

*Facta non solum verba*

ESTONIAN  
ACADEMY OF SCIENCES  
YEAR BOOK

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## FOREWORD

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The year of 2002 was of special note to Estonia in international life – the invitations to the European Union and NATO heralded a new era to all of us. This came true thanks to the matter of fact and businesslike efforts of many people. The condition precedent of one invitation was the allocation of 2% of GDP to the defence, however the funding of science has landed short of that target, by far, notwithstanding the fact that the European Union, too had established the goals for 2002, including the candidate countries. The benchmark of the EU is  $3\% + \frac{2}{3}$  – this is the pro rata share in GDP needed for science and development activities to help forward a knowledge-based society. It hardly needs to be explained that part  $\frac{2}{3}$  must be earned by contracted work. With the goals set, we must make our choices and move on, if we are to cope.

These covers contain the synopsis of the activities of the Academy in 2002. The Academy has done its utmost for promotion of the Estonian science, however there is the eternal question of where we have room for development. The link with the society is of greatest importance. We are poignantly aware of the scarcity of scientific personnel and the backwardness of our infrastructure, yet there is abundance of inquisitive mental power in this country. Proof to that is a number of seminars and conferences held within the walls of the Academy. Furthermore, we have laid the foundation of an “invisible college” staffed by Research Professors. We have made a good review of the engineering thought eager for knowledge. The centres of excellence in research rejoice our heart with their top-level outcome and applications. There is no denying of the solid contribution by Members of Academy to all those efforts. The Academy’s overall mission is to uphold, with a never abating persistence the science and knowledge. The results of this one year have been brought to your notice. We will weigh them and proceed further.

Naturally, there is a lot to be done, both in width and depth. The objectives cannot be overlooked, by any means. The Academy formulated its goals in the Action Plan 2003–2004, approved by the General Assembly. In this connection, it would be to the point to recall the words of Friedebert Tuglas, Member of Academy. As a young man he said: “We must aspire for the highest degree conceivable, not for the middle ground! If we should inscribe on our banner a moderate programme, our attainments would fall short of the middling level. The most should be held in view, if we are to achieve more!” We must contemplate our goals as they are, however remembering that as we move on, we will see farther and the goals will be adjusted.

*Facta non solum verba!*

*Jüri Engelbrecht*



## **MEMBERSHIP OF THE ACADEMY**

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As of beginning of 2002, the Estonian Academy of Sciences numbered 59 Members of Academy and 13 Foreign Members of Academy.

On 5 February 2002, at the age of 72 Member of Academy Boris Tamm departed. On 21 June, at the age of 76 Member of Academy Juhan Ross died.

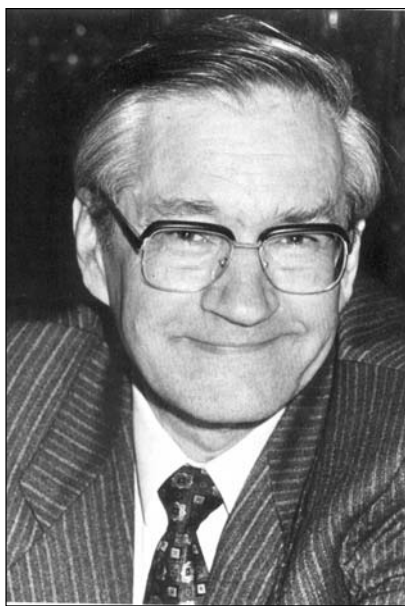
On 3 December, the General Assembly of the Academy elected four new Foreign Members of Academy:

Richard R. Ernst, Professor Emeritus of Zürich Technical University, Nobel Prize winner in chemistry (1991), Switzerland (physical chemistry);

Gérard A. Maugin, Director for Science of French National Centre of Scientific Research, Head of Laboratory of Modelling in Mechanics, Pierre and Marie Curie University, France (mechanics);

Helmut Schwarz, Professor of Berlin Technical University, Germany (chemistry);

Endel Tulving, Professor Emeritus of University of Toronto, Tanenbaum Chair in Cognitive Neuroscience, Rotman Research Institute of Baycrest Centre, Canada (psychology).



*Richard R. Ernst*



*Gérard A. Maugin*

As of 31 December 2002, the Estonian Academy of Sciences numbered 57 Members of Academy and 17 Foreign Members, who distributed between four Divisions as follows:

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

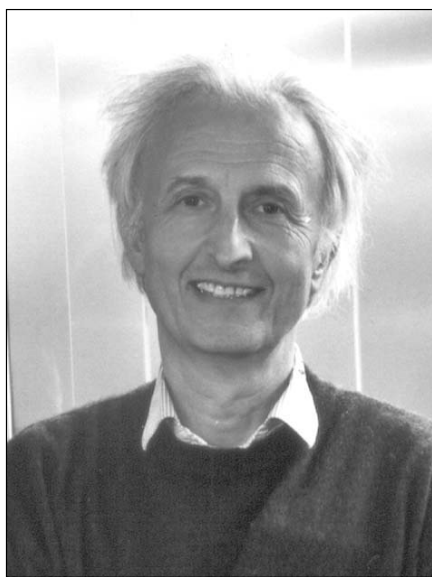
Members of Academy: Jaak Aaviksoo, Jaan Einasto, Ene Ergma, Vladimir Hizhnyakov, Harald Keres, Georg Liidja, Endel Lippmaa (Head of Division), Ülo Lumiste, Cheslav Lushchik, Karl Rebane, Peeter Saari, Mart Saarma, Arved-Ervin Sapar, Gennadi Vainikko, Richard Villems.

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

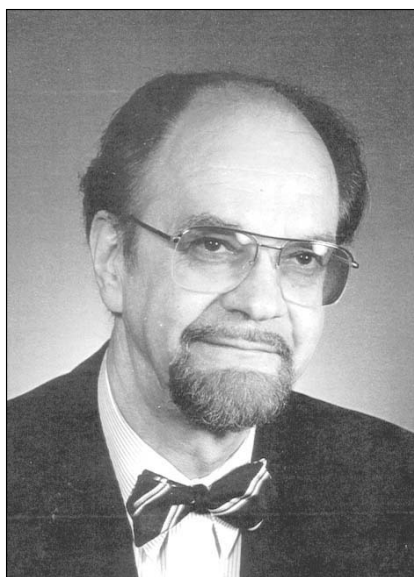
DIVISION OF INFORMATICS AND ENGINEERING  
(12 Members of Academy, 4 Foreign Members)

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

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



*Helmut Schwarz*



*Endel Tulving*



#### DIVISION OF BIOLOGY, GEOLOGY AND CHEMISTRY

(18 Members of Academy, 5 Foreign Members)

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

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

#### DIVISION OF THE HUMANITIES AND SOCIAL SCIENCES

(12 Members of Academy, 4 Foreign Members)

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

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

In 2002, the majority of Members of Academy continued, as leading expert scientists, doing active research and working on faculty.

Research done by Members of Academy was very fruitful, as a whole, as revealed by numerous publications.

Besides their main occupation, many Members of Academy acted as experts and advisers. Following Members of Academy sit on national expert panels and councils:

Parliament (Riigikogu) – Uno Mereste;

Academic Council of the President of the Republic – Jaak Aaviksoo, Jüri Engelbrecht, Ene Ergma, Ülo Jaaksoo, Ain-Elmar Kaasik, Endel Lippmaa and Mihkel Veiderma;

Research and Development Council – Jaak Aaviksoo, Jüri Engelbrecht, Mart Saarma;

Science Competence Council – Jüri Engelbrecht (Chairman of the Council), Leo Mõtus and Loit Reintam;

Council of Estonian Science Foundation – Ene Ergma (Chairman of the Council), Ilmar Koppel, Rein Küttner and Mihkel Veiderma;

Commission of National Science Prizes – Jüri Engelbrecht (Chairman of the Commission), Hillar Aben, Ene Ergma, Ain-Elmar Kaasik, Dimitri Kaljo, Ilmar Koppel, Hans Küüts and Georg Liidja.

Members of Academy Jüri Engelbrecht, Rein Küttner and Mihkel Veiderma sit on the Sustainable Development Commission, reporting to Government of the Republic.

Member of Academy Olav Aarna is Member of Professional Council of Information Technology and Telecommunications.

Members of Academy Hillar Aben, Rein Küttner and Mart Saarma are members of Higher Education Evaluation Council.

Members of Academy Ülo Jaaksoo, Rein Küttner and Richard Villems are members of Innovation Policy Commission, reporting to Minister of Economic Affairs.

Members of Academy Ene Ergma, Jaak Järv, Rein Küttner, Endel Lippmaa and Peeter Tulviste sit on the Ministry of Education Advisory Panel for Science Policy.

Members of Academy Jaak Aaviksoo, Jüri Engelbrecht and Rein Küttner are members of the Minister of Foreign Affairs Advisory Council.

Member of Academy Dimitri Kaljo is Chairman of Estonian Mineral Resources Commission.

Members of Academy Ülo Jaaksoo, Leo Mõtus Peeter Tulviste and Enn Tõugu are Members of Scientific Council of the Ministry of Defence.

Member of Academy Ain-Elmar Kaasik is Chairman of Registration Commission of State Agency of Medicines.

Members of Academy Ain-Elmar Kaasik, Jüri Martin, Mart Saarma and Richard Villems are members of Council of Estonian Gene Repository.

Members of Academy Jaak Järv, Rein Küttner, Mart Ustav and Richard Villems are representatives of committees of the 6th EU Framework Programme 2002–2006 for scientific research, technological development and promotion activities.

Many Members of Academy continue in editorial boards of international scientific organisations and scientific journals.

The following Members of Academy are heads of Estonian centres of excellence in research:

Jüri Engelbrecht – Centre for Nonlinear Studies;

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

Arvo Krikmann – The Centre of Cultural History and Folkloristics in Estonia;

Endel Lippmaa – Centre of Excellence of Analytical Spectrometry.

Estonian Biocentre was twice certificated from the 5th EU Framework Programme as the Centre of Excellence in Research – head is Member of Academy Richard Villems.

In the reporting year, many Members of Academy were awarded marks of honour (cf. pp. 64).

Member of Academy Juhan Peegel was awarded, by Pärnu City Government the Johann Voldemar Jannsen Culture and Education Prize.

Members of Academy Jüri Engelbrecht and Valdek Kulbach were awarded the medal for merits *Mente et manu* of Tallinn Technical University.

Member of Academy Jaak Aaviksoo was granted the rank of Commander of National Order for Merits of the Republic of France.

Member of Academy Mart Saarma was awarded the Golden Medal of the city of Helsinki.

Member of Academy Lennart Meri was awarded the Baklin Prize of the European Cultural Foundation (Switzerland), granted the Golden Plate Award of the Academy of Achievement (USA), and the Baltic Statesmanship Award (USA).

Member of Academy Jüri Engelbrecht was awarded the medal “For Science and Peace” of Albert Schweitzer International University.

Member of Academy Anto Raukas was granted the certificate of the Inter-religious and International Federation for World Peace “Ambassador for Peace”.

Member of Academy Peeter Saari was elected Member of the European Academy of Sciences.

Member of Academy Peeter Tulviste was elected corresponding member of the Finnish Literary Society.

Foreign Members of the Academy continued participation in the activity of Academy and research institutions of Estonia, maintaining the time honoured contacts and earlier scientific engagements.

## CHRONICLES

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22 January – the session of the Board of the Academy approved the Action Plan of the Academy for meetings and keynote events in 2002. The session took cognisance of information of the activity of the Foundation for International Exchange in 2001 and approved the new composition of the Council of the Foundation (Chairman Member of Academy Dimitri Kaljo). The session approved the Commission on Post Doctorate Grants of Citrina Foundation. It also decided to hold elections of four Foreign Members of the Academy in 2002.

23 January – the Academy was visited by Ambassador of Finland Jaakko Blomberg. President Jüri Engelbrecht gave to the guest an overview of the activities and goals of the Academy and of scientific co-operation between the Academy of Finland and the Estonian Academy of Sciences.

24 January – the Academy was visited by Austrian Ambassador Jakub Forst-Battaglia. There was a meeting of minds with President Jüri Engelbrecht and Foreign Secretary of the Academy Dimitri Kaljo on opportunities and perspectives of Austrian-Estonian scientific co-operation.

5 February – Member of Academy Boris Tamm departed. He lay in state in the hall of Tallinn Technical University on 9 February.

15 February – a meeting of the Energy Council of the Estonian Academy of Sciences (cf. pp. 47).

21 February – in Tartu a conference commemorated to the centenary of Member of Academy Edgar Kant, with a paper delivered by Vice-President Peeter Tulviste. Attending at the conference was Secretary General Mihkel Veiderma.

21-23 February – Vice-President Ene Ergma attended in Amsterdam (Holland) at the session of the Association All European Academies ALLEA Standing Committee “Ethics in Science”, as member of the said Committee.

24 February – Prime Minister Siim Kallas handed over, in the Academy House the national science prizes.

27 February – in the series “From science to society” there was the sixth seminar “Biological diversity” (cf. pp. 53).

1 March – a meeting of the Council of Population and Public Health of the Estonian Academy of Sciences (cf. pp. 49).

1 March – the agreement on scientific co-operation made between the Estonian Academy of Sciences and the National Academy of Sciences of Belarus took effect.

11 March – Manfred Lahnstein, former Minister of Finance of the Federal Republic of Germany delivered a public lecture in the hall of the Academy “Can Europe Survive Globalisation?”. The lecture was moderated by Embassy of the BRD.

11 March – Division of the Humanities and Social Sciences held an extended meeting “What will become of Estonian scientific libraries?” (cf. pp. 30).

13-15 March – President Jüri Engelbrecht participated at General Assembly of the Association All European Academies ALLEA held in Rome (Italy), and also at a seminar held in the framework of events preceding the 400th anniversary of Accademia dei Lincei. The seminar focused on history of European Academies over centuries.

15 March – Foreign Secretary Member of Academy Dimitri Kaljo attended at a conference of representatives of Nordic member organisations of the European Science Foundation, convened in Copenhagen by Danish Scientific Research Councils.

20 March – Member of Academy Loit Reintam delivered a public academic lecture “Soil over millennia”.

21 March – the Academy was visited by Ambassador of France Chantal de Ghaisne de Bourmont, who met with President Jüri Engelbrecht.

26 March – the session of the Academy Board approved the financial report 2001 of the Academy and the 2002 consolidated budget. It approved the resolution of the competition commission (Chairman Member of Academy Peeter Tulviste) to award the prize of the Estonian Academy of Sciences for the best popular science book released in Estonia in 2000–2001, to authors of “Estonia’s live nature. Guide to the homeland’s nature” Rein Kuresoo, Indrek Rohtmets and Hendrik Relve. There was set up a commission for awarding grants of the Academy in 2002 for completion of monographic scientific works and popular science books (Chairman Vice-President Ene Ergma). The session approved the statute of Commission of Meteoritics of the Estonian Academy of Sciences and its composition (Chairman Member of Academy Anto Raukas). The session approved the move to establish a national programme “Nationally Important Natural Science Collections of Estonia”, as well as its draft version. The session deliberated on the change of status of the Estonian Academic Library.

2 April – the scientific co-operation programme between the Estonian Academy of Sciences and the Spanish Council for Scientific Research (CSIC) for 2002-2004 took effect. The programme completes the framework agreement made in the past year, specifying concrete conditions of scientific exchange and approves the outcome of competition of Estonian-Spanish joint projects.

5 April – in the series “New trends in science” there was the third seminar “Neurobiology: knowledge and applications” (cf. pp. 54).

5-8 April – Secretary General Mihkel Veiderma visited St. Petersburg, upon invitation of Consul General of the Republic of Estonia and the local Estonian Society. He greeted the Society at its annual meeting.

7-9 April – President Jüri Engelbrecht participated at an international conference held in Berlin “Baltic Transfer 2002: The Role of Higher Education in the Economic Development of the Baltic Sea Area”.

21-23 April – the Academy delegation, headed by President Jüri Engelbrecht (members: Vice-President Peeter Tulviste, Secretary General Mihkel Veiderma, Deputy Secretary General Galina Varlamova) participated at a joint conference of the Nordic and Baltic Academies of Sciences, convened in Stockholm by Royal Swedish Academy of Letters, History and the Antiquities.

25 April – at the annual meeting of the General Assembly of the Academy President Jüri Engelbrecht provided an overview of activities of the Academy. The meeting approved the report of the Academy for 2001 and the budget for 2002. Prime Minister Siim Kallas delivered a paper “The R&D Policy of Estonia”. Member of Academy Lennart Meri spoke on the topic “The EU directions”.

8 May – a meeting of the Energy Council of the Estonian Academy of Sciences (cf. pp. 48).

10 May – a topical seminar “Scientific collections in the humanities”, adopting the appeal to Riigikogu, Government of the Republic and the public.

16-18 May – the Academy was visited by Helmut Schwarz, Vice-President of the Berlin-Brandenburg Academy of Sciences. The Academy Hall witnessed the signing of a co-operation agreement between the two Academies, which will enable to start academic scientific exchange with Germany. H. Schwarz also delivered a public specialist lecture at the Institute of Chemical and Biological Physics.

21 May – there were two extended meetings of the Academy Board in Tartu: the first (held jointly with representatives of universities and research institutions) approved the Code of Ethics of Estonian scientists, the second one, with participation from board and members of Estonian Naturalists' Society heard the overview of the activity of the Society and discussed the schedule of celebration of its 150th anniversary.

The regular meeting of the Academy Board, held on the same day decided to make a proposal to the Ministry of Education to have in view for 2002 the election of three Research Professors for a three year period and to set up a competition commission for evaluation of candidates for that position (Chairman Member of Academy Jaak Järv). As regards the applications of research institutions to associate with the Estonian Academy of Sciences, it was decided that the condition precedent for association with the Academy shall be previous international evaluation of main research teams of the said

institution, graded very good or good. The meeting awarded the grants of the Estonian Academy of Sciences for completion of monographic scientific works or popular science books (cf. pp. 58). The meeting announced the student research prizes for 2002 and set up a respective competition commission (Chairman Member of Academy Georg Liidja). The Academy Board recommended to continue negotiations with respect to the status of the Estonian Academic Library, with a view to guarantee the preservation of collections of the Library and its replenishment with scientific literature, securing to the Library the status of an integral part of the national network of scientific libraries in Estonia.

