: Suomalainen Tiedeakatemia; series FF communications, no. 289) by senior researcher of the Estonian Cultural History Archives Kristin Kuutma and the book of escape stories "The Nests of Wandering Birds" (in Estonian) – a voluminous joint project of the Estonian Life Stories Association executed together with the Chair of Estonian Studies at the University of Toronto, edited by Professor Tiina Kirs of the University of Tartu (Tartu: Estonian Literary Museum).

Two books by senior researcher of the Estonian Folklore Archives Mall Hiemäe appeared at the end of the year. "There are no days exactly similar. South Estonian calendar folklore" (in Estonian) was published by the Museum and a collection of articles "Fern at Midsummer Night" (in Estonian) in the "Estonian Story of Thought" series of the Ilmamaa Publishers.

The yearly circle of significant public events for the Estonian Literary Museum's is in a wider aspect framed by two highlight events of long tradition – the prize of the President of the Republic of Estonia to the very best folklore collectors, traditionally conferred in February, was assigned to Tiit Birkan and Jüri Metssalu and the scientific conference was held for the 50th time in the programme of the Kreutzwald Days in December 2006.

The Gustav Suits grant issued with the support of the Cultural Endowment of Tartu on the Mother Tongue Day on 14 March is developing into a tradition as well, last year the grant was awarded to Kristiina Ehin. Every other year the Literary Museum confers the prize of the Ivar Ivask Memorial Foundation to an outstanding poet and essayist. Hasso Krull received the prize in 2006 for his essay book based on folklore "Writing and the Pleasure of Creation".

When searching the activities of the Museum in 2006 for an event of special significance, it would undoubtedly be the International Conference on the Baltic Archives Outside Estonia, organised upon the initiative of Head of the

Estonian Cultural History Archives at the end of June, bringing together in Tartu twenty or so keepers of the Estonian archives from abroad, from the East and the West alike, ranging from Siberia to Australia and America as well as guests from Latvia and Lithuania. The conference, organised jointly by the State Archives of Estonia, the Estonian National Museum and several other institutions with the support of the Compatriots Programme and the Karl Ristikivi Society, specified the role of our heritage on a global scale and set new goals for further activities.

**INSTITUTE FOR INTERNATIONAL  
AND SOCIAL STUDIES  
AT TALLINN UNIVERSITY**

Associated with the Estonian Academy of Sciences  
28.01.2003



Founded 1988

Personnel: 23, of whom 17 researchers

Address: Uus Sadama 5, 10120 Tallinn, admin@iiss.ee

Website: <http://www.iiss.ee>

Director: Raivo Vetik, Tel: +372 619 9861, Fax: +372 619 9860, vetik@iiss.ee

The research effort of the Institute in 2006 was successful – the personnel published a number of scientific publications, attended numerous scientific conferences both in Estonia and abroad, participated in professional development programmes, executed several state-commissioned applied research projects and were actively involved in national science organisation events.

8 new staff members were employed in 2006, 2 of them arrived from abroad.

The main outcome of the work of the Institute is presented by its publications. In 2006 researchers of the Institute authored over 50 publications at home and abroad. Special mention should be made of the CC category articles:

- Saar, E., Unt, M. Self-employment in Estonia: forced move or voluntary engagement? *Europa-Asia Studies*, 2006, 58, 3, 415-437.
- Vöörman, R. Гендерная сегрегация на рынке труда в период социальной трансформации. *Социологические исследования*, 2006, 10, 109-116.
- Kazjulja, M., Saar, E. Неэстонцы в современной Эстонии: перемены в жизни. *Социологические исследования*, 2006, 6, 61-69.
- Heinla, E. Creative thinking of adolescents in Estonian society. *Young*, 2006, 14, 3, 235-255, ISSN 1103-3088.
- Vetik, R., Nimmerfeldt, G., Taru, M. Reactive Identity versus the EU Integration. *Journal of Common Market Studies*, 2006, 44, 5, 1077-1100.

In 2006 the Institute fulfilled six grants of the Estonian Science Foundation and three target financed topics: “Impact of lifelong learning on life course and social cohesion in Estonian society”, “Changes in the Socio-economic Environment in Estonia: Adaptive and Coping Strategies of Families” and “Consolidation of Democracy in Multicultural Society”.

In 2006, the Institute continued the 6th EU Framework Programme project “Peace Processes in Community Conflicts” (Raivo Vetik). Good headway is making the 6th EU Framework Programme project “Towards Lifelong

Learning Society in Europe: The Contribution of Educational System” coordinated by the Institute (Ellu Saar), with involvement as co-operation partners by scientists from Ireland, England, Scotland, Belgium, Portugal, Norway, Austria, Slovenia, Czech Republic, Hungary, Bulgaria, Russia and Lithuania.

Very important from the viewpoint of the development of the Institute is joining the European research networks TIES (Integration of the second-generation migrants in Europe) and IMISCOE (International migration, integration and social cohesion), focusing on the topic of integration of the second-generation migrants.

Many researchers of the Institute have contributed to the faculty effort of Tallinn University and other universities. More cohesive integration with the Department of Sociology and the Department of Government of Tallinn University is a strategic goal of development of the Institute.

Invariably successful was the co-operation of the Institute with several ministries and state authorities of the Republic of Estonia, e.g. the Ministry of Social Affairs, the Ministry of Internal Affairs, Office of the Population Minister, Office of the Riigikogu and the State Chancellery. Serving as an example is the participation in formation of the strategy of “Integration programme of Estonian Society for 2008-2013.

## **ESTONIAN NATIONAL MUSEUM**

Associated with the Estonian Academy of Sciences  
on 21.12.2006



Founded 1909

Personnel 94, of whom 15 researchers

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Website: <http://www.erm.ee>

Director: Krista Aru, Tel: +372 735 0403, Fax: +372 742 2254,  
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On 13 May 1923, when the premises refurbished to house the Estonian National Museum were inaugurated in the main building of the Raadi manor, all speeches and addresses pointedly emphasised that the Estonian National Museum must serve two masters: the people and the science. This tenet, worded like a commandment was actually inscribed in the first statute of the museum, which started its activities in 1909 to commemorate Jakob Hurt: the spiritual heritage of the forefathers and the heritage of the contemporary period must not only be collected but also studied and made available.

The Estonian National Museum followed that doctrine in the Republic of Estonia of the pre-World War II period, acting as a central authority of research in the area of national sciences, in the Soviet years as an ethnographical museum and in the newly independent Estonia as a central museum, whose research work had been internationally evaluated.

### **MUSEUM AS A RESEARCH INSTITUTION**

In the 21st C., when the common European cultural space is opening up new opportunities for development, however expecting innovative ideas from them who are willing to join up as an equal partner, it is crucially important to the Estonian National Museum to be in its research not only scientifically competent and precise, but also attractive and able to co-operate. One of the bases of propensity to co-operation is being in the picture, to have an all-round knowledge of trends and impacts not only in one's own topic area, but also to anticipate, where the accents of research tend to move in natural, exact or engineering sciences. Desirous of continuing to be an open memory institution capable of co-operation and engaged in scientific research, the council of the Estonian National Museum submitted in 2006 to the Board of Estonian Academy of Sciences an application to make an association agreement. On 21st December the agreement was signed and the Estonian National Museum believes it will justify the trust the Academy has placed in it.

The scientific work done in the Museum is multifaceted both by its methods and applications. There is no chance for a good exhibition, unless the topic

presented at it has been scientifically elaborated. There is no way to organise exemplified museum studies, unless the subject taught has been mastered to consummation, nor is it possible to enthuse people to become collectors, preservers, and researchers of cultural heritage, or to kindle interest in it, unless the heretofore deposited matter is professionally kept, easily accessible, well described, with cultural background and explanations.

Scientific research is the basis of professionalism and development of a museum, and also a condition precedent, because a young person will often get from his visit to museum his first experience making him understand the changing world and things, i.e. a visit to a museum “may shock the orthodox and enthuse the rebellious”. Error by museum in any whatsoever manner or extent in this matter would do irreparable damage.

#### MAIN DIRECTIONS OF SCIENTIFIC RESEARCH OF THE MUSEUM IN 2006

Research work of the Estonian National Museum was consolidated to four larger topical groups:

- Popular culture of the Finno-Ugrian peoples,
- Everyday chores and nutritional culture in the Soviet Estonia,
- Sustaining and operation of minority cultures in the 20th C. Estonia,
- Fashion of habiliments and folk costumes of Estonia in the 20th C.

Those topics were the fulcrum of the collection work of the museum, they were presented through the agency of alternating exhibitions, they were brought to the youth in workshops, work sheets and guide programmes and they were exposed to the wider circle of those interested through ubiquitously available printed matter and electronic issues.

Study of popular culture of Finno-Ugrian peoples is founded on large and rich collections of our cognate peoples deposited in the Estonian National Museum: on items collected in the course of expeditions, in expedition daybooks describing the mores and heritage of the peoples, and on films recording life. Released from print was an issue in Estonian and Udmurt (Votyak) of “Peterson’s Udmurt diaries”, the most extensive insight of the last decades into the life and mores of the Udmurts.

The Soviet practice, which harassed us with its restrictions, slogans, imposed lies and scanty opportunities, has become history and a person reared in free Estonia would just wonder hearing the stories characterising the Soviet period. The Estonian National Museum must not confine itself with wondering, it must convey sense to the yonder times, by framing in context the people having lived and acted at that time, their jobs and dreams. The balanced and circumspective approach to the Soviet years is not simple – although it is already history, everything is still too close, touching us on the raw. The life in the Soviet period can be formed into an exposition only when it has been preceded by all-round preliminary works: interviews with people, elabo-



ration of answers arriving to questionnaires, collection of remembrances and items. In 2006, the emphasis of the Soviet time project was on eating and food culture of the Soviet Estonia in homes and in the then public facilities—cafeterias and restaurants – and one of the outputs meriting much attention was the exhibition “Ise sööme, ise joome...” presenting the Soviet period nutritional culture manifested by the ever-present sign in the self-service cafeterias “We eat, we drink, and we also collect our dirty dishes”.

Culture, heritage and mores of minorities, living in Estonia enrich and strengthen also the Estonian national culture, because they highlight its specificity, strengths and weaknesses. Our weakness is that we sometimes know them insufficiently, in order to appreciate and understand what is hidden in them. Research works carried out within the framework of grants projects funded by Estonia Science Foundation in Narva, Sillamäe and the areas bordering on lake Peipsi have been consummated with several papers at international scientific forums and have generated both discussion and repercussion. Interviews made with more than 300 people living in Narva have been shelved currently pending elaboration and further study. The Ingrians’ life, weal and woe evolved into an exhibition moving like road show through several counties in Estonia.