23 May – an extended meeting of the Division of Biology, Geology and Chemistry, providing an overview of the outcome of evaluation of natural sciences.

29 May – 2 June - Vice-President Peeter Tulviste sojourned in the Brussels, attending, as representative of the Academy at the annual meeting of Union Académique Internationale (UAI).

5 June – Member of Academy Raimund Ubar delivered a public academic lecture “Reliability of artificial systems, the range and limits of their diagnostics”.

10 June – Foreign Secretary Dimitri Kaljo participated, as representative of the Academy, at a conference in Paris organised by the Standing Committee on Life and Environmental Sciences of the European Science Foundation.

11 June – Members of Academy met with representatives of the Board of AS Eesti Põlevkivi (cf. pp. 56), they were introduced to the aspects of oil shale mining.

21 June – Member of Academy Juhan Ross deceased. He was exhibited publicly with honours before burial in St. Paul’s church in Tartu on 28 June.

21 June – the book “National Science Prizes 2002” was presented.

3-5 July – President Jüri Engelbrecht attended at a scientific conference in London, dedicated to the centenary of the British Academy. During the visit, Jüri Engelbrecht and Foreign Secretary of the British Academy Nicholas Mann signed a renewed co-operation agreement between the two Academies.

15-23 August – President Jüri Engelbrecht attended in Cambridge (Great Britain) at the Board Meeting and the session of the General Assembly of International Union of Theoretical and Applied Mechanics (IUTAM).

16 August – the Academy welcomed the meeting in its hall of representatives of European Science Journalists’ Association (EUSJA) (35 people from 14 countries) with Estonian scientists. The goal of the meeting was to present the achievements of Estonian science to Europe.

27 August – a special meeting of the Board of the Academy, for election of three Research Professors. Elected Research Professors from among 14 candi-

dates were Professor of plant physiology of the University of Tartu Agu Laisk and Senior Researcher, Doctor of Sciences Asko Uri of Institute of Chemical Physics of the University of Tartu. A decision was adopted to hold in 2002 an additional competition to fill one unoccupied position of Research Professors.

7 September – within the framework of VII Dome Days, there was a historical conference in the Academy House “The Knightage of Estland 750. The formation of knightage, its institutions and activity in Tallinn”. The conference was opened by President Jüri Engelbrecht.

12 September – President Jüri Engelbrecht delivered a commemorative lecture of Member of Academy Nikolai Alumäe (cf. pp. 28).

20 September – the Estonian Academy of Sciences “Science Day” in Pärnu (cf. pp. 57).

22-28 September – President Jüri Engelbrecht represented the Estonian scientific community at 27th General Assembly of International Council for Science (ICSU) in Rio de Janeiro (Brazil). He also participated at the Education Forum preceding the General Assembly and at a scientific seminar considering the issues of scientific information (“Ensuring Global Access to Scientific Data”).

30 September – a meeting of the Energy Council of the Estonian Academy of Sciences (cf. pp. 48).

2 October – Member of Academy Ülo Lumiste delivered a public academic lecture “Space-time geometry and its history”.

4 October – in the series “From science to society” there was the seventh seminar “Psychology *hic et nunc*” (cf. pp. 53).

7-8 October – President Jüri Engelbrecht participated at an international conference “Do we need a European Scientific Research Council?”, held in Copenhagen by Danish Research Councils, focusing on support of fundamental research in Europe. J. Engelbrecht participated at plenary sessions and at a parallel seminar considering the connections of the future institution with the existing funding agencies.

10-11 October – Assistant Secretary General for International Relations Anne Pöitel attended the seminar on scientific co-operation organised by the Latvian Academy of Sciences in Riga.

18 October – a topical seminar in Tartu “Centres of excellence in research – Finnish and Estonian experience” (cf. pp. 55).

22 October – the session of the Academy Board decided to submit for consideration of General Assembly of the Estonian Academy of Sciences the following candidates for Foreign Members of the Academy: Professor Emeritus of Zürich Technical University, Nobel Prize winner in chemistry (1991) (physical chemistry); Gérard A. Maugin, Director for Science of French National Centre of Scientific Research, Head of Laboratory of Modelling



Mechanics, Pierre and Marie Curie University (mechanics); Helmut Schwarz, Professor of Berlin Technical University, Germany (chemistry); Endel Tulving, Professor Emeritus of University of Toronto, Tanenbaum Chair in Cognitive Neuroscience, Rotman Research Institute of Baycrest Centre, Canada (psychology). The session approved association with the Estonian Academy of Sciences of the Institute for International and Social Studies at Tallinn Pedagogical University. The session approved, as base material for Action Plan of the Academy 2003–2004, President Jüri Engelbrecht's proposals, and also took into consideration some additions, proposed at the session.

24-25 October – President Jüri Engelbrecht participated at an annual meeting in Stockholm of the Royal Swedish Academy of Engineering and at the preceding scientific symposium.

6 November – Member of Academy Ilmar Koppel delivered a public academic lecture “From superacids to household chemistry”.

7-9 November – Assistant Secretary General for International Relations Anne Pöitel and Exchange Programme Assistant Ebe Pilt participated in Helsinki at an annual working meeting of partner Academies, belonging to the European Science Exchange Programme.

11-13 November – President Jüri Engelbrecht attended an international conference organised by European Commission in the Brussels “European Research 2002: The European Research Area and the Framework Programme”. J. Engelbrecht was invited as an expert to participate at the round table talk, held within the framework of the conference, considering the future of the European science and technology policy.

18-21 November – an international oil shale focused scientific conference, co-convened by Members of Academy Jüri Engelbrecht, Arvo Ots and Mihkel Veiderma. Mihkel Veiderma delivered a paper at the plenary session of the conference. Within the framework of the conference, there was held the session of the co-ordination committee of the U.S.A.–Estonian oil shale research, with Secretary General Mihkel Veiderma attending as representative of the Academy.

20 November – Jürgen Dröge, new Ambassador of the Federal Republic of Germany paid a visit to the Academy. The guest was hosted by President Jüri Engelbrecht and Secretary General Mihkel Veiderma.

28-29 November – President Jüri Engelbrecht and Vice-President Ene Ergma participated at the regular session of General Assembly of European Science Foundation in Strasbourg (France).

27 November – the extended meeting of the Division of Biology, Geology and Chemistry considered the new natural sciences curricula of the universities (cf. pp. 29).

29 November – in the series “From science to society” was the eighth seminar “Lessons to be learned” (cf. pp. 54).

2 December – a meeting of Council of the Societies associated with the Estonian Academy of Sciences (cf. pp. 49).

3 December – a session of the Board approved the Action Plan of the Academy for 2003–2004 and decided to submit it for approval to the General Assembly of the Academy. Nominated editor-in-chief of the journal “Trames” was Doctor of Philosophy Urmas Sutrop. The composition of Estonian National Committee of the International Union of Geological Sciences was complemented. The session decided to award the Medal of the Academy to Member of Academy Hans Küüts. Elected to the vacancy of Research Professors was Member of Academy Raimund Ubar.

3 December – the conference of winners of the competition of students’ research papers of the Estonian Academy of Sciences.

5 December – a meeting of the Council of Foundation for International Exchange of the Estonian Academy of Sciences (cf. pp. 33).

9 December – Vice-President Ene Ergma participated, as representative of the Academy, at a special session of General Assembly of the Polish Academy of Sciences, dedicated to the 50th anniversary of that Academy.

10 December – a meeting of the Publishing Council of the Estonian Academy of Sciences (cf. pp. 50)

11-15 December – President Jüri Engelbrecht and Rector of the University of Tartu, Member of Academy Jaak Aavikso visited, upon invitation of Chief Commissariat of the Walloon region of Belgium, universities and research institutions of the region, for identification of perspective co-operation areas and forms.

18 December – the session of the General Assembly of the Academy heard the scientific paper by Member of Academy Erast Parmasto “The modern biosystematics hopefully in the labyrinth”.

The Action Plan of the Academy for 2003–2004 was approved, so was the Code of Ethics of Estonian scientists. As proposed by Board of the Academy, new foreign members of the Academy were elected (cf. pp. 7). There was the presentation of the volume “Scientific Thought in Estonia. Engineering Sciences”.

20 December – the Academy was visited by Ambassador of Italy Ruggero Vozzi, who met with President Jüri Engelbrecht.

## **GENERAL ASSEMBLY. BOARD. DIVISIONS**

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### **GENERAL ASSEMBLY**

In 2002, the General Assembly of the Academy was convoked to a regular session two times:

25 April –	annual meeting
18 December –	scientific paper by Erast Parmasto “The modern bio-systematics hopefully in the labyrinth”; approval of the Estonian Academy of Sciences Action Plan 2003–2004; approval of Code of Ethics of Estonian scientists; election of Foreign Members of the Academy.

The first session of the General Assembly was held as an annual meeting of the Academy, being the 56<sup>th</sup> in succession. As ever, the session focused on summing up the activities of the Academy in the previous year. The General Assembly also approved the consolidated financial statement of the Academy in 2001 and the 2002 budget estimate. Detailed data on activities of the Academy in 2001 were made available in the newly published Estonian Academy of Sciences Year Book VII (34), in good time mailed to all Members of Academy.

After the opening speech by President of the Academy Jüri Engelbrecht Prime Minister Siim Kallas delivered a paper “The R&D Policy of Estonia”. In his paper, the PM made emphasis on current issues of the development of Estonia and the new conditions, in which one would have to operate before long, in view of the impending accession by Estonia to the EU and NATO. He also spoke about the role of Estonian scientists and science in the Estonia of today and tomorrow. Questions were asked of the PM by Members of Academy Udo Margna and Erast Parmasto.

Thereafter President Jüri Engelbrecht handed over Diplomas of Member of Academy to two Members of Academy elected on 19 December 2001: to Mart Ustav (biomedicine), and to Lennart Meri (the humanities).

Diplomas were also handed over to winners of the competition for the best book in popular science – to Rein Kuresoo, Indrek Rohtmets and Hendrik Relve, authors of the book “Estonia’s live nature. Guide to the homeland’s nature”.

General Assembly heard paper by Member of Academy Lennart Meri “The EU directions”, in which he elucidated the tasks of the European Convent and the need the European states currently face to create a whole, against the background of changes in the world, in which every part would retain its indepen-

dence, in decision making. He made a special emphasis on that the EU can only be born of negotiations, disputes and the attainment of full awareness “bottom up”, beginning with the specific details of a situation and working up from there to the general principles. The speaker was asked questions by Members of Academy Viktor Palm, Juhan Ross and Jüri Engelbrecht.

The keynote paper of the annual meeting was delivered by President of the Academy Jüri Engelbrecht, bringing into highlight the most important events in the Estonian science organisation and the activities of the Academy in 2001. The R&D strategy “Knowledge-based Estonia”, approved by Riigikogu has specified the obligations of the state in organisation and funding of the R&D. There are three mainstream areas: information technology, biomedicine and materials science. President emphasised that the implication of the mainstream area was the availability of sufficient scientific potential, to realise the given prevailing direction of activity. President noted that the objectivity, societal and cultural relevance of science, inherent in the science strategy were also reflected in the EU document “Science and society”.

In respect of the activities of the Academy, there was an important aspect to it, as suggested by President – notably a new impetus to the work of Divisions, the structures most competent in their respective areas. President emphasised the state’s support to the Academy, referring to the increasing of the Member of Academy fee and the renovation of the Academy House; he insisted on the necessity to continue dialogue outside the Academy, with the aim to implement the R&D strategy “Knowledge-based Estonia”. In this connection, he meant the discussions in working groups, institutions and the Cultural Commission of Riigikogu, with Members of Academy attending, as well as in commissions and councils, acting under the aegis of the Academy.

President emphasised the international co-operation – the Academy is active in European Science Foundation, Members of Academy contribute effectively to international scientific unions, the international exchange of scientists has widened in scope. There are now also respective agreements with Spain and Belarus.

Among issues pending decision, President focused on completion of the code of science ethics. In the process, everyone would have an opportunity to ventilate one’s opinion, so that the Code would be adopted in the nearest future. He also dealt with the future of the Estonian Academic Library.

Underway in the scientific life is the evaluation of research groups and topics, which has revealed both heartening aspects in the academic life, and the bottlenecks. In several areas the performance is excellent, the scarcity of funds notwithstanding, in some areas however one is dragging one’s feet, which is particularly manifest in little after-growth of scientists and few doctoral theses defended.

Upon move by President, the General Assembly approved the report of 2001 of the Academy, basing on the paper by President and materials presented in Year Book 2001.

Having heard the commentaries of Secretary General Mihkel Veiderma, the General Assembly discussed and approved the budget estimate 2002 of the Academy, presented on pp. 95.

During discussion, speaking were Members of Academy Endel Lippmaa, Karl Rebane, Lembit Krumm and Viktor Palm.

Given the floor, off-agenda of the General Assembly, was Permanent Secretary of Ministry of Education Peep Ratas, who extended his gratitude, on the occasion of the 10th anniversary of Estonian Internet, to Members of Academy Endel Lippmaa, Gennadi Vainikko, Rein Küttner and Richard Villems, for their effective contribution to development of Internet, and handed them over the Letters of Thanks of Ministry of Education.

The second regular session of the General Assembly was held on 18 December. A scientific paper on the topic "The modern biosystematics hopefully in the labyrinth" was delivered by the laureate of 2002 national prize for long productive research and development work Member of Academy Erast Parmasto. He was asked questions by Members of Academy Karl Rebane, Arvo Ots, Peeter Saari, Viktor Palm and Arved-Ervin Sapar. Honouring the paper with his presence was President of the Republic Arnold Rüütel.

President Jüri Engelbrecht summarised the Action Plan 2003-2004 of the Academy submitted by Board of the Academy to General Assembly, emphasising the involvement of Estonian scientists in resolving the problems of crucial import to the state, co-operation with universities and other research institutions and organisations. General Assembly approved Action Plan 2003-2004 of the Estonian Academy of Sciences.

Followed deliberations and propositions by Members of Academy Karl Rebane and Karl Siilivask.

Vice-President Ene Ergma outlined the work carried out with respect to Code of Ethics of Estonian Scientists and answered the questions posed. The questions were asked and the propositions made by Members of Academy Valdek Kulbach, Dimitri Kaljo, Karl Rebane, Anto Raukas, Peeter Saari and Richard Villems. General Assembly approved the Code of Ethics of Estonian Scientists (cf. Appendix pp. 139).

The session of General Assembly held election of Foreign Members of the Academy, as a result of which four scientists of international stature were elected Foreign Members: Richard R. Ernst, Gérard A. Maugin, Helmut Schwarz and Endel Tulving.

There was presentation of the volume “Scientific Thought in Estonia. Engineering Sciences”.

## BOARD

Board of the Estonian Academy of Sciences worked in 2002 in the following composition:

President	<i>Jüri Engelbrecht;</i>
Vice-President	<i>Ene Ergma;</i>
Vice-President,	
Head of Division of the Humanities and Social Sciences	<i>Peeter Tulviste;</i>
Secretary General	<i>Mihkel Veiderma;</i>
Head of Division of Astronomy and Physics	<i>Endel Lippmaa;</i>
Head of Division of Informatics and Engineering	<i>Rein Küttner;</i>
Head of Division of Biology, Geology and Chemistry	<i>Jaak Järv;</i>
Non-Executive Members	<i>Ülo Jaaksoo;</i> <i>Ain-Elmar Kaasik;</i> <i>Dimitri Kaljo;</i> <i>Richard Villems.</i>

In that year the Board held 10 working meetings. Two times, the decisions were passed by electronically polling the opinions.

In the first session of the year (22 January) the Board approved the calendar plan 2002 of working meetings and keynote events, which was fulfilled, in the best part.

On 21 May, there were two extended meetings of the Board in Tartu. The first was held in the hall of the Council of the University of Tartu, with the main item on agenda “Code of Ethics of Estonian Scientists”. Also attending at the session were representatives of higher schools and research institutions. Papers were delivered by Member of Academy Ene Ergma and Professors of the University of Tartu Margit Sutrop and Toivo Maimets. As a result of discussion, the session decided to approve Code of Ethics of Estonian Scientists and to submit it to General Assembly of the Estonian Academy of Sciences, for final approval.

The second extended session was held in the House of the Estonian Naturalists’ Society, with the board of the Society and its members attending. On the agenda was review of the activity of Estonian Naturalists’ Society and the plan of celebration of its 150th anniversary. Papers were delivered by Tõnu Möls, President of the Estonian Naturalists’ Society, its President Honoris Causa, Member of Academy Hans-Voldemar Trass and scientific secretary Linda Kongo.

On 21 May, too was held a regular session of the Board, to discuss the issues related to research professorate and election of Research Professors. There was a resolution adopted to make a proposition to Ministry of Education envisaging election in 2002 of three Research Professors. Set up was a panel, to evaluate the candidates for research professorate (Chairman Member of Academy Jaak Järv); approved was the procedure of the panel. Election of Research Professors was held on 23 August, at a special session of the Board, hearing out the recommendations of the competition committee and electing from among 14 candidates, by secret ballot, as Research Professors, Professor Agu Laisk of University of Tartu and senior researcher of the same affiliation Asko Uri. Because one position went vacant, the Board decided, at the same session to hold in 2002 an additional competition for the vacancy in research professorate. The repeat election of Research Professors was held on 3 December. In that time, from among eight candidates, Professor Raimund Ubar of Tallinn Technical University was elected Research Professors. Board deemed it necessary to detail the terms and conditions, and procedure of electing Research Professors.

In connection with the election at the end 2002 of Foreign Members of Academy, the related issues were twice on agenda of Board meetings. On 22 January it was decided to hold the election of four Foreign Members and to appeal to Members of Academy and the research institutions associated with Academy to submit their candidates. On 22 October the recommendations of the Divisions were heard out, and the following candidates were approved, to be submitted for election to General Assembly of the Academy: Richard R. Ernst, Gérard A. Maugin, Helmut Schwarz and Endel Tulving. Heads of Divisions were assigned the task to apprise the candidates in their respective scientific areas of the Board's decision and to obtain their consents.

On 21 May the Board established the conditions of association of research institutions with the Academy (international evaluation of research teams graded excellent or good) and shelved the consideration of applications for association with the Academy by Institute of Experimental and Clinical Medicine and Forestry Research Institute of the Estonian Agricultural University. On 22 October, the application for association with the Academy of Institute for International and Social Studies of Tallinn Pedagogical University was accepted.

The Board meeting held on 3 December took cognisance of the survey submitted by Member of Academy Georg Liidja about the results of competition of the best student papers, after which five of them were heard out. The winners were handed over diplomas. It was decided, at that Board session, to issue grants by way of competition, for the completion and layout of monographic research works and popular science books. A respective commission was set up, to consider the applications (Chairman Member of Academy Ene

Ergma), upon whose proposition the Board would assign the said grants. The Board nominated the Commission (Chairman Member of Academy Peeter Tulviste) for consideration of the works submitted to the competition for the best popular science book. The Board approved the respective decision of the Commission.

The Board approved the proposition of the Division of Biology, Geology and Chemistry for compilation of the state programme “Nationally Important Natural Science Collections of Estonia” and its draft version, with the recommendation to Ministry of Education to implement it.

A material chunk of the work of the Board was constituted by discussions and adoption of decisions on issues, related to the daily routine of the Academy. Among others, the Board considered and approved, for subsequent submitting to General Assembly, the statement of financial activities of Academy for 2001, and the budget estimate for 2002. It also fixed the salaries of the Academy leadership. The last session of the outgoing year approved the amendments to the budget 2002. The session heard out and took cognisance of the information on activities of the Estonian Academic Foundation for International Exchange in 2001, it established the principles of use of exchange quotas, established in agreements between Academies, and approved the composition of Council of the Foundation (Chairman Member of Academy Dimitri Kaljo). The Board approved the Statute of Commission of Meteoritics of the Academy and the composition of the Commission (Chairman Member of Academy Anto Raukas). Different versions of the motto of the Academy were subjected to close scrutiny. Doctor of Philosophy Urmas Sutrop was appointed editor-in-chief of the journal “Trames” for the following five years. Action plans of the Divisions for 2002 were heard out. The Board discussed the Action Plan 2003-2004 of the Academy and decided to submit it for final approval by the General Assembly. There was a resolution passed on awarding the Medal of the Academy. The Board took cognisance of the information about the meetings held by Divisions, it discussed and approved the agendas of General Assemblies.

The Board repeatedly considered the issues related to work of several international scientific organisations and the appointment of Estonia’s representatives in the composition of commissions. The Board approved the composition of the Grants Commission of Citrina Foundation for post-doctorate perfection. The Board took decision regarding the appointment of complementary members into Estonian National Committee for Geology of International Union of Geological Sciences (IUGS). The Board heard out President Jüri Engelbrecht’s information about the work of General Assembly of Association All European Academies (ALLEA), about the annual meeting of International Council for Science (ICSU) and about Danish initiative, aimed at establishment of Euro-



pean Research Council. The Board also discussed the formation of the EU structural funds.

The Board, one more time discussed the status of the Estonian Academic Library, considering it necessary to hear out the opinions of Divisions of the Academy and – prior to making a decision on part of the Academy, as regards the structural affiliation of the Library – to give consideration to other options, beside Tallinn Pedagogical University, including the continuing by the Library as an institution reporting to Ministry of Education.

## **DIVISIONS\***

### **DIVISION OF ASTRONOMY AND PHYSICS**

In the past working period the Division handled a number of scientific, technical and organisational issues. Under scrutiny were, in the first place:

1. The issues of organisation of project-specific funding of Estonian science.
2. The issues of establishment of the Estonian centres of competence in applied research and technology.
3. The issues of providing for cutting edge in Estonian science.
4. The issues related to future of the Estonian Academic Library.
5. The activity of scientific unions related to the work of the Division.
6. Preparation for the General Meeting and election of new Foreign Members.

At its first meeting of 2002, held on 19 March in Tartu the Division approved the working plan of the Division for 2002 and deliberated over the procedure of project-specific funding of science and the future of scientific literature, over the years stocked in the repositories of the Estonian Academic Library. It was decided that in project-specific funding of science, the existence of rules, equally binding on all research topics and taking into account the results of evaluation should be deemed as expedient. So should be their actual implementation. However the Ministry of Education and Science had failed to take due account of that position. As regards the scientific literature, the preservation of the Estonian Academic Library, as a science based library in the composition of the Academy was declared justified. In view of that, the legal status, as regards the title to ownership of the Library should be clarified, the cannibalisation of the collections should be forborne and the ongoing funding of the Library provided for. Those positions, however were given cold shoulder in the Ministry of Education, the ordering of valuable physical journals and jour-

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\* Composed on the basis of materials submitted by Heads of Divisions Endel Lippmaa, Rein Küttner, Jaak Järv and Peeter Tulviste.

nals of abstracts was discontinued, hence the scientific role of the Library may be considered as terminated, for all practical reasons, in the eyes of specialists of the Division.

For election of a Foreign Member of the Academy the Division proposed the candidature of Professor of Zürich Institute of Technology (ETH) Nobel Prize Winner Richard R. Ernst. Prof R. Ernst was elected unanimously Foreign Member of the Academy by General Assembly on 18 December 2002.

The next meeting of the Division was held on 18 June 2002 in Tartu. Under scrutiny were centres of excellence of Estonian research, however the key question was the future of applied sciences in Estonia and the issues of setting up development centres of technology. The Division considered it expedient and timely to establish the centres of competence in technology, by way of public tender and basing on results of evaluation performed by foreign experts. The Division emphasised the necessity to involve the EU structural funds, as well as the need to deepen co-operation with the largest centres in applied research of Europe, like CERN, ESA and EMBL. All those institutions have invariably had an important role in high-tech transfer. The extract from minutes, containing the positions of the Division was promptly delivered to respective ministries. The programme of development centres in technology, composed at Ministry of Economic Affairs and Communications has taken those positions into account, by and large.

As regards the scientific literature, the Division decided to distribute the annual issues of journals which the Institutes of the Academy used to order, but the ordering of which had been discontinued, as well as the books held by the Library, between the research institutions having ordered them and actually using them. This decision is pending realisation.

At the last meeting of the Division on 15 November in Tartu, in focus were the materials of the 24th General Assembly of the International Union of Pure and Applied Physics. The Assembly was held on 9-12 October in Berlin, with the leitmotif being energy and energetics in the widest possible sense, ranging from the vacuum energy, dominating in the Universe to the Kyoto protocol. Those issues are high on agenda in Estonia. The Academy will inevitably have to come to grips with them, in the future. The same meeting of the Division also discussed the role of Estonian centres of excellence in research and centres of development in technology in the EU structures and Estonia. The Division emphasised the expediency of the curriculum structure 3+2+3 and called for speedy abolition of Master as a scientific degree, already generating Master-Professors.

## DIVISION OF INFORMATICS AND ENGINEERING

The Division held two general meetings.

At the meeting held on 11 March, the participants exchanged opinions on compilation of the book “The Main Concern of Members of Academy in Engineering”. The Division reached the position that there was a need of a work of applied nature, oriented at wide readership: engineers, managers of enterprises, research financing bodies, law makers. The articles should cover all key areas in engineering. As regards the specialties not represented in the Division, the articles would be commissioned from leading professors of Tallinn Technical University. The collection prepared by Division of Informatics and Engineering, edited and with layout from Scientific Information Department of the Academy, appeared in 2002 under the title “Scientific Thought in Estonia. Engineering Sciences.”

Heard out was the information on preparation of a seminar directed to young scientists “Regarding the implementation of R&D results in economy.” In cooperation with Sweden, a respective Estonian programme titled CONNECT-Estonia has been launched, helping to link research to economy, to start businesses and to put in practice the results of research. Fulfilment of the programme is moderated and monitored by Tallinn Technical University, with involvement from the Division. Major interest of young scientists and entrepreneurs has been attracted by seminars “Establishment of technological enterprises” (26 August 2002) and “How to fund technological business” (10 December 2002, jointly with SPINNO, the programme of Tallinn Technical University).

Approved as new member of Council of the Division was Leo Mõtus.

The meeting of the Division on 16 December summarised the activities performed in the outgoing year, contemplated the working plan for 2003 and discussed the filling of vacancies of Member of Academy.

There were several international conferences and seminars, convened with active participation of members of Division: international conference “Industrial Engineering – new challenges to SME” – Member of Academy Rein Küttner; international colloquium “Euromech 436 – Nonlinear Waves in Microstructural Solids – Member of Academy Jüri Engelbrecht; “International Baltic Conference on Databases and Information Systems” – Member of Academy Enn Tõugu; international summer school “Stresses in glass” – Member of Academy Hillar Aben; Baltic Electronics Conference – Member of Academy R.-J. Ubar; international oil-shale conference – Members of Academy Jüri Engelbrecht, Arvo Ots.

5 June – academic lecture “Reliability of artificial systems, the range and limits of their diagnostics” delivered by Member of Academy Raimund-Johannes Ubar.

11 July – the outing by Members of Academy to mine fields, to look at work done by AS “Eesti Põlevkivi”.

12–13 September – XI Estonian Days of Engineering, with contribution by members of the Division; the commemorative lecture of Nikolai Alumäe.

23 October – Cybernetica AS Science Day “Data safety in science and life” from the series “User friendly technologies of information society”, moderated by Member of Academy Ülo Jaaksoo. Presented at the Science Day were R&D works of the most recent years by Cybernetica AS, focused on electronic document management.

#### DIVISION OF BIOLOGY, GEOLOGY AND CHEMISTRY

There were held one meeting of the Division and three sessions of the Council of the Division. Of them, the meeting of the Division and one session of the Council of the Division were open to participation; there were several invited guests attending them.

The session of the Council of the Division held on 20 February considered the formation of state programme “Nationally Important Natural Science Collections of Estonia”. The draft of the programme submitted by the Academy, in summer 1999 to Ministry of Education had been approved, however the project stalled because of shortage of science moneys. The responses of rectors of universities and the replies of research institutions to the initiative letter distributed by the Division at the beginning of 2002, supported the idea of renovation of the programme and its repeated delivery. This proposition was also supported by session of the Council of the Division. Under supervision of Member of Academy Dimitri Kaljo, a new draft of the state programme “Nationally Important Natural Science Collections of Estonia” was composed and submitted to Ministry of Education.

At the session of the Council of the Division held on 20 March, the Chairman of the Nature Protection Commission at Estonian Academy of Sciences Urmas Tartes presented an overview of the activity of the Commission in 1998–2001. It was acknowledged, during the ensuing discussion that the Commission operating on a voluntary basis had helped to bring closer, to one another the nature protection activists and entrepreneurs, heretofore dissenting in issues of nature protection, while calling on them to collectively discuss the topical problems. The Commission had developed authority and it was being taken in consideration, also on the level of decision-makers. The session considered it important that sitting on the Commission had been representatives of all specialties, and suggested that the said tradition be continued. The activity of the Nature Protection Commission was estimated as successful.

On 23 May, there was held the extended meeting of the Division of Biology, Geology and Chemistry, focusing on a review of results of evaluation of natural sciences (biology, molecular biology, geology and chemistry) and the situation in those areas of research. Attending the meeting were both representatives of the institutions organising the evaluation and those from the institutions subjected to evaluation. There were five papers heard out. The review of evaluation was delivered by Tiit Laasberg of Higher Education Quality Assessment Centre of Estonia. Papers on the situation in science and its perspectives for development were delivered by Members of Academy Erast Parmasto (biology), Mart Ustav (molecular biology), Dimitri Kaljo (geology) and Ilmar Koppel (chemistry). The papers were followed by interventions and deliberations, there was an exchange of opinions over the situation of R&D, its improvement and funding, as well as performance of evaluation and the issues involved.

On 27 November there was an extended session of the Council of the Division “Discussion of new natural sciences curricula of universities”, attended by representatives of Ministry of Education and universities. The participants acknowledged that when composing and implementing of the new (3+2) natural sciences curricula of universities there would arise serious problems, calling for a more detailed consideration and identification of the solutions. For that purpose, the vital issues must be highlighted and scrutinised, the alternative solutions considered and more feasible ways opted for.

Members of the Division organised two seminars: on 27 February “Biological diversity” (Erast Parmasto) and on 5 April “Neurobiology: knowledge and application” (Ain-Elmar Kaasik); they delivered two academic lectures: on 20 March “Soil over millennia” (Loit Reintam), on 6 November “From superacids to household chemistry” (Ilmar Koppel).

Continually operating as attached to the Division are Nature Protection Commission and Commission of Meteoritics.

NATURE PROTECTION COMMISSION (chaired by Urmas Tartes) organised on 24 May 2002 in the Botanical Gardens of the University of Tartu the 41st Day with Papers “The natural sciences education in the Estonia under transformation”. The participants analysed the situation with the off-school natural sciences education, its importance and need for improvement, they deliberated over visions of development of natural sciences education in Tallinn, presented the plan of development of Tartu Centre for Natural Sciences Education, novel and unique in Estonia, lauded the fascinating activity of Pärnu Nature House and heard out a paper on present Day of the Botanical Gardens of the University of Tartu. The topics of the day gave rise to a public discussion on nature protection, natural sciences education and organisation of nature protection. The moderator of the Day was Ivar Puura.

The topic of the general meeting on 21 March was oxygen and environmental problems, off-school natural sciences education and the situation of our natural sciences magazines. The anniversary of Eerik Kumari, the founder of the Commission was commemorated by opening of the exhibition in Baer House "Eerik Kumari 90". On 8 March, there was a school students conference in the Matsalu Nature Preserve, to mark Eerik Kumari's 90th anniversary.

Presented at the general meeting on 18 October was the collection compiled by the Commission "Waste and Nature Preservation" (mainly the materials of the Day with Papers of Nature Protection Commission on the same topic); the participants looked at the slides programme of diversity of Estonia's nature, discussed the changes in membership of the Commission and contemplated the plan of further work.

The general meeting on 9 December "Rustic wisdom and nature protection" was devoted to the use and protection of Estonian coastal landscapes (mainly in North Estonia). Under scrutiny were gross errors against nature and human life environment resulting from stupidity, ignorance, or carelessness; introduced were the problems related to environmental education and development strategy of nature protection.

The everyday work of members of the Commission are as ever largely related to nature protection activities. The majority of them have spoken at nature protection related scientific conferences, discussions, disputes. In progress is co-operation with Ministry of the Environment, Estonian Nature Foundation, Naturalists' Society, NGO Natural Science Magazine, Estonian Nature Protection Society and other organisations and institutions.

Members of the COMMISSION OF METEORITICS (chaired by Anto Raukas) studied the pulverised matter of meteorite craters, attended at several specialty international conferences, published the book "Meteorites and meteorite craters" (Reet Tiirmaa), collected data about the Vilsandi fireball (bolide) of 20 November 2002, at 10.30 a.m. The Commission continued searching minerals related to meteorite crash, from samples of drill core. As a result of the work, the fundamental knowledge of Estolites was enriched. Estolites were also identified in samples taken from seven craters of three different continents, confirming the universality of those particles in the given structures.

#### DIVISION OF THE HUMANITIES AND SOCIAL SCIENCES

There were three meetings of the Division.

11 March 2002 – the extended meeting of the Division in Paide, focusing on "What will become of Estonian scientific libraries?" Attending were representatives of Ministry of Education, Literary Museum, Tallinn Pedagogical University and the Institute of the Estonian Language. The same meeting

discussed the possible candidates for Foreign Member of the Academy and spoke about the establishment of a foundation, to compose and maintain the list of Estonian cultural, scientific and state figures buried abroad.

8 April – the meeting to present the candidates for Foreign Member of the Academy, submitted to the Division. There were 4 candidates: Endel Tulving, Felix Oinas, Jaan Puhvel and Pirkko Nuolijärvi. On 25 April there was a meeting of the Division to find out about the preferred candidate. Elected was Endel Tulving.

21 February – held in Tartu was the conference to commemorate Edgar Kant's 100th anniversary, with a paper by Member of Academy Peeter Tulviste.

10 May – the topical seminar “Scientific collections”, with contribution by Member of Academy Peeter Tulviste to prepare and to work out the subsequent resolution.

4 October - seminar in the series “From science to society” “Psychology *hic et nunc*” with contribution by Member of Academy Peeter Tulviste to prepare and hold.

29 November – folkloristic seminar in the series “From science to society” “Lessons to be learned” with contribution by Member of Academy Arvo Krikmann to prepare and hold.

## INTERNATIONAL RELATIONS

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In the activities of the Estonian Academy of Sciences, the scientific international relations have an important role to play both in integration of the Estonian science into international scientific community and in furtherance of the research done by it. Of no less importance is the involvement of the Academy in the development of bilateral relations with partner organisations in other countries. All those areas have witnessed, for a number of years a consistent effort to this end, successfully continued also in 2002.

The contacts of Estonian scientific community with international scientific unions, operated through mediation of the Academy have developed a dynamic aspect. Solid proof to the said fact is participation of representatives of the Academy, in the first place President Jüri Engelbrecht, and the Vice Presidents Ene Ergma and Peeter Tulviste in the work of steering bodies and general assemblies of International Council for Science (ICSU), Association All European Academies (ALLEA), Union Académique Internationale (UAI) and European Science Foundation (ESF) (cf. Chronicle pp. 12-18). A pivotal problem within the framework of European scientific public and ESF in 2002 was the establishment idea of the European Research Council (ERC). The Estonian Academy of Sciences has a feeling of unity based on shared interests and standards with those who deem the existence of ERC necessary for the development of the European Research Area. The future of the European science and technology policy was also on the agenda of the conference in Brussels, convened by European Commission in November, with the Academy represented by Jüri Engelbrecht.

Within the framework of ICSU, Estonian national committees of international scientific unions do an excellent job of pooling the efforts. Basically, they act as contact organisations (cf. the respective Chapter), however also through a number of individual scientists, who sit on respective commissions and other bodies. The Academy considers its participation in the scientific organisations affiliated to the system of ICSU of high priority. Our representation in the said system may be assessed as good, however in several areas the contact should be stronger and the outcome more tangible.

The key event of regional international co-operation was the joint conference of the Baltic and Nordic academies of sciences, held in Sweden, this year. The conference, attended by the Academy's delegation headed by President Jüri Engelbrecht (cf. p. 14), discussed the issues of evaluation of universities, problems relating to activities of the academies, and the avenues of further co-operation, as an important aspect to the aforementioned activities. Besides the above event, upholding and promoting the time honoured traditions, worth



mentioning is the Academy's participation in conferences, aimed at laying down new directions and opening new vistas. For instance the conference held in Berlin "Baltic Transfer 2002: The Role of Higher Education in the Economic Development of the Baltic Sea Area", and the Finnish-Estonian seminar convened by Vice President Ene Ergma in Tartu, devoted to the centres of excellence in research (cf. p. 55).