The taste, colourfulness and difference as per parishes of folk costumes of Estonians have been a surprise and wonder through decades to us ourselves and far outside the Estonian borders. In the past five years, the Estonian National Museum, in co-operation with the Union of Popular Art and Handicraft, has organised the folk costumes schools, where those interested can get training from the best specialists of the Museum. There is a standing demand for publications presenting the folk costumes and their accessories (e.g. waistbands, handbags), three of which appeared in 2006. We are pleased about it. It was also a gratifying experience to know that one of the outputs of our folk handicraft – mittens, put on display at an exhibition held in Lisbon’s apparel museum – met with warm recognition and triggered interest in that faraway country to our handicraft art.

The folk costumes topic was further developed by the exhibition “Black and white shirt”, presenting the urban fashions of the beginning 20th C. Through that exhibition, one could observe the arrival of European fashion-towns to the streets of Estonia, and also the beginning of national folk craft training in Estonia in the press columns. The research work carried out to arrange the exhibition was involved with tracing the fashion, handicraft and respective instruction in our proximate neighbouring countries and European cities. Special studies together with the following trustworthy conclusions were additionally needed for that exhibition as the exhibited items were light and heat sensitive originals.

2009 marks the passing of a centenary from the establishment of the Estonian National Museum. Those hundred years are also the formation and development story of the Estonian Museum, presented by a new series of books of the Museum "From collection trips of the antiquities". In 2006, two first issues of that series were published, and in subsequent years, too several intriguing and never before published materials will be offered to public from the inexhaustible archives of the Estonian National Museum.

Scientific monographs of the Estonian National Museum (every year at least one) will appear under a combined title "Series" and the yearbook, printed every year, in 2007 the 50th time, attempt to present the best from the work desk of ethnographers, ethnologists and researchers of culture.

The anniversary conferences of the Estonian National Museum held regularly in April are the summarising and overview days to the Museum. Parallel to other conferences, seminars and topical days, they enable the Museum to be a living communication medium also in the world of science.

Extensive international projects started in 2006, e.g. "Modernism and industrialisation" in co-operation with several museums of Finland, Denmark, Sweden and Latvia as well as the volume "Memory on hard copy" describing the meaningfulness of the 75 years in action of the correspondent network, lead us to new consequential directions and opportunities for co-operation at local and international level

## **ASSOCIATED SOCIETIES AND UNIONS**

Scientific societies and unions outside the structure of the Academy are entitled to associate with the Academy, provided that their activities and objectives are in conformity with the activities and objectives of the Academy. Their association with the Academy is effected under bilateral agreements, which specify the purpose of association as well as the tasks and obligations for both of the Parties.

Reviews on the 2006 activities of the societies and unions associated with the Academy have been presented in the chronological order of their association date:

Estonian Naturalists' Society. . . . .	133
Estonian Geographical Society. . . . .	137
Society of Estonian Regional Studies. . . . .	140
Estonian Mother Tongue Society. . . . .	143
Estonian Union of the History and Philosophy of Science. . . . .	146
Estonian Scientific Society in Sweden . . . . .	148
Estonian Literary Society . . . . .	149
Estonian Learned Society. . . . .	152
Estonian Musicological Society. . . . .	153
Estonian Physical Society . . . . .	154

## ESTONIAN NATURALISTS' SOCIETY

Associated with the Estonian Academy of Sciences  
23.01.1998



Founded 1853

Membership: 820 members, 642 trustees

Official address: Struve 2, 51003 Tartu, ESTONIA

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The Estonian Naturalists' Society (ENS) is a society of natural scientists and those interested in nature. There are about one thousand and five hundred natural scientists and amateur naturalists in the society now: 820 active members, among them 18 honorary and 65 permanent members. During the last year 14 new active members joined the society. In addition 642 trustees are involved in the activities.

### RESEARCH AND POPULATISATION OF SCIENCE

The Estonian Naturalists' Society organizes and supports research. At present, the main focus is on applied research, promoting terminology and publications in Estonian and popular science. The ENS co-operates with universities and state organisations on research, nature conservation and environmental education, acting as an initiator of interdisciplinary networks of natural scientists and offering hands-on practice opportunities for graduate and postgraduate students.

In 2006 most applied studies by the ENS were related to nature conservation. The first stage of Keeri-Karijärve nature conservation area conservation plan was drawn up. The state of semi-natural bioms at Lake Võrtsjärv holding area were defined. The analysis of big game quadratic count was carried out. The inventory of the flora was carried out at Veibri village near Luunja, to suggest further action for conservation of protected species, to determine the plant species of the I and II category at Leidissoo nature conservation area. At Puhatu nature conservation area of Porkuni forests the inventory of lichens and mosses was carried out and the conservation measures were planned. The floristic list of vascular plants and mosses of Piirissaare Island was compiled and the list of invasive alien plants species, which are forbidden to import to Estonia was completed. The monitoring projects included the studies of monitoring of Chiroptera, flying squirrel (*Pteromys volans*) and wolf (*Canis lupus*). To help to match the old geological locality names with the new ones, a public online database of 19th C. German toponyms was developed.

In 2006 the ENS released 9 pieces of printed matter and 1 Internet journal. A new series “The Classics of Natural Sciences” was initiated for publication of translations of classical works on natural science and bibliographic remarks of the greatest natural scientists.

#### LIST OF PUBLICATIONS

- Yearbook of Estonian Naturalists' Society, vol 84, 334 pp. (in Estonian)
- Papers of XXIX Day of Nature Researchers “Nature of Oil-shale Land”, 120 pp. (in Estonian)
- Folia Cryptogamica Estonica 42, 110 pp. (in Estonian)
- Schola Biotheoretica XXXII. The theory of heritage, 114 pp. (in Estonian)
- Schola of Geologica II. With hammer to the stars, 108 pp. (in Estonian)
- A little handbook for those, who are interested in nature. 2-nd ed., 112 pp. (in Estonian)
- The Estonian Nature conservation info-atlas. Conservation areas, parks and stands under conservation and objects of nature, 204 pp. (in Estonian)
- The classics of Natural Sciences. Charles Darwin. Autobiography, 256 pp. (in Estonian)
- Veldre, G. (ed.). Leiu Heapost. Bibliography 1971-2006, 16 pp. (in Estonian)
- Released in the e-journal “Friend of Lichen”, no 9, 33 pp. (in Estonian)  
[www.botany.ut.ee/bryoloogia/](http://www.botany.ut.ee/bryoloogia/)

#### GENERAL ASSEMBLIES, ACTIONS AND THE ACTIVITIES OF SUBUNITS

Every year the Estonian Naturalists' Congresses (The Naturalists' Days), conferences, meetings, general assemblies, discussions, scientific and popular scientific meetings, and exhibitions are organized.

In 2006, nine general assemblies were held. The series with six lectures “From natural scientists to the teachers of natural sciences” was started, to promote the transfer of new scientific ideas to the classrooms. In the frame of the European Union project PHARE “Learning Biodiversity: a key for implementation of UNECE Strategy for Sustainable Development in Estonia” four seminars of natural education for teachers, staff of nature reserves and administrators of local governments and for all members of ENS were held.

The XXIX Estonian Naturalists' Congress “The Nature of oil shale area” took place at Illuka community of the Ida-Virumaa County, dedicated to the 75th anniversary of the ENS section of geology. Traditional sessions of spring school of theoretical biology, the summer school of ecosemiotics and the autumn schools of teriology and geology were held.

A wide spectrum of the ENS activities take place in sections and commissions, altogether in 22 subunits of ENS, 14 subunits have a section status: sections of amateur meteorologists, anthropology, biology, botany, entomology, forestry, geology, palaeontology, theoretical biology, the commission of lakes, the Estonian Malacological Society, the Estonian Mycological Society, the Estonian Teriological Society and the Jakob von Uexküll Centre. Commissions

with special tasks focus on history of natural sciences, library, natural education, observation networks and plant names. In addition, the ENS has assemblies of ecology, of honorary members and the round table of nature conservation. The eldest subunit is the commission of lakes (over 100 years) and the youngest is the roundtable of nature conservation established in 2006.

In addition to the traditional meetings with academic presentations the subunits of the ENS organized an expedition to the meadow of Ihaste in order to study the natural values and to evaluate planned building activities in that area, the gathering of the friends of mosses, the spring and autumn camps for those interested in mushrooms, a series of days and hikes for learning of mushrooms, the gathering of amateur meteorologists, the course for teachers to make them acquainted with snails and bivalves, the trip and camp of entomologists to south-western Estonia with the participation of foreign researchers. The members of the ENS participated in the organization of the car-free day, Baer's day, Aul's day, conference of ecology and several mushrooms exhibitions.

#### INTERNATIONAL RELATIONS

The members of the Estonian Naturalists' Society participate in the work of regional and international organizations and the congresses and meetings. This year the society's members participated in the first nature conservation conference at Egery, Hungary and in the trip to Öland organized by the Finnish Vanamo Society. The vice-president of the ENS participated in the conference of the Nordic Council Conference of Sustainable Development in Tallinn delivering a report on the conception of Estonian environmental education and on the activities, which support the curriculum.

#### DEVELOPMENT

Members of the Estonian Naturalists' Society took part in preparation of the state plan of nature conservation and the conception of natural education and the perspective work-groups.

Estonian Naturalists' Society accomplished the tasks planned in the project of the EC PHARE "Learning Biodiversity: a key for implementation of the UNECE Strategy for Sustainable Development in Estonia", focused on the capacity building in natural sciences, in Estonian environmental education and in collocating the data of natural observations.

The project also enabled the renovation of the ENS website on the Internet, the creation of a database for observers of nature and to acquire the software and lichens to make the ENS library accessible for public.

The Estonian Naturalists' Society participated in the projects financed by the Cultural Endowment Estonia, the Ministry of Education and Science, the Ministry of the Environment, the Estonian University of Life Sciences, the Centre of Forest Protection and Silviculture, the Environmental Investment Centre, State Centre of Environment Protection, Tallinn Environment Depart-

ment, Real Estate Company Hansamaa LLC, Tuuleenergia LLC and INC Talter Tartu.

#### LIBRARY

The ENS has one of the largest natural science libraries in the Baltic States. It is continuously replenished with the aid of budget sums, by exchange and donations. There were 159 680 printed items at the end of 2006. The titles were exchanged with 110 partners from 23 countries. The library has 381 registered readers and there were 225 visitors who did 665 visits during last year. The library has several valuable editions, first of all among the older books, the holding conditions of which are inadequate at the moment and have to be improved quickly.

#### PRIORITIES AND PROBLEMS

One of the most important priorities of the Estonian Naturalists' Society is to integrate the brain potential of scientists and intellectuals for the active participation in the development of society based on scientific achievements, first of all in fields of natural sciences, nature conservation and environmental education and awareness. Thanks to the basic financing of the Estonian Academy of Sciences and the applied support from state and international funds the ENS has so far been able to accomplish its aims successfully.

However, it is complicated to find the possibilities for larger investments, which are necessary for improvement of preservation conditions in ENS library: in the first stage for the renovation of heating system of the house at Struve 2 and in the second stage for building of new storage house of library. As yet, the attempts to get support for the improvement of the conditions have been unsuccessful. Continuing to search the possibilities for financing we are also hoping on the support of the Estonian Academy of Sciences.