The bilateral scientific communication holds an important place in international relations of the Estonian Academy of Sciences, inasmuch as they involve many scientists from different universities and research facilities. In the development of those contacts, the diplomatic missions of respective states have played a significant role, supporting the academic contacts. In 2002 the Academy was visited by ambassadors of Austria, Italy, France, Germany, Finland etc., with whom a number of aspects of scientific co-operation were discussed. The bilateral relations with the partners (cf. list Table 1) are regulated by respective co-operation agreements, detailing the terms and conditions and scope of co-operation, and with some partners, also by the programme of joint projects. In 2002, the Academy entered into agreement with the Berlin-Brandenburg Academy of Sciences and the National Academy of Sciences of Belarus. Co-operation programme with the Spanish Council for Scientific Research (CSIC) took effect. The agreement with the British Academy was renewed. All in all, we are in a position to presently develop co-operation with 24 partner organisations.

To organise and monitor the exchange of scientists under bilateral agreements, there has been set up Council of Estonian Academic Foundation for International Exchange (Chairman Member of Academy Dimitri Kaljo, members from the four divisions of the Academy and from University of Tartu, Tallinn Technical University, Estonian Agricultural University and Tallinn Pedagogical University). The Council operates in keeping with its Statute.

The numerical data characterising the exchange of scientists have been presented in Table 1. Taking into consideration also the data for former years (cf. Figure p. 35), one is to acknowledge that the reception of foreign scientists (total 1038 days) was significantly larger (by 34%) than in 2001, falling just a bit short of the record year for reception (1998, 1051 days). Still, the reception accounted for only 56% of the amount of quota, while the Estonian scientists were dispatched to partner academies for 1569 days, i.e. 84% of the amount of quotas. The traditional imbalance of trips to Estonia and trips abroad has shrunk, however the first still constitutes only 66% of the second (in 1997-2001 on average 56%). Because the data series of receptions has shown considerable fluctuation since 1993, the outcome of 2002 should be regarded as accidental, not as a trend, which we have pursued, by according preferential treatment to trips within the framework of joint projects. The Council of the Foundation deems it reasonably justified to prefer, in competition for use of

quotas of the trips abroad, those Estonian scientists whose partners are visiting Estonian science institutions.

Table 1

Exchange of scientists effected in 2002 under co-operation agreements of  
the Estonian Academy of Sciences,  
through Estonian Academic Foundation for International Exchange.

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	1	4	1	14
National Ac.Sci. of Belarus	30	1	4	2	16
Berlin-Brandenburg Ac.Sci.	42	1	3	-	-
British Academy	90	4	32	4	57
Bulgarian Ac.Sci.	50	2	29	1	8
Chinese Ac.Sci.		-	-	-	-
Czech Ac.Sci.	70	5	58	6	70
Academy of Finland	600	27	298	97	692
French Ac.Sci.		2	10	2	12
Hungarian Ac.Sci.	175	26	226	12	122
Israel Ac.Sci.	28	1	5	-	-
Latvian Ac.Sci.	75	6	27	7	34
Lithuanian Ac.Sci.	75	12	60	9	57
Royal Society of London		3	31	2	26
Norwegian Ac.Sci.	84	-	-	4	40
Polish Ac.Sci.	100	8	89	6	81
Russian Ac.Sci.	50	7	49	5	35
Slovak Ac.Sci.	35	3	31	3	27
Slovenian Ac.Sci.		-	-	4	20
Spanish Council for Sci. Research CSIC	84	3	58	6	58
Royal Swedish Ac.Lett.Hist.&Ant.	28	1	4	5	14
Royal Swedish Ac.Sci.	84	1	7	6	110
Swiss Ac.Sci.	60	1	8	2	59
National Ac.Sci. of the Ukraine	50	3	15	1	5
<b>TOTAL:</b>	<b>1866</b>	<b>116</b>	<b>1038</b>	<b>185</b>	<b>1569</b>

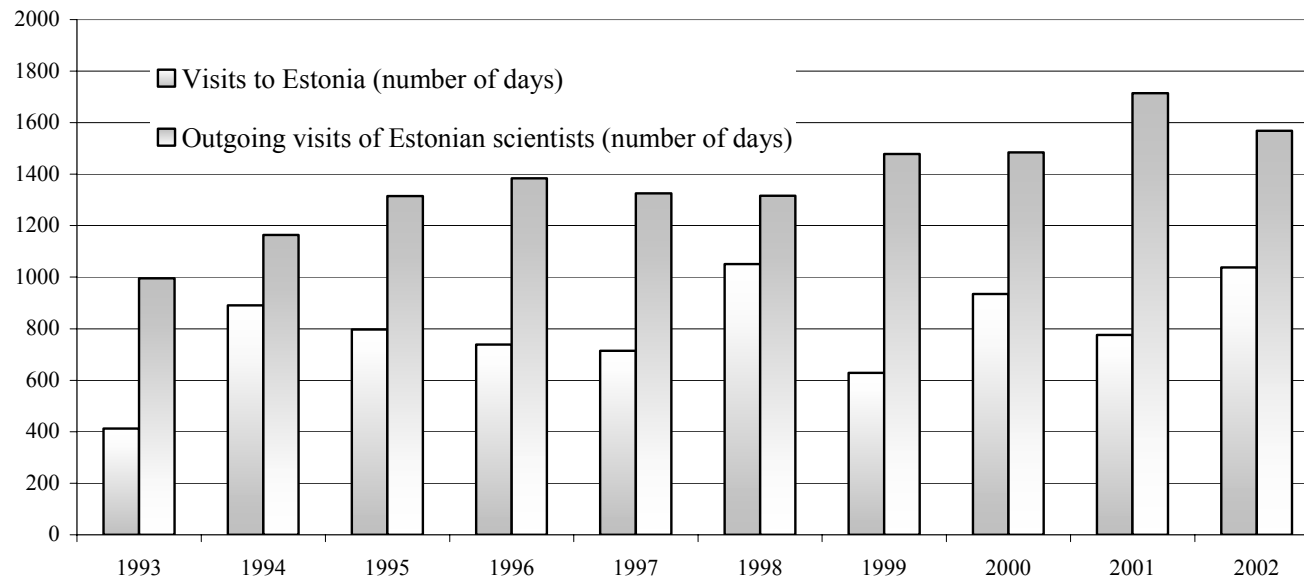


Figure 1. Scientific exchanges in 1993–2002.

The increase in incoming trips meant a significant incremental expense and pressure on the Academy budget, stringent as it was. Expended on reception was EEK 540,278, more than ever before and by 34% more than in the past five years, on average. The bulk of that increment is due to the increase of the number of days used, to some extent also due to the increase of the average expense per day (accommodation + per diem allowance). The latter was EEK 520.5, i.e. more by 5% than on average in 1997-2001. The increase of the average per diem allowance is normal, in view of inflation, however it is rather complicated to keep that increase in check.

The scientific exchange of the Estonian Academy of Sciences, effected within the framework of co-operation agreements, has been most popular with the scientists in the humanities and sociology, less so with mathematicians, physicists, chemists, biologists and geologists. The least interest to the opportunities provided by the Foundation has been paid by agriculturists and medical researchers. Starting from 1995 the sojourns of visiting scientists in Estonia have been 8 days, on an average; as regards the outbound trips of the Estonian scientists, their number has levelled out on the same figure (8 days). The most effective was the exchange of scientists with Finland and Hungary, with whom the exchange quotas are the largest, with Poland and Sweden to follow (cf. Table 1). The exchange with the Spanish Council for Scientific Research (CSIC) started in vigorous spirit, so did it continue with Russian Academy of Sciences. With both of those partners, the enthusiasm for contacts spills over the scope of agreed quota.

Meriting some note, as a positive aspect to bilateral communication is the spirit and enthusiasm, which the appropriate services and operators of partner organisations have instilled into co-operation. Supportive of that effort has been the solid tradition of common seminars – in the reporting year, those were convened by the Latvian Academy of Sciences in Riga and by Academy of Finland in Helsinki.

To sum up, the two priority directions in international relations of the Estonian Academy of Sciences – representation of Estonian science in international organisations and development of bilateral scientific contacts – were under scrutiny in 2002 and therefore fruitful and productive. However, there is still room for increasing the efficiency of those relations. Given the money scarcity and credit strictness, the choices in exchange of scientists must be better motivated.

## **INTERNATIONAL SCIENTIFIC UNIONS AND THEIR ESTONIAN CONTACT ORGANISATIONS**

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Participation in world scientific organisations is a major factor in integration of Estonian science in international structures. In order to represent the Estonian scientists in international scientific organisations and to maintain consistent and stable contacts with them, national committees of scientific unions have been established. Since 1999 that activity has been made significantly easier, because the annual target funding provided by Ministry of Education makes it possible to cover the membership fees of international organisations in a centralised manner, i.e. through the Academy. Still, due to money scarcity, the membership fee of only one contact organisation per one branch of science can be paid in the centralised way. The Board of the Academy holds in high priority the contacts with the scientific unions of the world-wide International Council for Science (ICSU). To evaluate the cost efficiency of expenses made annually on membership fees, the Academy has established that an annual report of national committees' work be delivered. The Estonian national committees and scientific societies have developed their activities in keeping with the specificity of their respective branch of science and their scientific union. In what follows, the overviews of their activity in 1999-2002 have been presented.

### **EUROPEAN PHYSICAL SOCIETY**

Estonian contact organisation: Estonian Physical Society

Founded: 1989 (member of European Physical Society since 1992)

Address: Tähe 4, 51010 Tartu, ESTONIA

Fax: + 372 7 383 034

E-mail: [jaaniso@fi.tartu.ee](mailto:jaaniso@fi.tartu.ee)

Website: [www.physic.ut.ee/efs/](http://www.physic.ut.ee/efs/)

President: Raivo Jaaniso, Tel: + 372 7 383 033, + 372 7 375 520

European Physical Society (EPS) is a single organisation uniting the physicists of Europe, including 38 national physical societies and through them over 80,000 members, among whom 200 members of Estonian Physical Society (EFS). As member of European Physical Society, EFS has been provided the opportunity to participate in elaboration of science policy standpoints concerning the physical science and education, and also more global issues, on the European level. In a longer perspective, that specific aspect would surely become even more important, after Estonia joins the EU.

Starting from 2002, EFS has participated in preparation of the Year of Physics 2005, an initiative of European Physical Society, to promote the popularity of physics in the world. Through EFS, Estonian physicists have participated in all-European seminars and projects focusing on education in physics. EFS has presented the Estonian physical community in regional, all-European and world physical fora. EFS has been on the receiving end, getting occasional conference benefits from the European Physical Society, and on regular basis topical information concerning physical science, physical education and their organisation. All members of EFS get the journal *Europhysics News* and may participate, without membership fee in the work of all divisions of the European Physical Society.

EPS has lately been paying particular attention to school physics and has been trying to attract the teachers of physics into EPS. Attending its session held in France in June 2002, devoted to gymnasium physics were Madis Reemann and Jaan Susi of Estonia. Recently, EFS received through EPS the interactive teaching aids *From Silicon to the Computer* and *Energy and its transformations* completed by support from European Commission. EFS is currently engaged in trying to render them into Estonian. Following the EPS example, Estonian Physical Society has called the teachers of physics to join EFS (which call has met with an enthusiastic response). EFS plans to found a School Physics Division of EFS, at the forthcoming general meeting.

The international communication with EPS was maintained, in 2002 mainly by correspondence. Over the years, EFS has been pestered by stringency, discouraging the efforts of Estonian Physical Society to attend in person at the annual general assembly of European Physical Society and at congresses, bringing together the physical societies, in a wider aspect.

## **INTERNATIONAL ASSOCIATION OF GEOMORPHOLOGISTS**

Estonian contact organisation: Estonian National Committee of IAG

Founded: 1992

Address: Institute of Geology at Tallinn Technical University, Estonia pst 7,  
10143 Tallinn, ESTONIA

Fax: + 372 631 2074

E-mail: [raukas@gi.ee](mailto:raukas@gi.ee)

Chairman: Anto Raukas, Tel: + 372 644 4189; + 372 645 4659

Estonian scientists have been members of International Association of Geomorphologists since 1992. The present composition of the national committee was elected in 1998. It is constituted by representatives of all Estonian scientific institutions, concerned with geomorphology.

Geomorphology is the interface science on the borderline between geology and geography, studying the relief of sea and mainland, their genesis and formation, as having an applied value. The results obtained are used in building, land improvement and in forecasting the damaging natural phenomena. In Estonia, underway is the geomorphologic mapping, for which an optimum legend has been compiled, drawing on international co-operation. The tangible benefit from participation in this scientific union is manifested in the newest and cutting-edge scientific information, flowing into Estonia, of which the contact organisation has been an agency for, in novel co-operation projects and in involvement of foreign experts in instruction and prognosticating of the hazardous natural phenomena. Worth mentioning among the latter are the Palaeozoic researches conducted in Tallinn and North-East Estonia, the identification of interrelation between climate and the growing intensity of coastal processes, and the studies of landslides. In progress are joint researches with the scientists of the U.S.A., Russia, Latvia, Poland, Belarus etc. The outcome of those collective studies have been brought to attention of international scientific community at conferences in Germany, Holland, Spain, Russia and elsewhere. In 2003, Estonia will host an international conference with scientific excursion in North Estonia.

The activity of the Committee in 2002 involved compiling and publication of scientific articles and compendia and participation in geomorphology-related entries in Estonian Encyclopaedia. For development of scientific and pedagogical competence the contact organisation has contributed to regular seminars and give-and-talk shows at respective institutions (University of Tartu, Institute of Geology at Tallinn Technical University, Institute of Ecology at Tallinn Pedagogical University

## **INTERNATIONAL ASTRONOMICAL UNION**

Estonian contact organisation: Estonian National Committee on Astronomy

Founded: 1994

Address: Tartu Observatoorium, Tõravere, 61602 Tartumaa, ESTONIA

Fax: + 372 7 410 205

E-mail: viik@jupiter.aai.ee

Chairman: Tõnu Viik, Tel: + 372 7 410 154

Estonian National Committee on Astronomy (ERAK) restored, after Estonia regained independence, the links with the International Astronomical Union, with full membership in IAU. Starting from 1994 ERAK has been, through IAU the liaison agent between the world astronomic community and Estonian astronomers.

ERAK has regularly discussed training of young astronomers at University of Tartu, has taken part in awarding the E. J. Öpik grants by Tartu Observatory, has nominated new candidates for IAU membership from Estonia and has coordinated the development of astronomy in Estonia.

The Estonian astronomers have been happy to use the IAU grants to enable their participation in astronomical events held by IAU, in the first place for participation in IAU general assemblies. IAU is regularly mailing to all of its members bulletins, keeping the Estonian astronomers updated and informed about the developments in the world astronomy. The largest publishers offer the members of IAU the rebate within 30%, when buying their books.

### **INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL**

Estonian contact organisation: Estonian Association of Engineers / Estonian System Engineering Society

Founded: 1993

Address: ESIS, Institute of Automatics, Ehitajate tee 5, 19086  
Tallinn, ESTONIA

E-mail: leo.motus@dcc.ttu.ee

IFAC contact: Leo Mõtus, Tel: + 372 620 2095

International Federation of Automatic Control (IFAC) is an association of professional specialists engaged in system engineering and automatics. Through IFAC expert information is disseminated, the expert contacts and knowledge are updated in essential co-operation in theory, education and industrial practice. Estonian scientists and specialists participate at organisation of IFAC events and deliver papers at them, they take part in working groups, and sit on committees and panels. Estonia is represented in IFAC by the Estonian Association of Engineers, however more specifically, as per concrete specialties of IFAC, by Estonian System Engineering Society (ESIS). ESIS is a non-profit voluntary professional society. Following is a sample selection of topics and issues the Society is concerned with:

- Professional Council of Engineers and Estonian engineering professions, working out professional standards (Certified Engineers of Estonia);
- Holding of the competition for the best system of automatic control;
- Consolidating experts in specialties under the auspices of ESIS and providing experts, when they are sought;
- Organisation of events in Estonia in furtherance of theory and practice of automatics;
- Issuance of operating licenses for specialist works;
- Law making, professional standards; permits and licenses for carrying out works in automatics;
- Certification of Estonian products for marketing in Europe.



Member of Academy Boris Tamm, who departed in 2002 was permanent counsellor to President of IFAC – subject to IFAC Statute the former presidents stay in office as permanent counsellors (Boris Tamm was President in 1987-1990).

## **INTERNATIONAL GEOGRAPHICAL UNION**

Estonian contact organisation: Estonian National Committee for IGU

Founded: 1992

Address: Institute of Ecology at Tallinn Pedagogical University, Kevade 2,  
10137 Tallinn, ESTONIA

Fax: + 372 662 1853

E-mail: [mati@eco.edu.ee](mailto:mati@eco.edu.ee)

Chairman: Jaan-Mati Punning, Tel: + 372 662 1853

Estonian National Committee for IGU (EGR) is engaged in close and constructive co-operation in Estonia with Estonian Geographical Society (EGS). Such form of operation is most expedient in local circumstances, because it enables the versatile use of the national structure and recognition which EGS has developed and won over the years. EGR is member of International Geographical Union (affiliate to ICSU), accorded Category II membership, making it eligible to participate in the work of General Assembly in all questions on issue, with the voting right.

EGR represents in IGU the Estonian geographers, it obtains regular information and it is actively involved in development of the geographical thinking and activities of the world. In that year Estonia obtained, free of charge 20 copies of IGU publication *IGU Bulletin*, as well as several copies of the 4th issue of *IGU Newsletter*.

IGU has established in Rome, on the basis of Villa Celimonta the centre of world geographers *Home of Geography*, welcoming the geographers of all IGU member states, including Estonia. *Home of Geography* comprises an archive, modern library, and provides opportunities to hold international events. It will be the venue of organisation of the 30th International Geographical Congress in 2004. EGR receives continually information about the progress of preparation for the Congress. It has been extended the invitation to get actively involved in the process.

In 2002 Tartu hosted a major international event European Permanent Conference of Rural Landscapes (main convenor H. Palang, University of Tartu), supported by IGU and attended by President of IGU A. Buttimer (Dublin). Estonian scientists are active in several IGU working groups.