## **ESTONIAN GEOGRAPHICAL SOCIETY**

Associated with the Estonian Academy of Sciences  
27.01.1998



Founded 1955

Membership: 419 active members,  
19 honorary members, 4 foreign members

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[punning@tlu.ee](mailto:punning@tlu.ee)

Scientific Secretary: Helve Kotli, Tel: +372 645 2744, +372 5591 7186

In 2006 three sections were active in the composition of the Estonian Geographical Society: section of school geography, section of natural geography and section on human geography; Tartu Department and the Youth Club.

In the reporting year the plan of research work of the Society included three research topics:

- Estonian geography (supervised by Member of Academy Anto Raukas);
- History of Estonian cartography (supervised by Candidate in Geography Heino Mardiste) with a subtopic “Map collection of A. J. von Krusenstern”;
- History of geography (supervised by PhD in Geography Erki Tammiksaar) with a subtopic “Reception of Antarctic continent in scientific literature of the 19th and 20th C”.

A general meeting of the Society was held on 9th April, where PhD in Geography Arvo Järvet delivered a paper on the topic “Attending the conferences on lakes of East Africa and studying the nature of those lakes”.

In May the Estonian Geographical Society took part in the Geographical Festival initiated by the International Geographical Union. The first event of the festival, arranged in co-operation with the Institute of Geography of the University of Tartu and the Granö Centre on 9 May in Tartu, was a meeting with a world-renown geographer, Member of the Finnish Academy and Honorary Doctor of the University of Tartu, Professor Olavi Granö, who delivered a lecture and introduced the activities of the Granö-centre, operating in the quarters of Villa Tammekann. President of the Estonian Geographical Society Jaan-Mati Punning ceremoniously presented to Professor Granö his Honorary Member's Diploma of the Estonian Geographical Society.

On 29 May a seminar “Tallinn and hazardous cargoes” was held in co-operation with Tallinn City Government and Tallinn University. Five papers were delivered, followed by a discussion. The seminar was attended by more



than 50 participants, among them environmental specialists from the neighbouring parishes of Tallinn, Tallinn City Government and several transport companies.

On 13-15 October an autumn symposium "Kevade" was organised at Palamuse by the Youth Club of the Estonian Geographical Society together with young geographers from Tartu.

The section for school geography of the Estonian Geographical Society participated in co-operation with the Institute of Geography of the University of Tartu and the Ministry of Education and Research in solving scientific-methodological problems concerning teaching of geography and developing of subject syllabuses, in preparation of state examinations for gymnasiums in geography and further analysis of examination results as well as in promotion of environmental education and self-education, the Estonian Geographical Society forwarded its corresponding proposals to the Ministry of Education and Research.

Several lectures, e.g. "Estonian popular census 2000", "Weather and climate" on the topics of state examinations were delivered to teachers by members of the Society for the purpose of extending their horizon. Hiking tours were organised to Keila Hydroelectric Power Station, Pakri Wind Park, Kakerdaja Bog, Viimsi peninsula to make acquaintance with the new schoolhouse of Viimsi and to Haanjamaa. Trips on nature trail in the Rocca al Mare forest park, visits to Rocca al Mare School and the Open Air Museum were arranged. An exchange of opinion on the topic of open air school was held at the Kõue schoolhouse.

Two seminars "Chemicals – our helpmates or enemies" and "Treatment of diversity of nature at grade school" were arranged.

Geographical Olympiads for school students were traditionally carried out under the leadership of the Tartu Department of the Estonian Geographical Society. The finals of the accounting year were held at Lääte Coeducational Gymnasium. Supported by the Ministry of Education and Research, the Gifted and Talented Development Centre and the Institute of Geography at the University of Tartu as well as several other institutions and schools, the Estonian team had an opportunity to participate in the 6th International Geographical Olympiad in Brisbane, Australia. Two golden and two silver medals were won by the team.

Members of the terminological commission advised those interested in the issues of geographical terminology and toponymics. The manuscript of the 36th volume of yearbook of the Society was prepared.

A traditional countywide winter excursion of the Youth Club was held on 27-29 January in Jõgeva County, including visits to the Jõgeva Plant Breeding Institute, Jõgeva Weather Station, Elistvere animal park and Palamuse parish

school. Under supervision of local guides acquaintance was made with the everyday life of the areas adjacent to Lake Peipsi. On 17-18 March members of the club went on skis from Sillamäe to the Aa coast along the ice upon the Gulf of Finland and had an opportunity to observe the limestone bluff from the side of the sea as well. The island of Naissaar was visited on 19-21 May. In September members of the club travelled on the trail of their forefathers in the Suetuki village of the Krasnojarski region in Siberia.

A scientific summer excursion of the Society took about 80 geographers to Järva County, where the participants obtained a picture of the history and present day of the county under the guidance of Tiiu Saarist. Agricultural and environmental problems and the administrative reform were discussed at a meeting with the authorities of Türi parish and Paide City Governor.

Representation of the Society in the International Geographical Union and the Association of Geographical Societies of the Baltic Region, as well as participation of members of the Society in foreign scientific forums, dissemination of publications abroad and visits of foreign scientists to inform themselves as to the work of the Society has helped to introduce Estonian geographical science outside Estonia as well.

## **THE SOCIETY OF ESTONIAN REGIONAL STUDIES**

Associated with the Estonian Academy of Sciences  
27.01.1998



Founded 1939

Membership: 232 members

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Chairman: Andrus Ristkok, Tel: +372 5664 7806

Deputy Chairman: Kalju Laas, Tel: +372 659 2214

Scientific Secretary: Eva Maaring, Tel: +372 644 0475

At the general meeting of the Society on 24 March, the paper “Topical issues in archaeology” was delivered by Ants Kraut. By exposition of new publications, the works released by regional studies activists were presented. The 7-strong Board held nine meetings. There are members of the Society in all counties. A branch or an affiliate of the Society has been set up in Tallinn (67 members), Pärnu County (47), Viljandi County (28), Järva County (21), Harju County (19), Lääne-Viru and Ida-Viru Counties together (14). There was also co-operation with non-affiliated enthusiasts of regional studies. Active at the Society is a village working group (8 members, chairman Kaljo Laas). There was planned the release of a methodological handbook of the village researcher. The Society lost through death its honorary members, outstanding experts of regional studies, researchers Voldemar Miller (1911-2006) and Jaan Eilart (1933-2006).

The Society had connections with other associations interested in regional studies. Together with the Estonian National Heritage Society a common yearbook is being issued. Exchange of information is current with Estonian Genealogical Society, Estonian Geographical Society, etc. as well as several other institutions (museums, Estonian Centre of Youth Work) and interest groups-affiliates in counties.

Activity of the Society is basically oriented to methodological problems of regional studies, in the first place in the area of storage of materials related to the past (archival sources, monuments) and, of course, to the study of localities. There was a study excursion held on 12-13 August to Põlvamaa (supervised by Kaljo Laas and Enn Esko). An excursion to the Metsakalmistu cemetery in Tallinn (supervisors Ene Luka and Mare Kask) was held for closer acquaintance with monuments. The members looked at the stock of Tallinn City Archives (supervisors Kalju Idvand and Kalmer Mäeorg) and the historical art values in Estonian Art Museum (supervisor Anne Intera). Together with activists of regional studies of Tallinn City Museum, there was

organised a study tour on the topic “Juhkental” (supervisor Robert Nerman). In co-operation with Estonian Centre of Youth Work (Ene Luka), a common expedition of young guides and activists of regional studies was held on 23-25 August “Karula 2006. Habitat – heritage landscape”. The National Regional Studies Conference of School Students 2006 (38th in succession) was held in Pärnu on 13th October.

There were exhibitions held (about 20), excursions (30) and events presenting the localities (35). There were lectures delivered (over 30), school students supervised (25) and other interested parties consulted (40). Topical studies were carried out by majority of members. Materials were collected for museums. Manuscripts were made (30), booklets and books (over 30) and papers (about 200) published.

#### Publications in 2006:

- Ellen, J. (comp.). Hidden pain. Second book: Retrospective view to mid-20th C. Tallinn, 160 pp. (in Estonian)
- Hang, V. Häidaste village. Tõstamaa parish. VI. 149 pp. (in Estonian)
- Hoolma, M., Kärner, A., Laube, V., Murulauk, S. (comp.). Legacy box: Collection of regional studies works by students of Pärnu town and county 3. 2005, 366 pp. (in Estonian)
- Iisaku stories. Society of Friends of Iisaku Museum, 2005, 74 pp. (in Estonian)
- Joosep, E. (comp.). Pärnu Co-educational Gymnasium from the beginning until 1952. Tallinn, 800 pp. (in Estonian)
- Jõesaar, M.-A., Last, H. One theatre in two towns. Paide, 168 pp. (in Estonian)
- Järvemäe, L. (comp.). Between two rivers: Our life through ages, 4. Paikuse, 72 pp. (in Estonian)
- Kallas, L. My life and that of my dependents in the middle of altered environment. Häädemeeste, 55 pp. (in Estonian)
- Kallas, V. Between two rivers. Pärnu, 559 pp. (in Estonian)
- Kasvandik, S. (comp.). Häädemeeste Life, no 33, 1, 60 pp. (in Estonian)
- Kasvandik, S. (comp.). Häädemeeste Life, no 34, 2, 60 pp. (in Estonian)
- Kõverik, I., Salm, H. Tõrva church–chamber hall 100. Tõrva, 160 pp. (in Estonian)
- Village on the borderline of two parishes. Society of Piistaoja village, 79 pp. (in Estonian)
- Laas, K. Vedu village through ages. Tallinn, 69 pp. (in Estonian)
- Luka, E. (comp.). 38th National Regional Studies Conference of School Students on 13th October 2006 in Pärnu. 24 pp. (in Estonian)
- Norberg, A. Helgi Vihma’s bibliography. Tallinn, 65 pp. (in Estonian)
- Nõmme house stories. Nõmme Museum, 73 pp. (in Estonian)
- Paluteder, A. Five thousand days. Tallinn, 2005, 216 pp. (in Estonian)
- Puss, F. History of Pikavere village. Society of Pikavere village, 36 pp. (in Estonian)
- Põldmäe, J. Rae parish through ages. Rae Parish Government, 462 pp. (in Estonian)

- Treimann, H., Treimann, T. (comp.). Travels to the past of Raplamaa: regional studies and reminiscences. Rapla Educational Society, 238 pp. (in Estonian)
- Sarv, S. Pärnu: From Ülejõe through Rääma to Tammiste. Pärnu, 76 pp. (in Estonian)
- Seeland, S. History of Halinga parish. Pärnu-Jaagupi, 571 pp. (in Estonian)
- Seeland, S. “Velise Wabariik” or events of 1905 and its repercussions. Pärnu-Jaagupi, 2005, 33 pp. (in Estonian)
- Suuroja, K., Miidel, A., Raukas, A. (eds.). Baltic clint, Symbol of Estonia. Tallinn, 224 pp.
- Särekanno, G., Tamm, J. (comp.). Yearbook of the Society of Estonian Regional Studies and Estonian National Heritage Society 2005. Tallinn, 174 pp. (in Estonian)
- Tallinn Economics School 1906–2006. 69 pp. (in Estonian)
- Uustal, B. *et al.* (comp.). Biographies of the Toila parish. I. Toila, 174 pp. (in Estonian)
- Uustal, B. *et al.* (comp.). Biographies of the Toila parish. II. Toila, 166 pp. (in Estonian)
- Vaiksaar, A. (comp.). Muraka: Village at Pärnu river. Jõeääre Taluselts, 79 pp. (in Estonian)
- Vallek, E. About Uulu from several angles. 2. Pärnu, 120 pp. (in Estonian)
- Vill, R. Põlva song festivals 150. Põlva, 144 pp. (in Estonian)
- Volmer, O. History of Tõstamaa parish school 13- 20th C. Tartu, 88 pp. (in Estonian)

## **ESTONIAN MOTHER TONGUE SOCIETY**

Associated with the Estonian Academy of Sciences

4.02.1998

Founded 1920

Membership: 333 active members, 11 honorary members

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Librarian: Helju Kaal, Tel: +372 644 9331



In 2006 the Estonian Mother Tongue Society held 2 conferences, 5 meetings with scientific papers and 5 language days abroad.

Outside Estonia the Language Days in Petseri, St. Petersburg, Uppsala, Göteborg and Riga were held, organised in co-operation with the Ministry of Education and Research and local Estonian societies. Five papers, delivered at the 6th St. Petersburg Day of the Estonian Language were widely different by topics. Traditionally, the papers included a review of the Estonian language policy; of a more historical undertone was the presentation of the activities of the Estonian Mother Tongue Society and of the Estonian patriots active in St. Petersburg in the last but one century. For the first time, the topic was extended to Estonian literature. Two papers were focusing on orthography and language study. Within the framework of two language days held in Sweden, a memorial stone was established on the grave of Professor Andrus Saareste in Uppsala in co-operation with the Ministry of Education and Research, the University of Tartu and the Estonian Mother Tongue Society. Altogether, 21 papers were delivered at language days abroad.

On 27 June the traditional J. V. Veski language conference was held in Tartu. The topic of the XXXVIII Veski day was "The Estonian language in the Estonian school", four papers were included in the programme. In the opening paper "The mother tongue: whose concern?" Krista Kerge spoke on the topical issue concerning the composition of study programmes. Külliki Kask compared in her report "The Estonian language in the Estonian school: the teacher's angle of view" the share of the mother tongue in the compulsory study programmes for the basic school and gymnasium level of several EU countries. Maia Rõigas presented a review "Preparation of teachers of the Estonian language in the University of Tartu". Chris-Evelin Luik presented in her paper "Checking on the mother tongue skills of the gymnasium leaver" an overview of how the skills of the Estonian language of the school-leavers were checked from the time of the first Republic of Estonia to the present day, and

presented the final examination for the mother tongue in several other European countries.

With a view of making the students' conference, usually held in June, a scientific event of broader partnership, the Estonian Mother Tongue Society held on 29 September a conference of young researchers of the European languages at the University of Tartu. Bachelor's and Master's level students and gymnasium students spoke about their work in relation to language studies. Papers were divided into two parallel sections; three opening speakers were represented by Tallinn and Tartu students and Estonian school leavers. After that, seven papers were delivered in the section "Language in Language", of speakers three were from Helsinki University. Six papers were delivered in the section "Language in the Society".

At meetings with scientific papers, there were delivered 17 papers. Speaking on topic of "The Estonian language at home and abroad" were, on 20 February Jüri Valge, Lore Listra and Ilmar Tomusk. The Estonian sign language was delved into on 23 October by Urmas Sutrop, Liivi Hollman and Vahur Laiapea. The Day of Dialectal Grammar of the Estonian Mother Tongue Society on 27 November commemorated the 100th anniversary of Pent Nurmekund. At the folklore topical meeting, papers were delivered by Kanni Labi, Katre Õim and Eva Labotkin.

At the annual meeting of the Estonian Mother Tongue Society on 27 March 2006, the academic paper was delivered, on the topic "The syntax of the Estonian language after EKG" by Mati Ereht, the report of the 86th (2005) year of activity of the Society was delivered by scientific secretary Maria-Maren Sepper. The general meeting unanimously approved the proposition of the Board to elect Peeter Päll the new Elder of the Language Working Group, in place of the present Elder Tiit-Rein Viitso, due to expiration of his powers. The general meeting also elected the new Board of the Society for the following four years: Helle Metslang (chairman), Karl Pajusalu, Jüri Viikberg (deputy chairmen), Mati Ereht, Annika Kilgi, Pire Teras, Asta Õim. As from 1 October, Terje Potter holds the office of scientific secretary.

The language working group of the Estonian Mother Tongue Society held in 2006 three meetings. It discussed the amendments in selection of place names of ÕS 2006 and in the initial letters of the particles. The discussion on the latter is going on. In September 2006 the Government adopted the new regulations regarding the establishment of a new norm of literary language, in which the language working group had been assigned a more important role in formation of the norm. Therefore, the language working group started the discussion of its rules and regulations and the amendment of statute of the Estonian Mother Tongue Society. At the meeting held on 16 October, the working group approved, basing on the Regulation of the Government, the sentence composed by

Mati Ereht “handbook of orthology”, reviewers of the book were Helle Metslang and Urve Pirso.

The yearbook of the Estonian Mother Tongue Society 51 (2005) included in the rubric of reviews linguistic articles dedicated to the anniversaries of Ferdinand Johann Wiedemann 200 and Paul Ariste 100 .

Published in 2006:

- Ereht, M. (ed. in chief), Sepper, M.-M. (ed.). Yearbook of the Estonian Mother Tongue Society 51 (2005). Estonian Mother Tongue Society of the Estonian Academy of Sciences, Tallinn, 2006, 344 pp. (in Estonian)
- Language magazine Oma Keel, no 1, 80 pp.
- Language magazine Oma Keel, no 2, 88 pp.

The library of the Estonian Mother Tongue Society was replenished in 2006 by 93 items of printed matter, obtained by exchange, donation and purchase. The library keeps on record 5828 inventory items of printed matter.



## **ESTONIAN UNION OF THE HISTORY AND PHILOSOPHY OF SCIENCE**

Associated with the Estonian Academy of Sciences

4.02.1998

Founded 1967

Membership: 74 active members, 7 honorary members (of whom 4 outside Estonia), 9 corporate members

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Scientific Secretary: Erki Tammiksaar, Tel: +372 742 1514

The Estonian Union of the History and Philosophy of Science (TTEÜ) is divided into Tallinn and Tartu branches. It is a member of the Baltic Association of the History and Philosophy of Science and of both autonomous divisions of the International Union of the History and Philosophy of Science, of which one embraces the history of science and technology and the other deals with the logic, methodology and philosophy of science.

In 2006 the TTEÜ held two meetings. At the general meeting of 22 May, it was decided, upon the proposition of the Board, to amend the statute of TTEÜ by introducing the opportunity to assign grants for research in the history of science.

To complete the Biographical Lexicon of Estonian Scientists, volume III, the Board of the TTEÜ requested more funds for implementation of the project.

Through its members the TTEÜ participated in preparation of the exposition displaying the voyage around the world of Adam Johann von Krusenstern at the Museum of Tartu University History; helped to prepare the popular science film "In the footsteps of Middendorff", composed several popular science pieces of printed matter (e.g., "Inventions and discoveries in the imperial University of Tartu"); was active in scientific research and published several articles both in Estonian dailies and information carriers of local import. Members of the TTEÜ participated in scientific seminars and lectures organised by the Estonian Academy of Sciences; organised a conference on the history of science, dedicated to the Department of Mechanics of Tallinn University of Technology (of which a book was released "Department of Mechanics 70" (Tallinn, 2006, in Estonian) in Tallinn University of Technology and Tallinn University; participated in the celebration of the 90th birth anniversary of the hydrologist Armin Kask. On that occasion, a book was published, "Hydrologist and water scientist Armin Kask" (Tallinn, 2006).

The Tartu branch of the TTEÜ started monthly meetings with the Academic Baltic German Cultural Society in Tartu with presentation of scientific papers.

A new volume by the TTEÜ in the series “History of science and today” (to appear in 2007) was prepared. The TTEÜ contributed to the organisation of a conference of the historians of science in the Baltic States in Vilnius (October 2006).

At the meeting of the Tallinn branch of the TTEÜ, an overview of the general meeting held in Tartu was presented. In October, the Tallinn branch of the TTEÜ and the Estonian Union of Machine Building Industry held a conference. A book entitled “Estonian Union of Machine Building Industry 1991-2006” (Tallinn, 2006) was published. Upon the decision of the Board of the TTEÜ, the Tartu branch moved out from its premises in the house Domus Dorpatensis in Tartu with the purpose of reducing maintenance costs. The Tallinn branch also moved out from its office in the former house of the Institute of Geology of the Estonian Academy of Sciences in the Estonia Blvd. In Tartu, new suitable rooms were found at the Museum of Tartu University History, in Tallinn in the premises of the Estonian Maritime Academy. In connection with moving, the Board handed over part of the TTEÜ archives to the Estonian Archives of History in order to preserve the documents of the only Estonian organisation on the history of science and source materials for the “Biographical Lexicon of Estonian Scientists” of unique value.

## **ESTONIAN LEARNED SOCIETY IN SWEDEN**

Associated with the Estonian Academy of Sciences

19.03.1999

Founded 1945

Membership: 97 active members and 3 honorary members.

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Secretary: Diana Krull: Tel: +46 8 162852 , [diana.krull@ling.su.se](mailto:diana.krull@ling.su.se),

The Estonian Learned Society in Sweden incorporates Estonian scientists and scholars residing in Sweden and constitutes a forum, where they can present papers in their native language.

The Society organized its 2006 annual meeting in Stockholm, five meetings with papers and a ceremonial public meeting celebrating the anniversary of the University of Tartu.

At the annual meeting on 6 February, Tanel Telliskivi delivered a paper on testing of the stability of roll-on/roll-off ships. The papers presented at other meetings covered a number of different subjects: the 1920 Peace Treaty between Estonia and Russia (Helmut Piirimäe), place names in Estonian-Swedish areas (Kristin Ilves), the use of arthroscopy in orthopedics (Hendrik Penno), the Estonian language spoken by the Estonians in Sweden (Leelo Keevallik) and the assessment of the abuse of narcotic preparations in Estonia (Kristiina Rajaleid).

At the celebration of the 87th anniversary of the University of Tartu on 3 December, Professor Jüri Allik read a paper titled: "Estonian Science in the Wide World".