## **INTERNATIONAL MATHEMATICAL UNION**

Estonian contact organisation: Estonian Mathematical Committee

Founded: 1991 (Member of International Mathematical Union from 2001)

Address: University of Tartu, Institute of Abstract Mathematics, J. Liivi 2-614,  
50409 Tartu, ESTONIA

E-mail: lumiste@math.ut.ee

Chairman: Ülo Lumiste, Tel: + 372 7 441 391.

Estonian Mathematical Committee (EML) is International Mathematical Union (IMU) in Group I (i.e., entitled to one vote at IMU General Assembly). Of vital importance has been EML participation at scientific events convened by IMU, in the first place at International Mathematical Congress in Beijing at Joint Seminar of US and Italian Mathematical Unions in Pisa, and at Abel Bicentennial Conference (Oslo), organised by IMU, European Mathematical Society (EMS) and Norwegian Mathematical Society.

IMU membership makes sure the mathematicians of this country are well informed about key international events in said domain, primarily through IMU Bulletin and issues of the European Mathematical Society. Estonia was visited by President of European Mathematical Society and representatives of mathematical societies of neighbouring countries.

## **INTERNATIONAL SOCIOLOGICAL ASSOCIATION**

Estonian contact organisation: Estonian Association of Sociologists

Founded: 1990 (until 1999 named Estonian Academic Association of Sociologists; member of International Sociological Association since 1991)

Address: c/o Mikko Lagerspetz, Estonian Institute of the Humanities, Salme 12,  
10413 Tallinn, ESTONIA

Fax: + 372 641 6423

E-mail: mikko@ehi.ee

Website: [www.iiss.ee/esl/](http://www.iiss.ee/esl/)

President: Mikko Lagerspetz, Tel: + 372 641 6422

In 1999–2002 Estonian Association of Sociologists (ESL) continued its activities in uniting Estonian professional sociologists, the largest amalgamation of sociologists by membership. In annual meetings the members have delivered topical papers, *inter alia* those on methodological development of sociology, on need for training of sociologists and on funding the science. Members of the Association have been included into a common e-mail list.

International Sociological Association (ISA) has mailed to ESL scientific journals *Current Sociology* and *International Sociology*, as well as organisational reference materials *ISA Bulletin* and *Directory of ISA Members*. ESL has voting

right in two representative bodies of ISA – in Council of National Sociological Associations and in Assembly of Councils. ISA website contains reference to ESL website. ISA has regularly mailed information about its activities, including the scientific conferences convened by member unions, and competitions for vacant positions. Through ISA Estonian sociologists can put their foreign counterparts in the picture of their activities.

In July 2002 there was ISA XVI World Congress of Sociologists (Brisbane, Australia). Due to distance and prohibitive travelling cost, ESL was represented in one person, only (Dagmar Kutsar), using the ESL vote in election of ISA management bodies. ISA comprises 53 specialist science commissions, whose narrower scope conferences are held more frequently, sometimes in our geographical proximity.

The untoward geographical factor and the small number of Estonian sociologists notwithstanding, making it difficult to more actively participate in the work of said work association, ESL should retain membership in ISA. This will make it easier to Estonian sociologists to follow the international development of that domain and to have colleagues in the area take cognisance of their scientific effort.

## **INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS**

Estonian contact organisation: Estonian National Geophysical Committee

Founded: 1991

Address: University of Tartu, Institute of Environmental Physics, Ülikooli 18,  
50090, Tartu, ESTONIA

Fax: + 372 7 375 556

E-mail: rein.room@ut.ee

Chairman: Rein Rõõm, Tel: + 372 7 375 551

Estonia is voting member of International Union of Geodesy and Geophysics (IUGG) (there is also the status of non-voting associate member). IUGG is the main however not the only co-ordinator and organiser of research programmes and projects and information mediation in geosciences. The Estonian contact organisation has adequate exchange of information with IUGG Secretary General and secretaries of associations in the composition of IUGG, including by monthly electronic information letter. The Estonian contact organisation drafted the national report to IUGG XXII General Assembly 1999 in Birmingham and is currently involved in drafting the next national report to XXIII General Assembly 2003 in Sapporo. It has participated in preparation of IUGG Year Book 2003.

Contacts and exchange of information have taken place with all seven associations belonging to IUGG composition. Of major scope is its international co-

operation with two of them: IAMAS (International Association of Meteorology and Atmospheric Sciences) and IAPSO (International Association of the Physical Sciences of the Ocean). In 2002 we participated at International Aerosol Conference in Taiwan and at International Operative Oceanology Conference EuroGOOS in Athens.

Participation in IUGG helps one to be knowledgeable of projects and programmes in geosciences, either underway or being contemplated and to thereby increase the scarce scientific mass of research teams in this small country. Integration in the world geosciences without adherence to IUGG would be questionable. The strong side of IUGG is its orientation to world inter-disciplinary co-operation and to global databases, available to all stakeholders. IUGG General Assemblies with their numerous inter-disciplinary participation are a venue of thorough preliminary discussion of large projects and programmes. The forms of scientific co-operation operating through other channels, are also governed by guidelines recommended by IUGG. Geosciences have over the ages been strong on the applied side. The geophysical research concerning the territory of Estonia are presently carried out by means of major technical and monetary support from our more affluent neighbours, what needs not be so, should Estonia not belong to IUGG. For instance, the works related to development and integration of geodetic base networks of Estonia into geodetic networks of Nordic countries and Western Europe, and the magnetometric measurements carried out in Estonia by Institute of Geophysics of Finland.

## **INTERNATIONAL UNION OF GEOLOGICAL SCIENCES**

Estonian contact organisation: Estonian National Committee for Geology

Founded: 1992

Address: Tallinn Technical University, Institute of Geology, Estonia pst 7,  
10143 Tallinn, ESTONIA

Fax: + 372 631 2074

E-mail: kaljo@gi.ee

Chairman Dimitri Kaljo, Tel: + 372 645 4653

The activity of Estonian National Committee for Geology (EGR) in 1999–2002 was dominated by the following directions:

- Participation in the activity of International Union of Geological Sciences (IUGS), including as member of council of IUGS. EGR made its contribution by making known its opinions, when the structure of the Union was overhauled and its activity renovated, of which important were amendments to the statute and the organisational merger of IUGS and International Geological Congress. Members of EGR participated in person in IUGS commissions.

- Dissemination of IUGS information in Estonia, nomination of candidates etc. We continue to get, on account of membership fee two copies of IUGS journal *Episodes* (4 issues per year), of which one is deposited in Tallinn, at library of the Institute of Geology at Tallinn Technical University and the second in Tartu, at library of Institute of Geology of University of Tartu.
- Taking position with respect to organisation of geological institutions (in 2002, relative to plans to divide the Estonian Geological Centre into parts).
- Support to co-operation of the Baltic States within the framework of common Baltic Stratigraphic Association.

IUGS considers it important to strengthen the role of national committees. EGR is of the same opinion and perceives various options to the effect. The benefit is constituted by information obtained and by making Estonia seen in the international geological community.

## **INTERNATIONAL UNION OF THEORETICAL AND APPLIED MECHANICS**

Estonian contact organisation: Estonian National Committee for Mechanics

Founded: 1991 (IUTAM member since 1992)

Address: Akadeemia tee 21, 12618 Tallinn, ESTONIA

Fax: + 372 620 4151

E-mail: je@ioc.ee

Chairman: Jüri Engelbrecht, Tel: + 372 620 4160

International Union of Theoretical and Applied Mechanics (IUTAM) coordinates the respective research all over the world, convenes congresses, symposia, summer schools and other events for discussion of outcome and applications of research in mechanics. Participation of Estonian National Committee for Mechanics (EMRK) in the work of IUTAM is effected, subject to quota (membership fee) *via* one representative, notably Jüri Engelbrecht. At IUTAM world conference ICTAM 2000 J. Engelbrecht was elected, for the second period member of Bureau of IUTAM, and for the third period member of IUTAM Congress Committee. Besides that, he sits on several IUTAM symposium programme committees, he participated at IUTAM General Assembly and at all regular IUTAM bureau sessions. He also represented IUTAM at International Council for Science (ICSU) General Assembly 1999 in Cairo.

IUTAM has established target commissions, for working out new directions. The conference committee selects main speakers at the conferences, whereas all applications for papers are reviewed by respective programme committees. Our scientists delivered papers at Congress ICTAM 2000 and IUTAM symposia. The following session of IUTAM Bureau has been planned to take place in Tallinn in

2003. Estonian scientists are directly involved in IUTAM activities, consisting mainly in selection of directions and evaluation of quality of research. The institution most intimately related to IUTAM in Estonia, besides ERMK is Centre for Nonlinear Studies (CENS), which was accorded the title of Centre of Excellence 2002 in Estonia. Sitting on CENS Steering Committee are members of IUTAM Bureau Keith Moffat (Cambridge) and Dick van Campen (Eindhoven).

All costs related to participation of J. Engelbrecht IUTAM steering bodies were covered by IUTAM. Some of our scientists have also received participation benefit at symposia and congresses. Estonian National Committee for Mechanics regularly obtains the IUTAM publications.

EMRK has developed activities in Estonia subject the following main directions:

- Coordination of work of Estonian Programme for Mechanics 1998–2002 and drafting the respective report.
- Organisation of Estonian Days of Mechanics.
- Drafting of Estonian Programme for Mechanics 2003–2007.
- Organisation of Nikolai Alumäe's Lecture 2002.

## COUNCILS

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### ENERGY COUNCIL

The Energy Council of the Estonian Academy of Sciences (Chairman Member of Academy Mihkel Veiderma) held three meetings in 2002.

On 15 February 2002 the Energy Council gathered upon initiative of the President of the Republic, called by Chairman of the Council, with the aim to discuss the situation in Estonia's energy sector, in connection with the termination of the so-called NRG Agreement and to design the future of energetics. The meeting heard out reviews by Mihkel Veiderma, Rein Küttner and Ülo Rudi about recent activities and the nearest plans in energetics, as well as Arvi Hamburg's paper on principles of development of energetics, followed by an exchange of opinions and passing of a resolution.

The Energy Council pointed out that termination of the so-called NRG Agreement provided an opportunity to bring to the notice of public the problems in Estonian energetics and how its development plans are designed, and to prompt the scientists, specialists, enterprises and institutions to join in. The Energy Council of the Estonian Academy of Sciences declared its readiness to continuously contribute to that process.

The Council found that the Energy Act passed in 1997 in Riigikogu, the Charter of European Energy ratified in 1998 and the approved long term State Development Programme of Fuel and Energy Economy used to be a solid basis in designing of a modern energy policy in Estonia. The subsequent amendments to the Energy Act, and in particular several acts of the Government of the Republic however have abandoned the original aspiration to establish a free energy market and have perpetuated the monopolistic structures in energetics.

The Council made the following declaration. The oil shale energetics has until now supplied Estonia with power. The useful life of equipment of the power plants, however is running out. The replacement of two feeding units at AS Narva Elektriijaamad calls for investments to the tune of EEK 4.4 billion, however the comprehensive renovation of the power plants, to meet the current energy consumption levels would necessitate additional large investments in the future (tentatively EEK 25-30 billion). This makes topical the launching in the market of alternative energy sources.

The Council pronounced it a task of primary importance to work out the state development programme of energetics (up to 2020), calling on the Government of the Republic to promptly launch it. The development programme should be approved by Riigikogu. The Council established the principles, which should underlie the development programme of energetics. The Council considered it

necessary to carry out an analysis of alternative solutions, in the course of drafting the development programme of energetics, and to reach an agreement, on its basis, in several fundamental positions named in the resolution.

The resolution taken was delivered to President of the Republic, Prime Minister and Ministry of the Economic Affairs, and also to the press.

On 8 May 2002 the Energy Council held its second meeting, considering the questionnaire of Ministry of Economic Affairs, submitted with a view of drawing the State Development Programme of Fuel and Energy Economy. The meeting formulated the principled opinions and put in place the common answers to the questions posed. The opinions suggested were summarised in the resolution of the Council “Regarding the drawing of the development programme of Estonian energetics” and “Answers to the questionnaire of Ministry of Economic Affairs for drawing of the development programme of energetics”.

In its resolution, the Energy Council issued recommendations to the Ministry of Economic Affairs for drawing of the development programme and its content. As regards the questions posed by Ministry of Economic Affairs, the Energy Council forwarded its standpoints, primarily on the level of principles and trends and found that several questions, in particular regarding the numerical options, could not be answered expressly, without respective preliminary researches. The Council also referred to several issues, calling for further elaboration, in view of drawing of the development programme.

On 30 September 2002 the Energy Council scrutinized the draft Power Market Act. The Council heard out the report by the acting Head of Energy Department of Ministry of Economic Affairs Mr Einari Kisel, focusing on draft Power Market Act, followed by an exchange of opinions.

The Energy Council pointed out that when completing the draft Power Market Act, there had been made a significant contribution to streamlining the energy economy and harmonizing it with the respective EU directions and principles. However it also highlighted several shortcomings: the draft imposes restrictions on opening of the power market and on import-export of power, it perpetuates the monopoly over the whole length of chain of electrical energy and it does not determine the main grid enterprise as an independent neutral company. The draft Power Market Act is power-system centred, imposing on other enterprises and consumers multiple conditions and obligations. Whereas the rights and demands of the customers have not been accorded due attention. The Council deemed it necessary to introduce into the draft Power Market Act respective changes or additions.

The minutes of the meeting, together with propositions contained therein were forwarded to the Economics Commission of Riigikogu and to Ministry of Economic Affairs.



## **COUNCIL OF POPULATION AND PUBLIC HEALTH**

The Council of Population and Public Health (Chairman Member of Academy Ain-Elmar Kaasik) held one working meeting in 2002.

On 1 March the Council heard out the papers by Ain Aaviksoo, Head of Department of Public Health of Social Ministry of the Republic of Estonia “Draft health policy of population” and “State health strategy 2010”. The Council discussed how to implement the health strategy. The scarcity of meetings of the Council has been made up by lively virtual exchange of opinions, with a view to formulate the position concerning the health reform (Estonian Health Project 2015), the medicines policy and the starting of the publication of medical series of “The Proceedings of the Estonian Academy of Sciences”. As a matter of fact, the Health Project is outside the range of main objectives of the Council. Still, it has been approved by political figures and Board of the Academy of Sciences. In respect of the medicines policy the Council referred, with expert estimates, to the State Agency of Medicines, recommending the optimum versions to conciliate the dramatically opposing positions (“cheap Russian medicines” vs. “expensive Western-originated preparations”).

Due to narrow scope of problems and small number of those interested in Estonia, the Council considers it necessary to promote publication of research results in international journals and also to increase the exactingness in respect of materials published in the magazine “Eesti Arst”. The portfolio of articles of the magazine “Eesti Arst” displays dire shortage of good overviews which would bring the domestic and international results to the attention of medical community and stakeholders, meeting the goal of dissemination of post-graduate information and benefiting the national culture. The valuable asset of the Council of Population and Public Health is its participation in the preparation for “Health Forum”.

## **COUNCIL OF SOCIETIES**

### **HAVING ASSOCIATED WITH THE ACADEMY**

The Council (Chairman Professor Jaan-Mati Punning) held its meeting on 2 December, with representatives of the societies providing short summaries of their work and plans for 2003, discussing common aspects in activity of the societies (in detail cf. pp. 122-138). The Council emphasised the importance of financial support from the Academy, to promote the activities of the societies. The Council decided to hold in 2003 a joint topical meeting “Scientific societies and the Estonian identity”.

## **PUBLISHING COUNCIL**

The task of the Academy's Publishing Council (Chairman Member of Academy Hillar Aben) is to formulate positions and to present proposals in issues relating to structure of Academy Publishers and its activity, and also regarding journals and non-periodical printed matter issued by the Publishers.

At the meeting of the Publishing Council on 10 December the Director of the Publishers Ülo Niine provided an overview of the activity of the Publishers and the situation with electronic publishing in 2002 (in detail cf. pp. 87-89).

It is considered important that since 2002 full texts of all articles of the five series of the journals "The Proceedings of the Estonian Academy of Sciences" and the journal of the humanities and social sciences "Trames" are electronically available on website of internationally recognized EBSCO Publishing (EBSCOhost®). The rate of reviewing of academic journals has significantly increased (cf. [www.etf.ee/index.php?id=226&keel=EST](http://www.etf.ee/index.php?id=226&keel=EST)).

The Council stated that the standard in content and format of the journals issued by the Publishers fully meets the international requirements.

## **COUNCIL OF FOUNDATION FOR INTERNATIONAL EXCHANGE**

The task of the Council of Foundation for International Exchange is to establish the conditions and direct the exchange of scientists (in detail cf. pp. 33).

## RESEARCH PROFESSORS

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In 2001, Riigikogu introduced an amendment into Research and Development Act, establishing the status of Research Professor in Estonia. Elected as Research Professor can be a scientist recognised in his specialty, supervising respective research, having a doctorate, having worked as senior researcher or Professor for at least 10 years and having supervised and brought to completion and defence the doctoral theses. Research Professor is elected by Board of the Estonian Academy of Sciences. In 2002, the state budget had, for the first time the means allocated, to remunerate the Research Professor.

In 2002 Estonian Academy of Sciences called the competition and elected the first three Research Professors:

Professor of the University of Tartu  
Member of Academy *Agu Laisk*



Senior researcher of the University of Tartu  
*Asko Uri*



Professor of Tallinn Technical University  
Member of Academy *Raimund Ubar*



## PUBLIC ACADEMIC LECTURES

In 2002, there were four more discourses given to an audience in the series “Public academic lectures of the Estonian Academy of Sciences, initiated in 1996:

20 March  
Member of Academy  
***Loit Reintam***  
“Soil over millennia”



5 June  
Member of Academy  
***Raimund Ubar***  
“Reliability of artificial systems, the range and limits of their diagnostics”

2 October  
Member of Academy  
***Ülo Lumiste***  
“Space-time geometry and its history”



6. novembril  
Member of Academy  
***Ilmar Koppel***  
“From superacids to household chemistry”

Altogether, 25 Members of Academy have delivered papers in that series.

## SEMINARS

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In 2002, Estonian Academy of Sciences continued holding seminars of three series, by now already traditional: FROM SCIENCE TO SOCIETY, NEW TRENDS IN SCIENCE and TOPICAL SEMINARS.