Docent Paavo Roos delivered a paper on the biographies of the period of Antiquity at an annual meeting of the Southern Swedish Department of the Society on 9 March.

A paper expanding on genes, languages and myths was presented by Licensee of Philosophy Ants-Michael Uesson on September 10.

Estonian scholar of literature Peeter Olesk delivered a paper dedicated to Estonian nominees for the Nobel Prize on the celebration of the anniversary of the University of Tartu on November 26.

## **ESTONIAN LITERARY SOCIETY**

Associated with the Estonian Academy of Sciences  
23.01.2001

Founded 1907

Membership: 280 members, including 25 lifetime members,  
10 honorary members and 22 trustees

Address: Vanemuise 19, 51014 Tartu

Tallinn branch: Estonian Institute, Suur-Karja 14, 10140 Tallinn, ESTONIA

Website: <http://www.kirjandus.ee>

Chairman: Toomas Liivamägi, Tel: +372 515 3274, [toomas.liivamagi@ut.ee](mailto:toomas.liivamagi@ut.ee)

Academic Secretary: Agne Tamm, Tel: +372 7427 079, [eks@kirjandus.ee](mailto:eks@kirjandus.ee)

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The year of 2006 represented for the Estonian Literary Society (EKS) first and foremost the year of young people. Besides the magazine for the young *Värske Rõhk* (Fresh Accent) a new series of books *Värske Raamat* (Fresh Book) started to appear and various events were held especially for the young people. A greater number of people than usual joined the Society from among students of the University of Tartu.

A series of events “Literary disco” was started, targeted at the young people, whereat the authors of *Värske Rõhk* as well as authors theretofore unknown introduced their textual compositions to the public.

The series of seminars “Estonian original copies in the Estonian theatre” was proceeded in co-operation with the Department of Theatrical Science of the University of Tartu, holding under consideration the Estonian original copies – mostly staging of new drama texts, but also the new interpretations of Estonian drama classics. Comments on the staging were given by a critic and a producer or an author. Seminars were recorded with the purpose of publication of the texts in the special issue of the literary magazine *Vihik* 2007.

The Society continued the series of seminars “Cryptology”, scrutinising the Estonian literary classics and “From Diary to History of Culture” (in co-operation with the Karl Ristikivi Society), speculating on different topics of history of culture.

In the gallery hall Crypt of the Tartu House of Literature, there were held regular exhibitions.

EKS and the Finnish Institute held in March jointly a traditional colloquium on Women’s Day, discussing the topic “Women and War”. Speakers were both from Estonia and Finland.

The traditional survey meeting of Estonian literature provided a synopsis of volumes of poetry published in 2006, works of fiction, drama literature and literature critics.

In June, Ain Kaalep's 80th anniversary was celebrated by a conference, the papers of which were to be published in yearbook of the EKS.

In August, EKS released a volume of fiction "Tartu is a dream", containing visions of sixteen writers related to Tartu about Tartu as a life environment of specific atmosphere.

25-28 April – literary festival SOTSIA was held, this time besides Tallinn also in Viljandi. This year the sub-topic of Sotsia was "Futu", those interested could participate in literary nights and discussion circles dedicated to future, fantasy and science fiction. Festival was attended by nearly 30 writers both from Estonia and abroad.

3-7 May – the Tartu literary festival Prima Vista was held, for one day moving to Narva. Main organisers of the festival were Estonian Literary Society, Union of Estonian Writers, Library of University of Tartu and O. Luts' Tartu City Library. At the festival, there was the book fair "Utlib Market '06", the exhibition-sale of specialist literature in foreign languages (linguistics, study of literature, history and philosophy), meetings with writers, presentations of books, children's event, different workshops, expositions etc. Speaking at the festival were over 40 writers from Estonia and abroad.

On 19 May the Vanemuise Cultural Street Day took place in Tartu, organised by the Society, the Tartu Artists Union, the Estonian Literary Museum, the Finnish Institute, the Tartu Branch of the Estonian Writers Union, the Museum of Geology of the University of Tartu, and the Museum of the KGB Dungeons, etc. Those interested had a chance to visit various exhibitions, to watch film programmes, participate at workshops, concerts and watch dance and theatrical performances etc.

The Nüpli 14th spring school held by the Estonian Literary Museum "Subject and literary text" discussed, what was the subject of different texts, how the texts themselves treated the subject ("I", speaker-writer), how the subject-ness was construed or taken to pieces in a literary text; or wider – how the subject was treated from the viewpoint of the theory of literature, philosophically or sociologically. The papers attempted to touch upon different treatments of the subject from that specific angle, how they would be useful in understanding a literary text.

The Representation of Tallinn organised together with the Central Library a series of events "Umbluule" for the young people, where poets representing the younger and older generations spoke. The Society organised together with the Radio Theatre several radio shows with the attendance of the authors of the play, producers, actors or critics. The Society continued the seminar for critics,

where the inhabitants of Tallinn were through an analysis introduced with the literature of South Estonia.

Publications in 2006:

- Quarterly Vihik, no 11, 92 pp.
- Magazine Värsk Rõhk, no 2, 49 pp; no 3, 87 pp; no 4, 79 pp; no 5, 78 pp; no 6, 82 pp; no 7, 78 pp and no 8, 78 pp.
- Series Värsk Raamat no 1, 50 pp; no 2, 50 pp.
- Ojasaar, K., Vaher, B. (ed.). Tartu is a dream. Tartu, 180 pp. (in Estonian)

## **ESTONIAN LEARNED SOCIETY**

Associated with the Estonian Academy of Sciences  
23.01.2001



Founded 1838

Membership: 102 active members, 12 honorary members

Address: Lossi 3, 51003 Tartu, ESTONIA

Website: <http://www.ut.ee/OES>

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[tiitroos@yahoo.com](mailto:tiitroos@yahoo.com)

Vice-Chairman: Heiki Valk, Tel: +372 737 5653, [heiki.valk@ut.ee](mailto:heiki.valk@ut.ee)

The Estonian Learned Society is a society for research in the humanities operating at the University of Tartu and bringing together representatives of various scientific fields related to the study of Estonia, with an aim of introducing the most recent results of research in the subjects related to Estonia and providing opportunities to speak up and get experience for younger scientists and scholars.

17 working meetings were conducted in the accounting year with the total of 481 participants – 174 members and 307 guests. 25 papers were delivered at the meetings. Two Days with Speeches were held: “Mirror of time: 240 years of press in Estonia” (in co-operation with the Literary Museum and the Department of Journalism and Communication of the University of Tartu) and “Physician of the Emperor Philipp Jakob Karell 200” (in co-operation with the Museum of Tartu University History). Attendance was at its height at the delivery of the paper “Roads and communication in South Estonia at the end of pre-historical time and in the Middle Ages” by Martti Veldi and the paper “System of camps of the German occupation powers in Estonia 1941–1944” by Meelis Maripuu.

Volume 6 of the History of Estonia appeared in 2006. Conference compendium dedicated to the 200th anniversary of G. Fr. von Bunge was published in the series of the Proceedings of the Estonian Learned Society, which was started anew. The compilation of the first part of a 4-volume book “Setomaa” was started with participation of the Society.

In co-operation with the town of Viljandi, archaeological excavations were carried on in the Viljandi Castle Park. In the ski jumping hill, the remains of the besieging contraption of 1223 were studied, in co-operation with the Department of Archaeology of the University of Tartu and Viljandi City Government. In the ruins of the Order Castle, research works with a view to conserving the stone walls were continued in the region of the choir room of the castle chapel and in the area of the cellar room, discovered to the north of the convent building. Rescue excavations were carried out at the location, where the treasure of Palutaja, dating from the Livonian war (Kanepi parish) had been discovered.

## **ESTONIAN MUSICOLOGICAL SOCIETY**

Associated with the Estonian Academy of Sciences

21.06.2004

Founded 1992

Membership: 55 active members, 1 honorary member

Address: Rävåla pst. 16, 10143 Tallinn, ESTONIA

E-mail: emts@hot.ee

Website: <http://www.muusikateadus.ee>

Chairman: Toomas Siitan, Tel: +372 529 9117

E-mail: tsiitan@estpak.ee

The Estonian Musicological Society brings together people, who are sharing their interest towards scholarly or scientific study of music and supports practicing of all areas of music in Estonia.

Every year the Society acts as a moderator of two meetings with papers, in spring in Tartu and in autumn in Tallinn.

The Tartu Day of the Society traditionally seeks the connections of the musicology with other areas of the Humanities. At the event held on 29 April, the archaeologists Andres Tvauri and Ain Mäesalu delivered the papers about the 12th-14th C. discoveries of musical instruments in Estonia. The co-paper was presented by craftsman of musical instruments Taavi-Mats Utt. Guldžahon Jussufi and Pille Raitmaa spoke about music in different cult function and Urve Lippus and Kadri Steinbach considered the relatively young area of musicology – critical study of recordings.

On autumn Leichter Day in Tallinn on 16 October, Professor Mart Humal of the Estonian Academy of Music and Theatre delivered a lecture on the theory of music “Mythological dimension of Schubert’s Symphony C-major (D. 944) in the second part” and project leader of Tallinn University Ivar Vinkel spoke about vibro-acoustical therapy.

The Estonian Musicological Society acts in close co-operation with the department of musicology of the Estonian Academy of Music and Theatre. Together they organised a memorial conference for Vaike Sarv on 3 February, wherein four papers treating the Seto song heritage from different aspects (Kristi Salve, Andreas Kalkun, Marju Torp-Kõivupuu, Triinu Ojamaa) were delivered.

The tradition of the Estonian Musicological Society is to organise a cultural history hiking tour at the beginning of September. The parishes adjacent to Lake Peipsi were visited in 2006.



## **ESTONIAN PHYSICAL SOCIETY**

Associated with the Estonian Academy of Sciences  
14.06.2005



Founded 1989

Membership: 181 active members and 4 honorary members

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E-mail: [efs@fi.tartu.ee](mailto:efs@fi.tartu.ee)

Website: [http://: www.fyysika.ee/efs](http://www.fyysika.ee/efs)

Chairman: Arvo Kikas, Tel: +372 742 8182, [Arvo.Kikas@ut.ee](mailto:Arvo.Kikas@ut.ee)

Among traditional events, the Society moderated on 21 and 22 March in Tartu the Estonian XXXVI Physics Days and XXVIII Teachers of Physics Days. There were delivered 18 verbal and 14 poster papers (see [www.fyysika.ee/efs](http://www.fyysika.ee/efs)). There were over 150 participants. The Physics Days were organised by Arvo Kikas, Ilmar Kink and Koit Muring.

Within the framework of the Physics Days, on 21 March the general meeting of the Society was held, approving the activities and financial report of the Board of the Society; Kaido Reivelt made a summary about the events of the Year of Physics. Elected as new members of the Board were Maarja Grossberg and Kaido Reivelt. On 22 March, meeting of the department of school physics of the Society was held, hearing a review by Kaido Reivelt about popularising the physics through mediation of the Science Bus; there was a discussion about the new syllabus. The Society decided to actively participate in working out new syllabuses and to organise respective seminars for it. The meeting also elected the new Board of the School Physics Department of Society in the composition: Jaak Jõgi (chairman), Lehho Jõumees, Jaan Paaver and Reina Henn.