In the series FROM SCIENCE TO SOCIETY there were three seminars.

27 February – the seminar “Biological diversity” co-moderated by Member of Academy Erast Parmasto, with papers from:

*Urmas Tartes*, Institute of Zoology and Botany at Estonian Agricultural University (EPMÜ ZBI)

What do we need biological diversity for?;

*Jaan Kaplinski*

Globalisation and diversity;

*Ingmar Ott, Priit Zingel, Reet Laugaste*, EPMÜ ZBI

Invisible diversity: Protista and Cyanophyceae;

*Tiiu Kull, Toomas Kukk, Kai Vellak*, EPMÜ ZBI

Plants – basis for diversity;

*Urmas Kõljalg*, University of Tartu, EPMÜ ZBI

Does biological diversity need biosystematics?

*Vilju Lilleleht*, EPMÜ ZBI

Fauna – the mirror of diversity;

*Udo Timm*, Information and Technology Centre of Ministry of the Environment

Database of diversity and its application in Estonia.

Seminar was concluded with a discussion moderated by Member of Academy Erast Parmasto.

4 October – the seminar “Psychology *hic et nunc*” (co-moderator Member of Academy Peeter Tulviste). Delivered were the following papers:

*Peeter Tulviste*

Changing psychology in the changing society;

*Jüri Allik*, University of Tartu

An Estonian man as seen against the data of modern comparative personality research;

*Mare Pork*, Tallinn Pedagogical University

Applications of psychology in Estonia of today;

*Tiia Tulviste*, University of Tartu

Developmental psychology in Estonia: research and applications;

*Eve Kikas*, University of Tartu

Problems and research of school psychology.

The papers were followed by a panel discussion moderated by Member of Academy Peeter Tulviste.

Proceedings of the seminar are available (incompletely) in pdf-format on website of Estonian Academy of Sciences.

29 November – the seminar “Lessons to be learned” co-moderated by Member of Academy Arvo Krikmann. Delivered were the following papers:

*Eve Anuk*, Literary Museum

Legacy of totalitarianism and/or colonialism: why and how the Soviet period should be studied;

*Mare Kõiva*, Literary Museum

Whose land? Whose myth?

*Jaani Undusk*, Under and Tuglas Literature Centre

Compulsive rhetoric in the Soviet historical writing;

*Triinu Ojamaa*, Literary Museum

Metamorphoses of the Siberian music in the epoch of Socialism.

The seminar ended with a discussion moderated by Member of Academy Arvo Krikmann.

In the framework of the series started in 2000 NEW TRENDS IN SCIENCE, there was the seminar “Neurobiology: knowledge and applications” on 5 April (co-moderator Member of Academy Ain-Elmar Kaasik). Delivered were the following papers:

*Jaanus Harro*, University of Tartu

Psycho-physiology of depression: normalcy limits to sadness;

*Eero Vasar*, University of Tartu

Psycho-physiology of anxiety;

*Aleksander Žarkovski*, University of Tartu

Neurogenesis in the brain of an adult;

*Toomas Asser*, University of Tartu

Perspectives of “Biological surgery” in case of neuro-degenerative conditions;

*Ülla Linnamägi*, University of Tartu

Dementia from Alzheimer syndrome.

The papers were followed by a panel discussion moderated by Member of Academy Ain-Elmar Kaasik.

Proceedings of the seminar were published as a booklet and distributed among institutions and persons concerned, and to libraries. They are available in the Academy website in pdf-format.

In the series of TOPICAL SEMINARS there were two events.

10 May – the seminar “Scientific collections in the humanities” (jointly with Cultural Commission of Riigikogu, co-moderated by Members of Academy Peeter Tulviste and Mihkel Veiderma).

Delivered were the following papers:

*Mari Siiner*, Estonian National Library

The foundations for preservation of cultural values;

*Jaan Ross*, University of Tartu

Funding of the scientific collections in the humanities in the past decade;

*Krista Aru*, Literary Museum

Culture study collections: whom to and what for?

*Urmas Sutrop, Jüri Viikberg*, Institute of the Estonian

Collections of the Estonian Language as national heritage;

*Priit Raudkivi*, Institute of History

Situation of the collections of the Institute of History and their perspectives;

*Hain Tankler*, University of Tartu

Special collections in research institutions and scientific societies.

Seminar ended with discussion and adopting of an appeal to Riigikogu, Government and public.

Proceedings of the seminar were published as a booklet and distributed among institutions and persons concerned, and to libraries. They are available in the Academy website in pdf-format.

18 October – the seminar “Research centres of excellence in research – Finnish and Estonian experience” (co-moderated by Member of Academy Ene Ergma).

Delivered were the following papers:

*Anneli Pauli*, Academy of Finland

European research space and the 6th Framework Programme of the EU;

*Tiina Vihma-Purovaara*, Academy of Finland

New international strategy of the Academy of Finland;

*Jüri Engelbrecht*

Programme of Estonian centres of excellence.

The seminar ended with a discussion.

## MEETINGS-DISCUSSIONS

Starting from 2000, the Estonian Academy of Sciences has organised meetings-discussions in research institutions and societies associated with the Academy, in enterprises and regions.

On 21 May, Board of the Academy held an extended session in the house of Estonian Naturalists' Society, with the board of the Society and members attending. On the agenda was the overview of the activities of the Estonian Naturalists' Society and the plan to celebrate its 150th anniversary. The papers were from President of the Estonian Naturalists' Society Tõnu Mõls, from the President Honoris Causa Member of Academy Hans-Voldemar Trass and Scientific Secretary Linda Kongo. There ensued a lively discussion.

On 11 June Members of Academy Ülo Lepik, Ülo Lille, Georg Liidja, Ülo Lumiste, Rein Küttner, Arvo Ots, Anto Raukas, Peeter Tulviste and Mihkel Veiderma participated in a discussion with representatives of the Board of AS Eesti Põlevkivi. Under scrutiny were perspectives and problems of development of the said enterprise. They also visited the mines.



On 20 September, Pärnu College of the University of Tartu hosted the Science Day of the Academy. Papers were delivered, and questions answered by Mem-



bers of Academy Peeter Tulviste, Ene Ergma, Ülo Lumiste, Karl Rebane, Mihkel Veiderma and Ivar Piir of University of Tartu. Under guidance of Director of Pärnu Museum Aldur Vunk, the participants looked at historical monuments of Pärnu.

This list does not include the participation of Members of Academy in those many discussions held in research institutions and scientific societies.

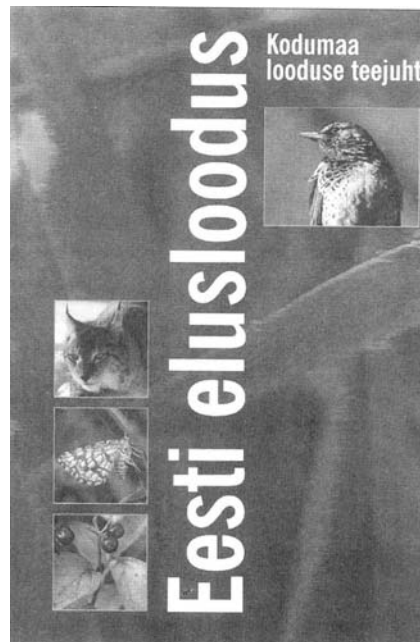
## **PRIZE**

### **TO THE BEST POPULAR SCIENCE BOOK**

In 2002, Estonian Academy of Sciences issued a prize for the best popular science book published in Estonia in 2000-2001

To authors of the book issued by  
Varrak Publishers in 2001  
“Estonian live nature.  
Guide to the homeland’s nature”  
(392 pp.)

***Rein Kuresoo,  
Indrek Rohtmets,  
Hendrik Relve.***



## **ACADEMY RESEARCH GRANTS**

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In 2002, the Estonian Academy of Sciences assigned 6 grants, by public competition, for completion of monographic research works and popular science books. The Academy received 37 applications for the purpose. The Assessment Commission, comprising Vice President Ene Ergma (Chair), Members of Academy Hillar Aben, Anto Raukas and Haldur Õim considered the applications. On the basis of their proposal, the Board of the Academy assigned research grants to the following scientists (Resolution of the Board of 21 May 2002, Minutes no. 6 § 18):

**Irina Belobrovtsava** and **Svetlana Kuljus** (Tallinn Pedagogical University) – EEK 15 000, for completion and getting ready for publication of the monographic scientific work “Scientific commentary of Mihhail Bulgakov’s novel “Master and Margarita””; text has been compiled and edited, the University Publishers will start work with the manuscript in spring 2003;

**Magnus Ilmjärv** (Institute of History) – EEK 15,000, for completion and getting ready for publication of the monographic scientific work “Estonian (Baltic States) foreign policy in 1933-1940. The study of silent succumbing”; the manuscript is ready, the book will come out in 2003;

**Toivo Laks** (Cardiologic Centre of North Estonian Regional Hospital) – EEK 15,000, for getting ready for publication of the monographic scientific “Acute condition of miocardial infarction, mortality, lethality, risk factors and re-channelling treatment”; the book appeared in 2002 in TEA Publishers;

**Arvo Rõõmusoks** (Institute of Geology at University of Tartu) – EEK 15,000, for completion and getting ready for publication of the monographic scientific work “Brachiopods of the Superfamily Strophomenoidea from the Ordovician of Northern Estonia”; grant has been used for entering the text into computer, language editing and making the frame of photographs;

**Andres Kuperjanov** (Estonian Literary Museum) – EEK 10,000, getting ready for publication of the popular science work “Firmament over Estonia. Beliefs and interpretations”; the layout is basically ready, and will be delivered to the printers in March 2003;

**Anne Lill** (University of Tartu) – EEK 10,000, for publication of the popular science work “Lexicon of tragedy: antique Greek plays, actors and myths”; the manuscript is being edited, the publication is planned for spring 2003.

## STUDENT RESEARCH PRIZES

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On May 2002 the Board of the Estonian Academy of Sciences called a competition of student research prizes. By the established deadline 108 papers were deposited with the Academy, of which 47 Master's papers and 56 Bachelor or Diploma works. 5 papers had been submitted by students in the junior terms. Majority of works came from the University of Tartu (49), 26 from Tallinn Pedagogical University, 11 from Estonian Agricultural University and 10 from Tallinn Technical University. The remaining works were (one from each) from Estonia Institute of the Humanities, Public Defence Academy, Institute of Law, Estonian-American Business College, Theological Seminary of Estonian Methodist Centre, Central European University, Durham University, Bergen University, Uppsala University, Helsinki University, Toronto University and Riga Higher Theological Institute of Lateran Pontifical University.

The papers were examined by Assessment Commission of the Academy, in the composition of Members of Academy Georg Liidja (in the chair), Arvo Krikmann, Udo Margna and Raimund-Johannes Ubar. There were outside experts involved in the assessment. At its session on 18 November the Commission decided to award four first prizes EEK 4000 (net) and twelve second prizes EEK 3000 (net).

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

**Tea Danilov** (University of Tartu) Master's thesis "Channels of transition of economical developments of the foreign countries into Estonia and their links with synchronisation of Estonia and the EU economic cycles" (supervisors Dr Urmas Sepp and doctoral student Andres Vörk);

**Leo Luks** (University of Tartu) Master's thesis "Nihilism as metaphysics and post-metaphysical thinking. The study over the concept of nihilism, through comparison of Nietzsche interpretations by Martin Heidegger and Gianni Vattimo" (supervisor Professor Ülo Matjus);

**Denis Trapido** (University of Tartu) Master's thesis "Formation of income in transfer society, after the example of the generation born in mid-sixties" (supervisor Professor Mikk Titma);

**Olga Tšubrik** (University of Tartu) Master's thesis "New reagent in systematic synthesis of hydrazine derivates" (supervisor Associate Professor Uno Mäeorg).

The second prize of the Estonian Academy of Sciences were awarded to the following student papers:

**Juhan-Peep Ernits** (Tallinn Technical University) Master's thesis "Model control of systems of hybrid dynamics" (in English; supervisor Professor Jüri Vain);

**Hesi Siimets-Gross** (University of Tartu) Master's thesis "The concept of thing and its classification in Roman Law of the classical era after the example of Gaius' "Institutions"" (supervisor Associate Professor Marju Luts);

**Els Heinsalu** (University of Tartu) Bachelor's thesis "Transfer processes of Brown's particles on the slanted periodical potential" (supervisors Professor Risto Tammelo and Associate Professor Teet Örd);

**Katre Kaju** (University of Tartu) Master's thesis "The use of motives of eulogy and panegyric in Latin wedding songs 1st C. BCE – 6th C. CE" (supervisor Professor Anne Lill);

**Ave Kargaja** and **Ina Melnikova** (Estonian Agricultural University) Bachelor's thesis "Production and use of satellite pictures" (supervisor Assistant Natalja Liba, adviser Mati Tee);

**Piret Kasemets** (Tallinn Pedagogical University) Master's thesis "Child in prison with mother – social and legal aspect" (supervisor Associate Professor Anne Tiko);

**Eneken Laanes** (University of Tartu) Master's thesis "Emplotment of narrative in Thomas Mann' "Doctor Faustus" and Jaan Kross' "Emperor's Madman"" (supervisors Professor Jüri Talvet and senior researcher Mihhail Lotman);

**Anne Laas** (University of Tartu) Master's thesis "Identification of soil erosion by means of USLE model in Sipe catchment area" (supervisor Lecturer Ain Kull);

**Maria Mälksoo** (University of Tartu) Bachelor's thesis "NATO discourse 1998-2001 of actors of Estonian foreign policy" (supervisors Associate Professor Triin Vihalemm and Lecturer Rein Toomla);

**Heete Sahkai** (Tallinn Pedagogical University) Master's thesis "Doubling of demonstratives in colloquial Estonian, seen from contrastive angle" (in English; supervisor Professor Helle Metslang);

**Signe Saumaa** (University of Tartu) Master's thesis "Impact of DNA reparation systems on changes in the mutation spectra, in lengthy starvation of *Pseudomonas putida* culture" (supervisor Associate Professor Maia Kivisaar);

**Sergei Ššemel'jov** (University of Tartu) Master's thesis "Generation of resonance-amplified third harmonic and multiple photon ionisation in Bessel and segmented conic laser radiation" (in English; supervisor senior researcher Viktor Peet).

Research prizes together with diplomas were handed over on 3 December, at the conference of winners of competition of student papers. The conference heard the reports by five prize winners, *Tea Danilov*, *Leo Luks*, *Hesi Siimets-Gross*, *Juhan-Peep Ernits* ning *Ave Kargaja* and *Ina Melnikova* delivered on topic of their respective competition papers.

## **PUBLICATIONS OF THE ACADEMY**

Published in 2002 were

books:

- “Estonian Academy of Sciences Year Book VII (33)” in Estonian and English\*;
- the sixth book in the series “National Science Prizes”, providing an overview of the award-winners of 2002 and their research papers;
- “Scientific Thought in Estonia. Engineering”\*, the sixth in the “blue books” series, containing the overviews of recent works by scientists in engineering of Estonia and of implementation of the outcome of their research in Estonian economy;
- “8th Baltic Conference on Intellectual Co-operation 15–16 June 2001, Proceedings”, enclosing in full all materials of the 8th Baltic conference on intellectual co-operation;
- “Baltic-Finnish Conference on Energetics: from Research to Innovation, 1–2 November 2001, Proceedings”, containing full texts of papers delivered at the conference; issued together with the Academies of Technology of Finland.

brochures:

- of the series NEW TRENDS IN SCIENCE\*  
“Neurobiology: knowledge and applications” (proceedings of the seminar held on 5 April);
- of the series TOPICAL SEMINARS\*  
“Scientific collections in the humanities” (proceedings of the seminar held on 10 May).

Scientific journals cf. pp. 87.

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

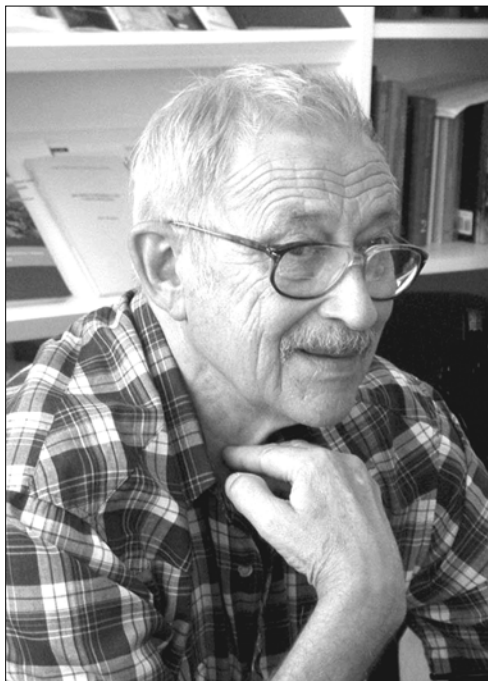
## AWARDS

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### NATIONAL SCIENCE PRIZES TO THE MEMBERS OF ACADEMY

Awarded by the Ordinance of the Government of the Republic of Estonia, upon proposition by Commission for National Science Prizes no 141-k, 21st February 2002.

FOR LONG AND PRODUCTIVE RESEARCH AND DEVELOPMENT WORK



*Erast Parmasto*

“...In my activity, I credit myself most for supervising 17 thesis, successfully defended, and also for providing a perspective profile to the magazine “Estonian Nature”. From among ca. 150 scientific works I have published, almost one fifth have survived the Scyther of Time; they are mainly concerned with phylogeny and systematics of higher Basidiomycetes, in particular bracket fungi, the problems of species and family, general rules of morphological variation of sporogenous layer fungi. Proof to my aspirations to enlighten the minds of the grassroots, and to my love for scribbling are over 119 popular science and 200 publicist pieces of writing ...In the recent years I have again been intrigued by what it is “the science” ...” (*Membership of Estonian Academy of Sciences, 1998, p. 99*).