On the Physics Days, there was issued the annual prize of the Society to Enn Saar for research of the structure of the Universe. The letter of merit of the Physical Society was granted to Kaido Reivelt for organising the events of the World Year of Physics in Estonia and to the collective of the Science Bus for propagating physics. The student's prize of the Society was given to Kristjan Kannike for the work "Running of neutrino masses and mixing angles in minimal super-symmetric standard model", and the school students prize of the Society to the collective of authors Jaan Suve, Rivo Uibo and Sander Küttis for the work "Growth of ionic crystals", executed at Rakvere High School of Science under supervision of teacher Kadri-Ly Trahv. Prize for the best posture paper of the students at the Physics Days was merited by Andrei Kärkkänen's poster "Photodesorption manifestations in electrical conductivity of films prepared from carbon nanopipes".

The yearbook of the Society 2005 came out (editors Anna Aret, Helle Kaasik and Piret Kuusk).

At the 51st Physics Olympiad of Estonian school youth held in March, the Society granted a special prize (annual subscription of the magazine “Scientific American”) to Andres Laan of Tallinn Secondary Science School.

There continued the events popularising physics initiated in the World Year of Physics. Upon initiative of Kaido Reivelt, Science Bus carried on its work, so did the development of physics portal ([www.fyysika.ee](http://www.fyysika.ee)), upon initiative of Heli Valtna there were held physical experiments in Estonian TV “Terevision” and as a result of an effort of almost fifty present and future physicists, there were organised the Family Days “2006, propagating science among general public. The Estonian Physical Society was awarded, for popularising physics, at the competition “Prize for Popularising the Estonian Science” 1st Prize and the Society was finalist of the 2006 European Descartes Prize for Science Communication.

The department of school physics was active in compiling the physics syllabus. Upon initiative of Jaak Jõgi, Kalev Tarkpea and Enn Pärtel seminars “Help to form the rhyme and reason of the school physics” were held on 21 and 22 April at Lääte Co-educational Upper Secondary School and on 13 May in Tartu. The seminars were attended by 25 people involved with teaching physics. At the first seminar, the role of goals for teaching physics was discussed; the participants started formulating the contents list and results of instruction of the teaching of physics; at the second seminar, the curriculum of grade school, the main curriculum of the upper secondary school and the extended curriculum of the upper secondary school were discussed. The results of the seminars have made a significant contribution to the curriculum of physics underway.

Upon initiative of Jaak Jõgi, there was the 3rd summer school of teachers of physics of the Society held in the premises of Türi College of the University of Tartu on 26th and 27th June. 15 participants, knowledge was shared by researchers of the National Institute of Chemical Physics and Biophysics, the Institute of Physics at Tallinn University of Technology and Tallinn University.

Upon initiative of the young physicists, there were two schools of physics for the young held in the reporting year (see also <http://www.fyysika.ee/kool/>). On 16-18 June, Arbavere hosted traditional summer school of young physicists of the Society. Participating were 72 students from Tallinn University of Technology, Tallinn University and University of Tartu. There were 20 hours of academic lectures and seminars and the students’ poster and verbal paper session. Organisers were Maarja Grossberg, Andi Hektor, Ahto Kuusk, giving a hand locally were Mait Müntel, Andrei Tšernov and the company of Science Bus. On 20-22 October, Kääriku hosted annual autumn school of exact sciences of the Society 2006. The number of participants was record breaking,

amounting to 123 students, scientists and faculty members. 20 hours of lectures and seminars were heard and a students' session with posters and speeches was held. Organisers were Maarja Grossberg, Andi Hektor, Ahto Kuusk, Rünno Lõhmus, Silver Lätt and Imre Treufeld.

In 2006, there were 185 active members in the Society. In 2006 the Society elected Member of Academy Karl Rebane as honorary member of the Society. The Estonian Physical Society continues to be member of the European Physical Society.

## IN MEMORIAM

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Member of Academy *Pavel Bogovski*  
10.03.1919–8.03.2006

Member of Academy Pavel Bogovski, the pathfinder of Estonian experimental oncology, departed a couple of days before his 87th birthday on 8 March 2006.

Pavel Bogovski was born to a doctor's family in Tartu on 10 March 1919. He graduated from H. Treffner Gymnasium in 1937 and acquired the profession of a physician from Alma-Ata Medical Institute in 1943. Called to active service, P. Bogovski served as a medical officer with the Estonian Rifle Corps to the end of the war. P. Bogovski obtained his Candidate of Medicine degree from the University of Tartu in 1949 and Doctor of Medicine degree from Leningrad Medical Institute of Sanitary Hygiene in 1961.

His doctoral thesis "Carcinogenic Effect of Estonian Oil Shale Processing Products" and the following research laid the foundation for the development

of experimental oncology in Estonia. He got the Professorship in Pathologic Anatomy and Oncology in 1962.

Pavel Bogovski had a life-long affiliation with the Institute of Experimental and Clinical Medicine, where he started his career in 1949 as a post-graduate student. Having passed through various positions, he worked as Director up to 1991, except for the period when heading the Environmental Carcinogens Department of the Cancer Research Centre in Lyon (IARC) during 1968-1974.

A significant part of Pavel Bogovski's time-honoured research work was dedicated to the study of carcinogens at an international as well as Estonian level. Professor Bogovski was a highly esteemed lecturer on topics pertaining to cancer prevention. It was upon his initiative that the medical magazine "Health Care in Soviet Estonia" came into being. He participated in several international cancer research projects, authored over 200 scientific publications and supervised 10 doctoral and candidate's theses.

Pavel Bogovski as a man of science was characterized by his versatile erudition and command of several languages, for what reason his contribution to the enrichment and development of the Estonian-language medical terminology is outstanding. The comprehensive seven-volume "International Classification of Diseases. RHK-10" and "Medical Dictionary" were published largely by virtue of his inlaid work.

In 1965 Pavel Bogovski was elected Corresponding Member of the Russian Academy of Medical Sciences. He was Chairman of the Estonian Medical Terminology Commission (1977-1999) and the Estonian Medical Ethics Committee as well as a member of several scientific and professional societies – the Estonian Doctors Union, the Union of Estonian Scientists, the Estonian Cancer Union and the Estonian Pathologists Society.

Pavel Bogovski was elected Member of the Estonian Academy of Sciences in 1993.

In 1998 he was decorated with the 3rd class Order of the White Star. In 1999 he was awarded the National Science Prize for longstanding productive research.

Member of Academy Bogovski was an exceptionally interesting and well-read conversational partner, who had an ability to understand the uniqueness of every individual and to appreciate the beauty of the integral nature.



Member of Academy *Lennart Meri*  
29.03.1929–14.03.2006

On 14 March 2006 died the patron and instigator of many meritorious undertakings, an exceptional personality, creator, statesman and a man of brilliant erudition – Member of Academy Lennart Meri.

Lennart Meri was born on 29 March 1929 in Tallinn as the elder son of an Estonian diplomat Georg Meri. The days of his youth and educational path were shaped by a complicated historical period – the first school years in Berlin and Paris were followed by harsh lessons of practical life as a deportee in Siberia during 1941-1946. In 1953 Lennart Meri graduated from the University of Tartu, majoring in history. Through the following decades he worked in various offices – as editor at Theatre Vanemuine, teacher at Tartu Art School, editor for Estonian Radio, scriptwriter and producer for Tallinnfilm, Secretary for International Relations at the Estonian Writers Union, promoter and Director of the Estonian Institute, etc. Among the creative works, special acknowledgement should be credited to his author's films, dedicated to the culture of the Finno-Ugrian peoples, which have received international recognition as well. The literary works "Hõbevalge" (Silvery

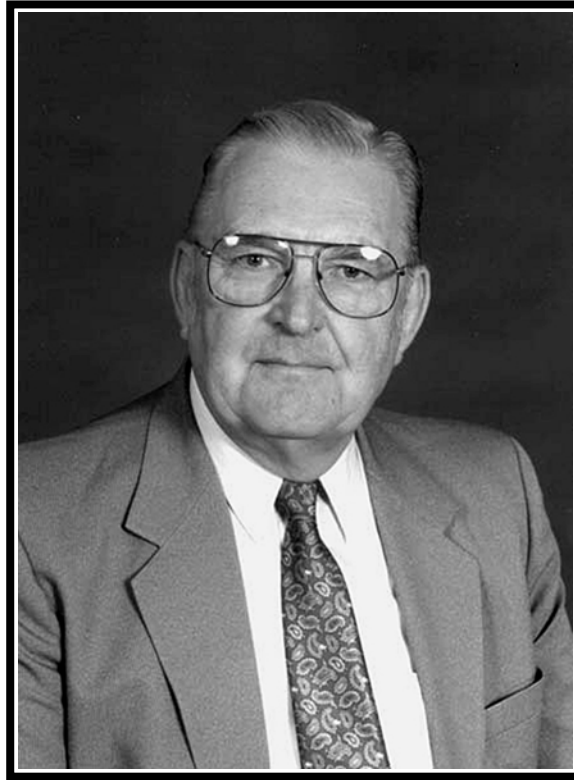
White) and “Hõbevalgem” (Brighter Shade of Silvery White) of Lennart Meri incorporate his versatile skills as a historian, writer and ideologist as well as the clearly formulated concepts for the consolidation of national identity, which constituted the basis for his political activities.

Lennart Meri was Estonian Foreign Minister in 1990-1992 and Ambassador in Finland after that. In 1992 Lennart Meri was elected and in 1996 he was re-elected President of the Republic of Estonia. In the position of the head of the state and a politician Lennart Meri combined patriotism with the European and global values, while he never failed to emphasise the essential role of democracy, good education, science and innovation. Key problems in the development of Estonia were reasoned and further strategies were shaped at his meetings with researchers, either within or outside the Academic Council of the President of the Republic. According to his vision, Estonia would rely upon extensive knowledge and skills germinating thereof – the direction of development he conceived in the specific meaning of the credo while laying down the future of a nation, independent despite its smallness in number.

Lennart Meri was elected Member of the Estonian Academy of Sciences in 2001 in recognition of his research in the area of ethnology and folklore of the Northern Eurasian nations.

Lennart Meri was awarded the Coudenhove-Kalergi Europe Prize and the Liberal International's Prize for Freedom as well as orders of several countries. He was elected as the European of the Year in 1998. Lennart Meri was a member of the Estonian Writers' Union and an honorary member of the Finnish Writers' Union. He was also a member of the Estonian Cinema Union, the PEN-club and the European Academy of Sciences and Letters, a corresponding member of the Finno-Ugrian Society and the Finnish Literature Society as well as an honorary doctor of several universities. He was the representative of the Government of the Republic of Estonia to the EU Future Convent in 2002-2003.

Thanks to his charismatic personality and eloquence, Lennart Meri attracted notable attention and recognition to himself as well as to his country. At the same time Lennart Meri was an excellent listener – a quality which is not too common among politicians nor – regretfully – amidst scientists.



Foreign Member of Academy *Endrik Nõges*  
5.04.1927–6.06.2006

On 6 June 2006, in his eightieth year of age, departed Endrik Nõges – a merited expatriate Estonian scientist in engineering.

Endrik Nõges was born on 5 April 1927 in Mõisaküla. The whirlwind of war landed the schoolboy in Germany, where he graduated from the Estonian Gymnasium of Geislingen in 1946. During 1946-1948 he continued his studies at Karlsruhe Higher Technical School, and after settling in the United States of America, at Denison University (Ohio) and Northwestern University (Illinois), which he graduated in 1954 with a bachelor's degree in electrical engineering. At the same university Endrik Nõges obtained his MSc in 1956 and the Doctor's degree in 1959.

Endrik Nõges worked at Northwestern University in 1954-1957, then at Washington University, holding the Professorship in electrical engineering during 1969-1992 and became Professor Emeritus in 1992. Additionally to teaching and research work, he held a number of administrative offices at Washington University as well, e.g. Vice-Dean for the Engineering Sciences, Programme Director and Head of Department.



Endrik Nõges worked as a visiting lecturer in Finland and Germany, was counselling several companies (Boeing Company, Bell Telephone Laboratories, etc.) and acted as a co-investigator in several government-funded research projects. His scientific interest was primarily focused on non-linear and discontinuous systems and in particular on global positioning and inertial navigation systems (GPS/INS).

Endrik Nõges participated in the activities of several scientific and professional organisations. He published numerous research works (incl. one monograph) in the field of frequency modulated control systems and non-linear discriminant functions. More than 40 doctoral and master theses were prepared under his supervision.

In 1995 Endrik Nõges was elected Foreign Member of the Estonian Academy of Sciences.

## REMEMBRANCE

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For the 120th anniversary of  
Member of Academy *Friedebert Tuglas*  
(a photo from 1912)

Friedebert Tuglas (civil name Mihkelson) was born to the carpenter's family of the Ahja manor in the parish of Võnnu on 2 March 1886. His educational path started at the Russian parish school of Maaritsa and elementary rural school at Uderna. The studies were continued at Tartu Municipal School and H. Treffner Gymnasium. He was involved with the literary-political circle of Tartu school students and "Noor-Eesti" (Young Estonia) the literary group arising from it. The artistic credo shared by the members of the group included mental fastidiousness, ethical self-discipline and pursuit of aesthetic perfection. Tuglas participated on the strength of his leftist world outlook in the demonstrations of 1905, was arrested and kept in Toompea prison for 2 months. He lived in political exile until the fall of the tsarist regime, primarily in Finland, Paris and Germany, but under assumed names travelled to other European countries as well, gaining rich cultural experience thereby.

Tuglas returned to his homeland in 1917, living in Tartu until 1944. The legendary literary societies "Siuru" and "Tarapita" were established on his initiative and so were literary magazines "Odamees", "Ilo" and "Tarapita", which were also edited by him. He was among the initiators of the Cultural Endowment of Estonia, originator of the idea to form the Estonian Authors' Union and Chairman of its Board (1922, 1925-1927). Artistically rigorous and

democratic main direction of the Union's magazine "Looming" was shaped by its first editor F. Tuglas. In the 1920-1930s he belonged to several societies, boards, commissions, working groups and panels as a recognized expert of the Estonian cultural life. Special mention should be made of his work as Chairman of the Estonian Literary Society (1929-1940).

In 1944 F. Tuglas moved to Tallinn, Vabaduse Blvd 12 (now Väikese Illimari 12). He proceeded with organisation of cultural activities, worked as Professor of Estonian and West-European literature at the University of Tartu, dealt with literary history studies and creative work. He was granted the title of People's Writer in 1946 and was elected as a corresponding member of the Estonian Academy of Sciences the same year. Throughout controversial years the Academy appeared for Tuglas as a place of shelter in its way, whereas officially blacklisted at the end of the 1940s, deprived of his civil rights and excluded from membership in all institutions – except for the Academy. The writer was forced into silence – his works were not published and he was expelled from the Writers' Union in 1950. During the period unfavourable for creation Tuglas accomplished to revise his entire work to a very large extent. His most excellent works were issued in an eight-volume set of "Works" within 1957-1962. Tuglas proceeded with editing of the bulk of his work at an advanced age until the end of his life once again for "Collected Works". At the same time he managed to organise and systematise (as well as add comments when needed) his comprehensive valuable personal archives by large. F. Tuglas made his last will in 1970, whereby he bequeathed his property to the Academy of Sciences to institute a house-museum research-centre at his latest residence in Nõmme and established an annual short story prize. The first laureates of the prize were selected by the writer himself and the awarding took place on his birthday - 2 March 1971.

The fact that the research and critical works of F. Tuglas exceed his fictional creation in total volume is little known. His literary legacy amounts to nearly 200 works, which are divided into belles-lettres (7 volumes, 2 novels), memoirs and travelogues (8 volumes), literary critics and research (13 volumes).

The plentiful finely elaborated essay-like critical works of Tuglas in "Critics" I–VIII, formed at the beginning of the 20th C a new conception of Estonian folklore and literary word until then. His literary criticism is characterised by high culture of analysis and precision of thought. Additionally to shorter reviews, articles and essays F. Tuglas has authored several voluminous studies in cultural history: "Departure of Ado Grenzstein", "Juhan Liiv", "Estonian Men of Letters Society". His travelogues and books of memoirs are of great impact in reference to cultural history. His posthumously published letters ("Selection of letters" 1986, "History of culture in the literary mirror" 1990) include interesting data full of facts and ideas. Realistic and romantic

perceptions of life and manners of presentation are uniquely combined in the fictional works of Tuglas.

Friedebert Tuglas – an honoured author, critic, literary scholar and translator died in Tallinn on 15 April 1971. He is buried at the Metsakalmistu Cemetery.

The Friedebert Tuglas House Museum in the composition of the Institute of Language and Literature of the Academy (Under and Tuglas Literature Centre from January 1993) was established in 1971 at the last residence of the writer at Väikeses Illimari 12. The Museum has been open to visitors since 1976. On 4 October 1993 a new research institution – Under and Tuglas Literature Centre of the Estonian Academy of Sciences was formed through uniting the Department of Literature of the Institute of Language and Literature with the House Museum. The affiliate museum in Nõmme maintains cultural heritage from the belongings of Friedebert Tuglas, Marie Under and Artur Adson, the house and its flower garden, provides services to researchers, excursions and single visitors. Collections of the affiliate museum include over 41 000 archival holdings from the heritage of Tuglas – his library, collections of art pieces, photos and newspaper cuttings as well as memorabilia.

The project “Scientific Collections of the Under and Tuglas Literature Centre (Cultural History Collections)” aiming to preserve, reflect and provide easier access to collections, fully open for scientific research, embraces digitalisation of the gramophone record library, renovation of the art collection, conversion of the photo collection into electronic format, upgrading of the electronic database KVIS, copying and digitalisation of the collection of cuttings, comprising articles assembled by Tuglas since 1905. The project “The Literary Legacy of Friedebert Tuglas”, executed within framework of the state programme “The Estonian Language and National Memory” sub-programme “National Memory and Identity”, is involved with preparation the 15-volume set of “Collected Works” for printing (critical editing of text, supplementation of epilogues, annotations, illustrations and other annexes, publication). The latest published volumes are composed of text-critically edited literary criticism and essays with annotations. The objective of the research project “The Correspondence of A. Adson and F. Tuglas in 1917-1944” executed during 2003-2006 was to reveal individual problems with regard to the general development of cultural life in the period reflected in the letters and in particular concerning the groups “Siuru” and “Tarapita”, magazine “Looming” and Writers’ Union, by publishing the exhaustively commented correspondence in full.

Every year on 2 March, Friedebert Tuglas’ short story prizes are handed over in the “white house among the pine trees”, which has become a legend in the Estonian cultural history. The series of recorded literary meetings of Tallinn Scientists’ House, which started in 1979 are continued as well as scientific conferences and symposiums, presentations of books, anniversaries and other cultural events.

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Estonian Academy of Sciences  
DEVELOPMENT PLAN  
2006-2010

## 1. INTRODUCTION

This Development Plan lays down the directions of development for the years of 2006–2010 of the Estonian Academy of Sciences as a scientific organisation under public law, with the aim to increasing the role and responsibility of the Academy in pointing out the way for development of research and high technology innovation, in shaping the national strategy of research and development, and in promotion of international scientific co-operation with the European Union and with other countries. This document is a follow-up to the Academy Development Plan for the years 2000-2004, approved by General Assembly on 15.06.2000. Regardless of certain implementation problems, the said Plan helped to enlarge the share of research and development in Estonia and to pose this country as attributing value to global knowledge.

## 2. ESTONIAN ACADEMY OF SCIENCES

The generic tasks of the Estonian Academy of Sciences have been fixed by respective legal acts (Estonian Academy of Sciences Act, Organisation of Research and Development Act) and Statute of the Estonian Academy of Sciences. The Academy, as a body of highly qualified scientists, has been governed in its activity by the country's research and development strategy "Knowledge-based Estonia" approved by Riigikogu (Parliament) in December 2001; the Academy participates in working out the new edition (for the years 2007-2013) of the Estonian R&D strategy.

The Academy sets the following goals:

- To analyse the developments witnessed in Estonia and in the world, as well as the outcome of research efforts, and to attract attention to high level scientific research that cannot be overlooked in Estonia;
- To exert influence on science policy and the society, on the path to knowledge-based Estonia;
- To act in furtherance of Estonia's economic, social and cultural development and conservation of environment.

To achieve those goals, the Academy initiates, if needed, the amendments and additions to legal acts.

### 3. PRINCIPLES OF ACTIVITY

#### 3.1. Vision

Underlying the knowledge-based society is the existence of a critical mass of knowledgeable people in the society required to sustain the exponential growth of knowledge, and the recognition of their activity by political forces influencing the development of society. While the exact sciences, and development works and innovation underpinned by them, are the main engines of the material well-being of the society, they do not stand in opposition to the Humanities and social sciences providing for culture, ethics and cohesion of the society.

Requirement that must be satisfied in advance for the state to make progress is that the state must acknowledge the wielding force of knowledge on politics. Globalisation of the research will give rise to a host of problems calling for solutions by the state of Estonia, specific due to the particular character of our environment, population and former scientific work.