NATIONAL PRIZE FOR EXACT SCIENCES

Member of Academy *Ene Ergma*

For the cycle of works “Evolution of twin stars with compact objects”

**NATIONAL DECORATIONS  
TO THE MEMBERS OF ACADEMY**

Awarded by the Decree of President of the Republic no. 97, of 4 February 2002

Order of the White Star 3rd Class

Members of Academy *Peeter Saari, Boris Tamm, Raimund-Johannes Ubar*

Order of the White Star 4th Class

Members of Academy *Dimitri Kaljo, Arvo Ots, Viktor Palm*  
and Foreign Members of Academy *Johannes Piiper* and *Ivar Ugi*

**MEDAL  
OF THE ESTONIAN ACADEMY OF SCIENCES**

In 2002, decorated with the Medal of the Estonian Academy of Sciences for long productive work was

Member of Academy *Hans Küüts*

**LETTER OF THANKS OF THE ACADEMY**

In 2002, Letter of Thanks of the Estonian Academy of Sciences for long productive work in promotion of unity and common activity of scientists was conferred to

Scientific Secretary of Tallinn House of Scientists *Elsa Pajumaa*



## ANNIVERSARIES

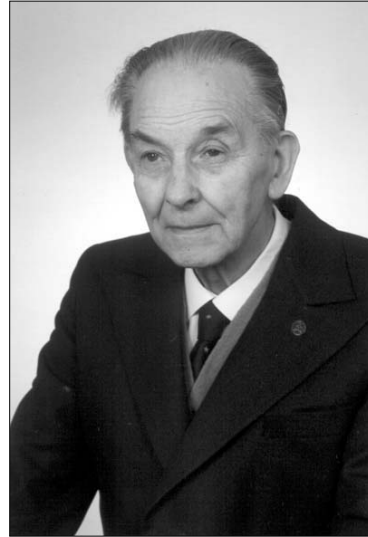
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Member of Academy

*Harald Keres*

Harald Keres was born 15 November 1912 in Pärnu. In 1932 he finished the Boys' Gymnasium of the Pärnu town and in 1936 the Department of Mathematics of the University of Tartu. In 1938 he was awarded the degree of Master in Mathematics and in 1942 the degree of PhD. After the repeated defence of the PhD thesis in 1947 he obtained the scientific degree of doctor in physics and mathematics and in 1954 the Professorship in theoretical physics. In 1961 Harald Keres was elected Member of the Estonian Academy of Sciences in theoretical physics.



After graduation of the University in 1936 Harald Keres engaged in the teaching career at the University. In 1938 he was elected junior associate lector in mathematics, in 1940 the acting docent in mathematics. Simultaneously he took up the theory of relativity, which has remained his narrow specialty ever since. He made it as the founder of the research direction of theory of relativity in Estonia.

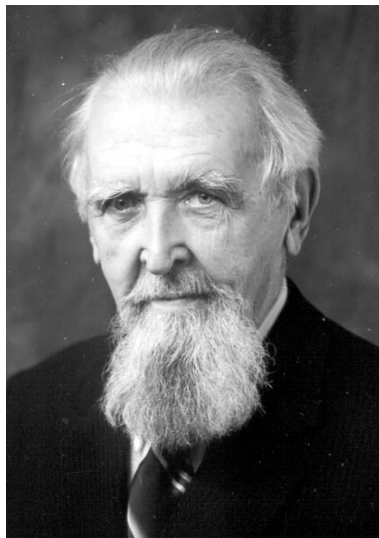
After the complicated years of WWII Harald Keres continued work in University of Tartu, where he headed the Department of Theoretical Physics and held the position of pro-rector for science in 1958-1960. Starting from 1947 Harald Keres worked, parallel to the work at the University, at institutes of the Estonian Academy of Sciences – at the Institute of Physics and Astronomy as Head of Observatory and almost 30 years as head of laboratory of theoretical physics of the Institute of Physics (up to 1973 Institute of Physics and Astronomy), until he retired in 1989, starting from 2000 – Professor Emeritus of University of Tartu.

The solid scientific contribution of Harald Keres is not expressed, as it is, in the number of his scientific publications; it is the fundamentality, thoroughness and clarity of thought that characterises them. The level of his ethics has been exceedingly high in his professional work and in his public declarations and publicist articles. In 1970 Harald Keres was awarded the national science prize.

Harald Keres has been awarded Order of the National Coat of Arms 3<sup>rd</sup> Class, he has been elected honorary citizen of the town of Tartu.

***Viktor Maamägi***

Viktor Maamägi was born 12 October 1917 in the Government of Tauria, in Berdjansk, to the family of Estonian peasants expatriated to Russia. His father was declared village usurer, arrested in 1937 and shot. Having graduated the Volosovsk Railway Secondary School *cum laude* in 1936 Viktor Maamägi enrolled in Department of History of Leningrad University. His graduation of the University in 1941 was followed by war and active service in the Soviet Army. After the war Viktor Maamägi settled in Estonia.



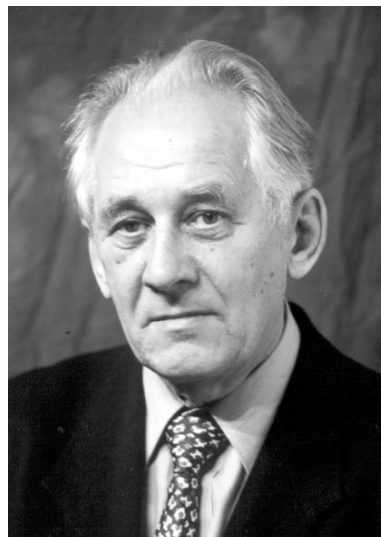
Starting from 1948 Viktor Maamägi worked in the Institute of History, in the years 1950-1967 as Director of the Institute. In 1961 he was elected Member of the Estonian Academy of Sciences in history. In 1968-1973 Viktor Maamägi was Scientific Secretary General of the Academy and in 1973-1987 Vice-President of the Academy.

Viktor Maamägi was awarded the Doctor's degree in 1978 for his work casting light on history of the Estonian minority in the USSR. This topic has been the research area close to his heart, being as he is the descendant of those emigrating to Russia before the Revolution.

Viktor Maamägi headed, for a long time the Editorial and Publishing Council of the Academy, he was member of the editorial board of the Estonian Encyclopaedia ENE, the executive editor and co-author of historical publications.

***Raimund Hagelberg***

Raimund Hagelberg was born 7 February 1927 in Tallinn. In 1946 he graduated from Tallinn Modern School and enrolled in the Economics Department of Tallinn Technical University. His graduation in 1950 was followed by the post-graduate programme at the same University. Upon advice of his mentor, Member of Academy Juhan Vaabel, Raimund Hagelberg dedicated both his Candidate's thesis defended in 1954 and the Doctoral thesis of 1967 to the problems of banking and economical analysis.



In 1953-1954 Raimund Hagelberg worked in the Estonian Academy of Sciences, at the Institute of Economics as junior researcher, thereafter nearly thirty years in University of Tartu, holding the positions from senior lecturer to Professor. In 1958 he founded the Department of Finance and Credit, heading it till 1982. In 1969 he was awarded Professorship. His path to science was seconded by teaching at University of Tartu. The subject of finance of enterprises and branches of national economy enabled him to embrace the organisation of all basic areas of financial relations on micro- and macro-levels, across the whole spectrum of economy. This necessitated the assessment and analysis of causal relations and application of formalisation, models, systems theory and other methods allowing generalisation.

In 1981 Raimund Hagelberg was elected Member of the Estonian Academy of Sciences in economics. In 1982-1989 he was Scientific Secretary General of the Academy. In 1989 he was nominated Counsellor to Chairman of Estonian Supreme Council, holding that office up to 1992. In 1990, when the Bank of Estonia was re-established, Raimund Hagelberg was elected Member of Board of the Bank. From that time until now he has been concerned with development of Estonian monetary and banking system and respective law making.

Starting from 1995 Raimund Hagelberg has been Professor Emeritus of University of Tartu.

In 2000 he was awarded Order of the National Coat of Arms 3<sup>rd</sup> Class.

***Valdek Kulbach***

Valdek Kulbach was born 6 April 1927 in the county of Virumaa. In 1945 he graduated from Nõmme Gymnasium. His decision to continue studies in Tallinn Technical University, in the specialty of industrial and civil construction was brought about by Professor Ottomar Maddison's lecture to school leavers about bridges as connecting links of countries and nations. His graduation of Tallinn Technical University was followed, upon advice of the future Member of the Academy, Dean Heinrich Laul, in 1951 by post-graduate programme of Leningrad Polytechnic Institute, Department of Hydro-Engineering. In 1955 Valdek Kulbach defended his Candidate's thesis and in 1972 Doctoral thesis. In 1973 he was awarded Professorship. Valdek Kulbach was elected Member of the Estonian Academy of Sciences in mechanics in 1986.



Since 1955 Valdek Kulbach has been working at Tallinn Technical University, holding the positions from Assistant Lecturer to Professor. Since 1975 he headed the Department of Construction Structures, thereafter the Department of Steel Structures. Since 1998 he has been Professor Emeritus of Tallinn Technical University.

As an expert, Valdek Kulbach has devoted much effort on research of theoretical problems of calculation of bridge construction and suspended structures. His basic principle has been that the methods – outcome of one's research should be applicable. Valdek Kulbach considers his best project the echo screen of the Tartu song dais.

Under supervision of Valdek Kulbach many theses have been defended. Jointly with Johannes Aare he made the first Estonian-language handbooks on metal structures. Apart from that Valdek Kulbach has been an eager popularizer of science, he has authored scored of items in the Estonian Encyclopaedia.

In 1970 Valdek Kulbach was awarded national prize and in 1995 Estonian national science prize. In 1999 he was awarded Order of the White Star 4<sup>th</sup> Class.

***Huno Rätsep***

Huno Rätsep was born 28 December 1927 in Tartu. In 1946 he graduated from Tartu I Secondary School and enrolled in University of Tartu to study Fenno-Ugric languages. His graduation of the University in 1951 was followed by post-graduate programme and defence of the Candidate's thesis in 1954. In 1974 Huno Rätsep defended his Doctoral thesis, the extended version of which appeared in 1978 as monograph "Types of Simple Sentences of the Estonian Language". In 1980 that work merited the national prize. Huno Rätsep was awarded Professorship in 1977. In 1981 he was elected Member of the Estonian Academy of Sciences in the Estonian language. Since 1994 Huno Rätsep has been Professor Emeritus of University of Tartu.



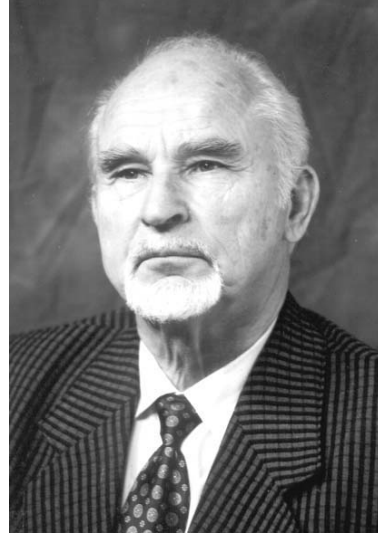
Huno Rätsep's work on the faculty at University of Tartu was over forty years long, nearly twenty of which he headed the Department of the Estonian language. He is a most outstanding personality of Estonian linguistics, whose pedagogical work was efficient, the scope of research wide and the activity in organising science carried impact. Huno Rätsep triggered in 1960s the fascination with structural linguistics, which gave birth to a team of researchers basing on theory of generative grammar. From there on, the Estonian linguistics has been enriched by a whole Pleiad of linguists – his pupils.

In 1980s Huno Rätsep headed the whole language-life in Estonia, being Chairman of Mother Tongue Society and Chairman of National Commission of Orthology. As researcher he has been involved in history of language and study of contemporary language, he has written fundamental works on syntax and lexis of the Estonian language, on history of the Estonian language, etymology of words etc.

In 2001 Huno Rätsep was awarded Order of the White Star 4<sup>th</sup> Class.

***Karl Siilivask***

Karl Siilivask was born 20 January 1927 in the county of Võrumaa, parish of Veriora. His studies at Võru Secondary School were broken up by the years of war, which he spent in the Soviet home front. After return to Estonia in 1945 Karl Siilivask passed the graduation exams at Tallinn IX Secondary School and enrolled in 1946 in Department of History of University of Tartu. His graduation from University in 1951 was followed by three-year long post-graduate programme and defence of the Candidate's thesis in 1954. In 1968 Karl Siilivask defended his Doctor's thesis on February and October revolutions in Estonia.



In 1977 he was elected Member of the Estonian Academy of Sciences in history.

Starting from 1954 Karl Siilivask worked for twenty years in University of Tartu, including in 1969-1974 as Professor, in 1962-1974 as Head of Department, three periods also as Dean. He delivered the general course of Estonian history and specialist courses.

In 1974–1983 Karl Siilivask was Director of Institute of History of the Estonian Academy of Sciences, in 1984-1992 Head of Division of the Institute, in 1974-1992 part-time Professor at University of Tartu.

Karl Siilivask has published nearly 200 scientific works. He has authored or co-authored over 10 monographs (including the three volume history of University of Tartu, 1982). Starting from 1974 Karl Siilivask has been Chairman of Estonian Union of the History and Philosophy of Science. He is also Vice-President of Baltic Association of the History and Philosophy of Science.

***Hans Kūüts***

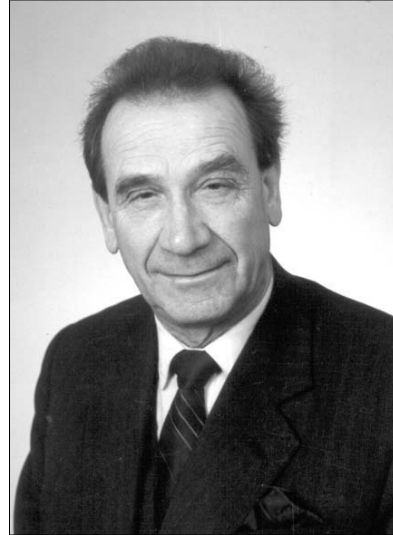
Hans Kūüts was born 20 December 1932 in the county of Põlvamaa, the third son to a peasant household. In 1951 he finished Tartu I Secondary School and in 1956 the Department of Agronomy of Estonian Agricultural University. In 1956-1958 Hans Kūüts worked as agronomist of the collective farm in Erumäe, near Elva, where he had an opportunity to implement something he had learned, and to see the results.

Starting from 1958, his coveted dream to work in Jõgeva Plant Breeding Station (since 1992 Jõgeva Plant Breeding Institute) fulfilled. There, he started as junior researcher in barley breeding, from 1964 as Head of Breeding Department and from 1973 for 25 years as Director.

In 1968 Hans Kūüts defended his thesis of Candidate in Agriculture. Thereafter he worked on probation in 1968-1970 with Svalöf Plant Breeding Institute in Sweden, obtaining excellent theoretical and practical training in barley breeding. Hans Kūüts is the main author of seven varieties of barley and co-author of five oat and two wheat varieties. In 1987 this merited grain breeder was awarded the national plant breeding prize. Hans Kūüts regards the plant breeding as an art, which requires godsend and perception, besides endurance, steadiness and knowledge.

In 1992–1995 Hans Kūüts was Head - Professor of Plant Breeding Department of Estonian Agricultural University, thereafter Professor Emeritus. He recruited to the faculty the best collaborators of his Institute and created to the post graduate and doctoral students conditions to carry out field tests in Jõgeva.

In 1994 Hans Kūüts was elected Member of the Estonian Academy of Sciences in agricultural sciences. In 1997 he was awarded Order of the National Coat of Arms 5<sup>th</sup> Class.



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The Foreign Member of the Academy

***Endrik Nõges***

Endrik Nõges was born 5 April 1927 in Mõisaküla. The whirlwind of the war landed him in Germany, where he graduated in 1946 the Geislingen Estonian Gymnasium. In 1946-1948 he studied in Karlsruhe Higher Technical School, in 1949-1951 in Denison University (Ohio, USA), thereafter in Northwestern University (Illinois), which he graduated in 1954 with bachelor's degree in electrical engineering. Endrik Nõges defended in 1956, in the same University the MSc and in 1959 the Doctor's degree.



In 1954-1957 Endrik Nõges worked in Northwestern University, starting from 1958 until retiring as Emeritus in 1992 in Washington University, holding in 1969-1992 Professorship in electrical engineering. In Washington University he also held several administrative offices – Vice-Dean, Programme Director, Head of Department. Endrik Nõges has been visiting lecturer in Finland and Germany, he has advised several companies (Boeing Company, Bell Telephone Laboratories etc.) and has been main executor of several government funded research projects. His main scientific concern have been with non-linear and discontinuous systems, in particular the systems of global installation and inertial navigation.

Endrik Nõges has published many scientific works (including one monograph) on frequency modulated control systems and non-linear discriminatory functions and he has supervised over 40 Doctoral and Master's thesis.

In 1995 Endrik Nõges was elected the Foreign Member of the Estonian Academy of Sciences in automatic control.



More anniversaries in 2002:

**65 anniversary**

26 December            foreign member Indrek Martinson (elected the Foreign  
Member of Academy 1998)

**60 anniversary:**

22 January            Member of Academy Haldur Õim (elected Member of  
Academy 1994)

20 June                foreign member Jaan Laane (1995)

4 November            Member of Academy Olav Aarna (1990)

## IN MEMORIAM

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Member of Academy

### **Boris Tamm**

On 5 February 2002, 72 years of age the scientist in cybernetics of international renown Member of Academy Boris Tamm passed away.

Boris Tamm was born on 23 June 1930 in Tallinn. In 1949 he graduated from Tallinn VII Secondary School and in 1954 Tallinn Technical University, majoring in power plants, grids and systems. Thereupon he worked three years at the same university as head of laboratory. In 1957 Boris Tamm enrolled in post-graduate programme with Moscow Institute of Automatics and Telemechanics, a research facility of high repute in the domain of automatic control.

In 1962 he defended his candidacy in engineering, in 1970 the doctoral thesis in engineering. Boris Tamm was awarded Professorship in 1976. He was with the Institute of Cybernetics from the moment it was established in 1960, working there until 1976, holding various offices ranging from junior researcher to director. In 1976-1991 Boris Tamm was Rector of Tallinn Polytechnic Institute, in 1991-1997 head researcher with Institute of Cybernetics, thereafter senior researcher at Cybernetica LTD. In 1972 Boris Tamm was elected Member of the Estonian Academy of Sciences in cybernetics. In 1991-1999 he was Head of Division of Informatics and Engineering of the Academy, in 1994-1999 Vice-President of the Academy.

Boris Tamm was elected Foreign Member of Finnish Academies of Technology and Royal Swedish Academy of Engineering, Honorary Doctor of Helsinki Technical University and Budapest Technical University, President of International Federation of Automatic Control (IFAC) (1987-1990).