The objective of the activity of the Academy is to provide for co-operation between researchers and decision makers in issues, which are related to physical and intellectual milieu, the public health and sustainable development of the society. Whereas the Academy must not overlook the interdisciplinary character of issues, the natural and anthropogenic perils, holding them in due view whenever possible and necessary, and the new developments in science. The Academy will give an active hand in moulding the national educational strategy, and it will hold out the need to build up the development of the society on science-based world outlook, basing on real, not ephemeral knowledge, doing away with populism, shallowness, subjective opinionated stances, stubbornly sticking to one's own opinions, and esotericism. A major task of the Academy is to remain a consistent and stalwart supporter of quality of the Estonian research.

By the year of 2010, the Academy will be a research organisation, whose influence and authority bases on independent and high level scientific experience. The Academy will have become a precursor, and originator of the strategy of front line science (both fundamental and applied research) in Estonia. The functions for the time being of the Academy will have been replenished by:

- Monitoring and analysis of research and development;
- Participation in organisation of grant financing of scientists;
- Participation in organisation of evaluation of Estonian research activity;
- Assisting in development of international co-operation of Estonian scientists.



### 3.2. Action plan

The Academy will emphasise its role in showing the way to front line science (fundamental and applied research) and formation of its strategy. Nevertheless, the activity of the Academy in that direction is sapped by insufficiently regulated legal space and scarcity of funds. The Academy will hold important the role in synthesising sciences, as well as in generalisation and implementation of knowledge obtained from analytical research. The Academy will continue co-operation with decision making assemblies, universities, Estonian research institutions and international science organisations (European Research Council (ERC), European Science Foundation (ESF), European Federation of National Academies of Sciences and Humanities (ALLEA), International Council of Science (ICSU) etc.).

The main activity of the Academy must, in bulk, be realised through the activity of Divisions of the Academy, and it will fully observe the goals and implementation schedules of the strategy “Knowledge-based Estonia 2007–2013 (TE II)”. Formation of the respective strategy is on the homestretch and the Academy is actively participating in its finalising and presentation to the legislative branch.

### 3.3. Tasks for the future

The Academy will focus, in particular on following problems, calling for consideration and solution in the proximate future or within the period embraced with the Development Plan:

- a) The Academy will carry on consultations with the goal to bring the Estonian Science Foundation under the “legal umbrella” of the Academy – i.e. to transform that private-law foundation into part of the public law Academy. The change being contemplated will facilitate the growth of the science foundation, linking it consistently to the increase of the state budget. This presumes sufficiently effective preliminary work and substantial changes in laws, providing to the scientific community and the lawmakers a feeling of security that the given undertaking is to the benefit of development of science and it will improve funding of the research.
- b) The Academy considers it expedient to take under its “legal umbrella” the system of evaluation of research, envisaged in the Organisation of Research and Development Act.
- c) The activity in the aforementioned areas, as well as elaboration of concrete development plans and strategies dictates the need to set up a Survey and Foresight Group at the Academy. The results of the activity of that working group can also be used by Estonian Research and Development Council, for planning its activities and decisions, enabling formulation of the shorter and longer term tactics and strategy of Estonian research and development. The working group is expected to evolve into a vital mediator between institutions of Estonia and those of the European Union, as

well as international science organisations. The working group can only be formed, however provided the Academy is respectively financed and suitable personnel is found and carefully trained.

- d) The Academy deems it necessary to set up, in its composition, a research structure composed of highly qualified researchers, with their positions funded for a fixed term – Institute of Advanced Studies, embracing Research Professors and researchers elected by the Academy in the process of contest for a fixed term, first of all in areas, where Estonia has sufficiently high scientific excellence, and where the future leaders of the scientific domains could work for 3-5 years. The Academy views the increase of the number of Research Professors and researchers elected by the Academy under contest for a fixed term an important stimulus for development of Estonian research. Research Professors and researchers elected by the Academy would continue work in suitable working groups in Estonia or abroad and their activity would be funded complementarily. The Academy will scrutinize the legal acts regulating the given area, with the purpose of making propositions to the Ministry of Education and Research and the legislative branch.
- e) The Academy will make use of all opportunities to involve young scientists in its activity, by organising seminars for post-doctors and by finding opportunities for interdisciplinary exchange of results of researchers working in different domains, furthering co-operation of young scientists, especially in directions important for Estonia. There will be established the sub-fund of Estonian Culture Capital, for marking the achievements of young scientists. The Academy will set the goal to find, in the nearest years the opportunities to establish the terms for grants and scholarships to young scientists working successfully.
- f) The Academy holds it important to organise meetings of Divisions and General Assemblies with research papers delivered, and hearings of scientific papers at sessions of the Board of Academy. The goal of hearing the scientific papers is mutual dissemination of information and in particular, pinpointing fuzzy areas with problems of common interest and seeking ways of solution to them, holding in mind development and co-ordination of strategy for different domains. More attention than hitherto will be paid to regularity of meetings of Divisions, while the number of sessions of General Assembly will be increased.
- g) The Academy holds in view the need to elevate the visibility of its activity and the whole research work in the country, for that purpose continuing publication of topical issues and communicating more with the press. The Academy will attempt to assess the credibility of outcomes of research published in media, and to complement them, if necessary. The Academy considers it important to continuously publish the works of top scientists in the Academy issues, and participation of its members in putting out study literature in Estonian.

- h) The Academy will support the Estonian research institutions in carrying out international scientific conferences in Estonia, and will publish the texts of papers in the “Proceedings” of the Academy.
- i) A major goal of the activity of the Academy is to find greater output than heretofore to the areas related to population and culture in Estonia. Respectively, the Academy will participate in the programme “Science and Culture” contemplated within the strategy “Knowledge-based Estonia 2007–2013”, while keeping in mind co-operation with creative societies.
- j) Estonia’s economical development demands significant increase of the share and efficiency of research in engineering, necessitating a larger contribution from the state budget and private sector in funding that area. With reference to the results of Survey and Foresight Group, the Academy will participate in composing the prognostication on opportunities of technological development in Estonia. For the same goal, the Academy will hold special seminars for analysis of industrial research. The Academy will keep in mind, in this connection, the private law based subsidiaries (and spin-off companies) having cropped up at universities and research institutions, working groups and other researchers, and it will invite experts from foreign countries to give lectures at those seminars.
- k) It is the task of the Academy to study its history and the activity of its members, with the view to perpetuate that information and cause it to last. In 2008, the Republic of Estonia will celebrate its 90th anniversary, while the Estonian Academy of Sciences will mark its 70th jubilee. The Academy will display initiative, in order to organise jointly with universities and research institutions a conference on history of science dedicated to those events, and to issue the relevant printed matter.
- l) The Academy will systematise the existing data in the area of science policy, and create access for everybody to necessary materials.

#### 3.4. Implementation of the action plan

For implementation of the action plan, the Board of the Academy will formulate concrete tasks, holding in view the measures and limitations stated in the “Action plan of Estonian economic growth and employment for 2005-2007 for implementation of the Lisbon strategy”, approved by the Government of the Republic on 13.10.2005.

CONTACT POINTS FOR  
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(whose membership fees were in 2006 covered by Estonian Academy of  
Sciences from a specific allocation  
from the Ministry of Education and Research)

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Estonian Physical Society (Chairman: Arvo Kikas, Arvo.Kikas@ut.ee)	European Physical Society, EPS
Estonian Geophysical Committee (Chairman: Rein Rõõm, Rein.Room@ut.ee)	International Union of Geodesy and Geophysics, IUGG
Estonian National Committee for IGU (Chairman: Jaan-Mati Punning, punning@tlu.ee)	International Geographical Union, IGU
Estonian National Committee for Geology (Chairman: Dimitri Kaljo, kaljo@gi.ee)	International Union of Geological Sciences, IUGS
Estonian Association of Engineers /Estonian Systems Engineering Society (contact: Sven Nõmm, sven@cc.ioc.ee)	International Federation of Automatic Control, IFAC
Estonian Chemical Society (President: Margus Lopp, lopp@chemnet.ee)	International Union of Pure and Applied Chemistry, IUPAC
Estonian National Committee for Mathematics (Chairman: Mati Abel, Mati.Abel@ut.ee)	International Mathematical Union, IMU
Estonian National Committee on Astronomy (Chairman: Laurits Leedjärv, leed@aai.ee)	International Astronomical Union, IAU
Estonian National Committee for Mechanics (Chairman: Jüri Engel- brecht, je@ioc.ee)	International Union of Theoretical and Applied Mechanics; IUTAM

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COOPERATION AGREEMENTS OF ESTONIAN ACADEMY OF  
SCIENCES WITH PARTNER ORGANISATIONS

(in brackets, the date of signing the currently valid agreement)

1. Austrian Academy of Sciences (30.01.2003)
2. British Academy (23.03.2006)
3. Berlin-Brandenburg Academy of Sciences and Humanities (16.05.2002)
4. Bulgarian Academy of Sciences (02.04.1996)
5. Royal Flemish Academy of Belgium for Science and Arts (26.03.2004)
6. Chinese Academy of Sciences (26.05.2000)
7. Spanish Council for Scientific Research (19.06.2001)
8. Israel Academy of Sciences and Humanities (19.07.1995)
9. Italian National Research Council (23.04.2004)
10. Lithuanian Academy of Sciences (12.11.1991)
11. Royal Society of London (30.10.1991)
12. Latvian Academy of Sciences (12.11.1991)
13. Macedonian Academy of Sciences and Arts (16.12.1996)
14. Montenegrin Academy of Sciences and Arts (17.10.2005)
15. Norwegian Academy of Science and Letters (20.03.1992)
16. Polish Academy of Sciences (17.06.1996)
17. French Academy of Sciences (22.03.1994)
18. Royal Swedish Academy of Letters, History and Antiquities (18.01.1995)
19. Royal Swedish Academy of Sciences (17.11.2005)
20. Slovak Academy of Sciences (28.11.1993)
21. Slovenian Academy of Sciences and Arts (28.04.1997)
22. Academy of Finland (03.02.2003)
23. Finnish Academy of Science and Letters (04.01.2007)
24. Swiss Academy of Sciences (18.09.1989)
25. Academy of Sciences of the Czech Republic (10.04.1996)
26. National Academy of Sciences of Ukraine (02.10.2000)
27. Hungarian Academy of Sciences (20.06.1995)
28. National Academy of Science of Belarus (18.02.2002)
29. Russian Academy of Sciences (17.02.1993)

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|-----------|---|
| 1940      | Year Book I of the Estonian Academy of Sciences<br>(in Estonian)  |
| 1969–1988 | Annual Report of the Academy of Sciences of<br>the Estonian SSR (in Russian, 20 volumes)  |
| 1989      | Annual Report of Estonian Academy of Sciences<br>(issued separately in Estonian, Russian and English)   |
| 1990–1995 | Annual Report of Estonian Academy of Sciences<br>(issued separately in Estonian and English, 6 volumes)<br><br>Scientific Publications of the Estonian Academy of<br>Sciences (with a Foreword in Estonian and English,<br>6 volumes) |
| 1996–2006 | Year Book of the Estonian Academy of Sciences II–XII<br>(issued separately in Estonian and English)   |



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