In the Estonia of regained independence, Boris Tamm was promoter of innovative national development. In his last day of life, he learned that he had been awarded Order of the White Star. A man of many dimensions, he was keenly interested in various aspects of life, he was forthcoming and business-like, he had excellent capacity for organisation, he was a devoted musician and sportsman.



3.06.1930 – 5.02.2002

Member of Academy

**Juhan Ross**

On 21 June, in his 76th year of life, the versatile scientist, founder of the Tartu school of bio-geophysics Member of Academy Juhan Ross departed.

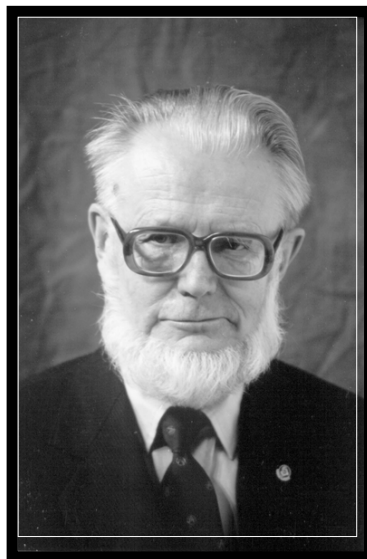
Juhan Ross was born on 14 August 1925 in Virumaa to a schoolteacher's family. His studies in gymnasium were interrupted by active service in the Finnish Army, in the infantry regiment JR 200. In 1945 he graduated from Rakvere I Secondary School and in 1951 Tartu University in theoretical physics. The Tartu Actinometry Station, where Juhan Ross was given a job, evolved under his initiative and guidance into Department of Atmospheric Physics of Institute of Physics

and Astronomy (currently Tartu Observatory). He had long affiliation with the said institute – as junior researcher, senior researcher and head of department. In 1956 Juhan Ross defended his candidate's thesis in actinometry. His doctoral thesis, defended in 1971 belonged to the area of this new burgeoning science – geophysics. Professorship was awarded to Juhan Ross in 1978. In 1993 he was elected Member of the Estonian Academy of Sciences in bio-geophysics.

Juhan Ross' works on distribution of solar radiation in canopy cover met with wide acclaim in the world. His monograph on that issue, published also in Russian and English, became a reputed handbook and teaching aid on solar radiation in canopy cover. The theoretical formula he derived are currently used in data processing of space programmes. Juhan Ross authored or co-authored six scientific monographs and over one hundred scientific articles. The scientific collective headed by him numbers many scientists of stature, known in Estonia and internationally, among them four doctors and eight candidates of science.

The topic of distribution of solar radiation in canopy cover has evolved into distant monitoring of optical characteristics of canopy cover and research of energy forests, currently practiced in Tartu Observatory. This was the main research area of Juhan Ross in the outgoing years of his life.

In 1988 Juhan Ross was elected Member of All-Union Agricultural Academy and in 1989 the Honorary Doctor in forestry of Joensuu University. In 2001 Juhan Ross was awarded Order of the White Star 4<sup>th</sup> Class.



14.08.1925 – 21.06.2002

## MEMBERS OF THE ACADEMY

As of February, 2003

**Olav AARNA**, born 4.11.1942, elected 1990, informatics. Tallinn Technical University 1965. Rector, Estonian Business School (2000); Lauteri 3, 10114 Tallinn ESTONIA, Tel: +372 665 1300, +372 646 6336, Fax: +372 631 3959, E-mail: olav.aarna@ebs.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. Rector, University of Tartu (1998); Ülikooli 18, 50090 Tartu ESTONIA, Tel: +372 7 375 600, Fax: +372 7 375 640, E-mail: aaviksoo@ut.ee. HOME ADDRESS Tähe 91a-7, 50107 Tartu ESTONIA, Tel: +372 7 349 000. Married, two sons and a daughter.

**Hillar ABEN**, born 3.12.1929, elected 1977, mechanics. Tallinn Technical University 1953. Head of the Laboratory of Photoelasticity, Institute of Cybernetics at Tallinn Technical University (1987); Akadeemia 21, 12618 Tallinn ESTONIA, Tel: +372 2 620 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.

**Pavel BOGOVSKI**, born 10.03.1919, elected 1993, oncology. Alma-Ata Medical Institute 1943. HOME ADDRESS Ilmarise 25-6, 11613 Tallinn ESTONIA, Tel: +372 651 4698. Married, three 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 56 629 275. Married, a son and a daughter.

**Jaan EINASTO**, born 23.02.1929, elected 1981, astrophysics. University of Tartu 1952. Head of the Department of Cosmology, Tartu Observatory (1976); 61602 Tõravere, Tartu maakond ESTONIA, Tel: +372 7 410 110, Fax: +372 7 410 205, E-mail: einasto@aai.ee. HOME ADDRESS Observatooriumi 6-3, 61602 Tõravere, Tartu maakond ESTONIA, Tel: +372 7 410 151. Married, a son and two daughters.

**Jüri ENGELBRECHT**, born 1.08.1939, elected 1990, mechanics. Tallinn Technical University 1962. President, Estonian Academy of Sciences (1994); Kohtu 6, 10130 Tallinn ESTONIA, Tel: +372 644 2129, Fax: +372 645 1805, E-mail: je@ioc.ee. HOME ADDRESS Trummi 34J, 12617 Tallinn ESTONIA, Tel: +372 672 6045. Married, a son and a daughter.

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The organisations are used under names they bear today.

**Ene ERGMA**, born 29.02.1944, elected 1997, exact sciences. Moscow University 1969. Vice-President, Estonian Academy of Sciences (1999); Professor of Astrophysics, University of Tartu (1988); Kohtu 6, 10130 Tallinn ESTONIA, Tel: +372 644 2013, Fax: +372 645 2742, E-mail: ene@physic.ut.ee. HOME ADDRESS Ropka 15A-11, 50111 Tartu ESTONIA, Tel: +372 7 474 911. Single.

**Raimund HAGELBERG**, born 7.02.1927, elected 1981, economics. Tallinn Technical University 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. Professor of Statistical Physics and Quantum Theory, University of Tartu (1992); Ülikooli 18, 50090 Tartu ESTONIA, Tel: +372 7 383 017, Tel/Fax: +372 7 375 570, Fax: +372 7 383 033, E-mail: hizh@fi.tartu.ee. HOME ADDRESS Aardla 154-6, 50415 Tartu ESTONIA, Tel: +372 7 475 290. Married, a son and two daughters.

**Ülo JAAKSOO**, born 16.04.1939, elected 1986, informatics. Tallinn Technical University 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. Dean of the Faculty of Physics and Chemistry, University of Tartu (1999); Jakobi 2, 51014 Tartu ESTONIA, Tel: +372 7 375 246, Fax: +372 7 375 247, E-mail: jj@mega.chem.ut.ee. HOME ADDRESS Wiiralti 31-4, 51011 Tartu ESTONIA. Married, a son and two daughters.

**Ain-Elmar KAASIK**, born 2.08.1934, elected 1993, neurology. University of Tartu 1959. Professor emeritus, University of Tartu (1999). Department of Neurology and Neurosurgery, University of Tartu, L. Puusepa 2, 51014 Tartu ESTONIA, Tel: +372 7 318 507, Fax: +372 7 318 509, E-mail: ain-elmar.kaasik@kliinikum.ee. HOME ADDRESS Ülase 14, 50412 Tartu ESTONIA, Tel: +372 7 425 426. Married, a son.

**Dimitri KALJO**, born 12.10.1928, elected 1983, geology. University of Tartu 1953. Head of the Department of Palaeozoic Geology, Institute of Geology at Tallinn Technical University (1990); Estonia pst 7, 10143 Tallinn ESTONIA, Tel: +372 645 4653, Fax +372 631 2074, 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 7 422 383. Married, two daughters.

**Ilmar KOPPEL**, born 16.01.1940, elected 1993, physical chemistry. University of Tartu 1963. Head of the Institute of Chemical Physics, University of Tartu (1993); Jakobi 2, 51014, Tartu ESTONIA, Tel: +372 7 375 263, Fax: +372 7 375 264, E-mail: [ilmar@chem.ut.ee](mailto:ilmar@chem.ut.ee). HOME ADDRESS Kaunase pst 16-10, 50704 Tartu ESTONIA, Tel: +372 7 484 351. 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 7 341 077, Fax: +372 7 420 426, E-mail: [kriku@haldjas.folklore.ee](mailto:kriku@haldjas.folklore.ee). HOME ADDRESS Kastani 59-2, 50410 Tartu ESTONIA, Tel: +372 7 420 079. Married, three sons.

**Lembit KRUMM**, born 20.07.1928, elected 1987, energetics. Tallinn Technical University 1952. Head of the Laboratory of Electrical Power Development, Estonian Energy Research Institute at Tallinn Technical University (1986); Paldiski 1, 10137 Tallinn ESTONIA, Tel: +372 662 1845, +372 662 2035, Fax: +372 661 3655, E-mail: [eelab@eeri.ee](mailto:eelab@eeri.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 Technical University 1951. Professor emeritus, Tallinn Technical University (1998); Ehitajate 5, 19086 Tallinn ESTONIA, Tel: +372 620 2408, Fax +372 620 2405, E-mail: [vkulbach@edu.ttu.ee](mailto:vkulbach@edu.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, Eurouniversity (1998); 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.

**Rein KÜTTNER**, born 25.11.1940, elected 1997, technical sciences. Tallinn Technical University 1965. Professor of Computer Aided Design and Manufacturing, Tallinn Technical University (2000); Ehitajate tee 5, 19086 Tallinn ESTONIA, Tel: +372 620 3265, Fax: +372 620 3250, E-mail: [kyttner@edu.ttu.ee](mailto:kyttner@edu.ttu.ee). HOME ADDRESS Mooni 107-58, 13424 Tallinn ESTONIA, Tel: +372 652 5503. Married, a son.

**Hans KÜÜTS**, born 20.12.1932, elected 1994, agricultural sciences. Estonian Agricultural University 1956. Researcher, Jõgeva Plant Breeding Institute (1958); Aamisepa 1, 48309 Jõgeva alevik, Jõgeva maakond ESTO-NIA, Tel: +372 77 22 565, +372 77 60 126, E-mail: ylle.tamm@jpbi.ee. HOME ADDRESS Tihase 11, 48309 Jõgeva alevik, Jõgeva maakond ESTONIA, Tel: +372 77 21 375. Married, three daughters.

**Agu LAISK**, born 3.05.1938, elected 1994, natural sciences. University of Tartu 1961. Research Professor (2002); Riia 23, 51010 Tartu ESTONIA, Tel: +372 7 366 021, Fax: +372 7 420 286, E-mail: alaisk@ut.ee. HOME ADDRESS Haagejärve 2, 61401 Tartu ESTONIA. Married, three sons.

**Ülo LEPIK**, born 11.07.1921, elected 1993, mechanics. University of Tartu 1948. Professor emeritus, University of Tartu (1996); E-mail: yleplik@ut.ee. HOME ADDRESS Lunini 3, 50406 Tartu ESTONIA, Tel: +372 7 380 023. Married, two sons and a daughter.

**Georg LIIDJA**, born 4.08.1933, elected 1987, physics. University of Tartu 1957. Senior Research Scientist, National Institute of Chemical Physics and Biophysics (1982); Akadeemia tee 23, 12618 Tallinn ESTONIA, Tel: +372 639 8328, Fax: +372 639 8393, E-mail: gli@kbfi.ee. HOME ADDRESS Kärberi 41-43, Tallinn, ESTONIA tel +372 635 5878. MAIL ADDRESS Nimekast 3216, 10505 Tallinn, ESTONIA. Married, a son and a daughter.

**Ülo LILLE**, born 16.09.1931, elected 1983, biotechnology. Tallinn Technical University 1955. Senior Research Scientist, Institute of Chemistry at Tallinn Technical University (1997); Akadeemia tee 15, 12618 Tallinn ESTONIA, Tel: +372 620 4383, Fax: +372 654 7524, E-mail: lille@chemnet.ee. HOME ADDRESS Trummi 32P, 12617 Tallinn ESTONIA, Tel: +372 672 6032. Married, two daughters.

**Endel LIPPMAA**, born 15.09.1930, elected 1972, chemical physics. Tallinn Technical University 1953. Head of the Laboratory of Chemical Physics, National Institute of Chemical Physics and Biophysics (1980); Rävälä pst 10, 10143 Tallinn ESTONIA, Tel: +372 644 1304, Fax: +372 644 0640, E-mail: elippmaa@kbfi.ee. HOME ADDRESS Sõbra 14, 10920 Tallinn ESTONIA, Tel: +372 677 7975. Married, two sons.

**Ülo LUMISTE**, born 30.06.1929, elected 1993, mathematics. University of Tartu 1952. Professor emeritus, University of Tartu (1996); J. Liivi 2-427, 50090 Tartu, ESTONIA, Tel: + 373 07 376 419, E-mail: lumiste@math.ut.ee. HOME ADDRESS 19 Turu 19-28, 51004 Tartu, ESTONIA, Tel: +372 7 344 280. Married, two sons.

**Cheslav LUSHCHIK**, born 15.02.1928, elected 1964, solid state physics. St. Petersburg State University 1951. Institute of Physics at University of Tartu; Riia 142, 51014 Tartu ESTONIA, Tel: +372 7 428 946, Fax: +372 7 383 033, E-mail: luch@fi.tartu.ee. HOME ADDRESS Aardla 130-7, 50415 Tartu ESTONIA, Tel: +372 7 476 608. Married, a son.

**Viktor MAAMÄGI**, born 12.10.1917, elected 1961, history. St. Petersburg State University 1941. HOME ADDRESS Roosikrantsi 4C-4, 10119 Tallinn ESTONIA, Tel: +372 644 4008. Widower, a daughter.

**Udo MARGNA**, born 18.11.1934, elected 1987, plant physiology. University of Tartu 1957. Science Advisor, Tallinn Medical School, lecturer (2001); Kännu 67, 13418 Tallinn ESTONIA Tel: +372 671 1725, E-mail: umargna@hotmail.ee. HOME ADDRESS Instituudi tee 16-10, 76902 Harku alevik, Harju maakond ESTONIA, Tel: +372 656 0630. Married, two daughters.

**Jüri MARTIN**, born 29.09.1940, elected 1990, ecology. University of Tartu 1964. Rector, Eurouniversity (1997); Mustamäe tee 4, 10621 Tallinn, ESTONIA, Tel: +372 611 5804, E-mail: jmartin@eurouniv.ee. HOME ADDRESS Liiva tee 2, Rohuneeme, Viimsi vald, 74001 Harjumaa, ESTONIA, Tel: +372 600 7055. Married, three sons and a daughter.

**Uno MERESTE**, born 27.05.1928, elected 1994, the Humanities and social sciences. Tallinn Technical University 1950. Professor emeritus, Tallinn Technical University (1997). HOME ADDRESS Tuule tee 3, 12111 Tallinn ESTONIA, Tel: +372 623 2346. Married, a son and a daughter.

**Lennart MERI**, born 29.03.1929, elected 2001, the Humanities. The President of the Republic of Estonia 1992-2001. HOME ADDRESS Haabneeme, 74001 Viimsi vald, Harjumaa, ESTONIA, Tel: +372 693 1986, Fax: +372 631 6281. Married, two sons and a daughter.

**Leo MÕTUS**, born 15.12.1941, elected 1993, informatics. Tallinn Technical University 1965. Dean of the Faculty of Systems Engineering, Tallinn Technical University (1992); Ehitajate tee 5, 19086 Tallinn ESTONIA, Tel: +372 620 2095, Fax: +372 620 2096, E-mail: leo.motus@dcc.ttu.ee. HOME ADDRESS Rooski 7, 10922 Tallinn ESTONIA. Married, two daughters.

**Arvo OTS**, born 26.06.1931, elected 1983, power engineering. Tallinn Technical University 1955. Professor of fuel combustion technology, Tallinn Technical University (2001); Kopli 116, 11712 Tallinn ESTONIA, Tel: +372 620 3904, +372 620 3900, Fax: +372 620 3901, E-mail: aots@sti.ttu.ee. HOME ADDRESS Metsa 62B, 11620 Tallinn ESTONIA, Tel: +372 657 6034. Married, a son and a daughter.



**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 7 488 584, E-mail: vpalm@ut.ee. Married, a son and a daughter.

**Erast PARMASTO**, born 23.10.1928, elected 1972, botany. University of Tartu 1952. Senior Research Scientist, Institute of Zoology and Botany at Estonian Agricultural University (1991); Riia 181, 51014 Tartu ESTONIA, Tel: +372 7 383 027, Fax: +372 7 383 013, E-mail: e.parmasto@zbi.ee. HOME ADDRESS Uus 3-85, 50603 Tartu ESTONIA, Tel: +372 7 402 772. Married, two sons and three daughters.

**Juhan PEEGEL**, born 19.05.1919, elected 1977, philology. University of Tartu 1951. Professor emeritus, University of Tartu (1993). HOME ADDRESS Kaunase pst 25-26, 50706 Tartu ESTONIA, Tel: +372 7 486 463. Married, two sons.

**Anto RAUKAS**, born 17.02.1935, elected 1977, geology. University of Tartu 1958. Head of Department of quaternary geology, Institute of Geology at Tallinn Technical University (1965); professor, Estonian Maritime Academy; Institute of Geology at Tallinn Technical University, Estonia pst 7, 10143 Tallinn ESTONIA, Tel: +372 645 4659, Fax: +372 631 2074, E-mail: raukas@gi.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 7 428 159, +372 7 428 882, Fax: +372 7 383 033, E-mail: rebanek@fi.tartu.ee. HOME ADDRESS Sihi 7, 50411 Tartu ESTONIA, Tel: +372 7 380 347. Widower, a son and a daughter.

**Loit REINTAM**, born 12.11.1929, elected 1990, soil science. Estonian Agricultural University 1954. Professor emeritus, Estonian Agricultural University (1999); Viljandi mnt, Eerika, 51014 Tartu ESTONIA, Tel: +372 7 313 537, Fax: +372 7 313 535, E-mail: loit@eau.ee. HOME ADDRESS Tammsaare 2-13, 51006 Tartu ESTONIA, Tel: +372 7 422 563. Married.

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**Peeter SAARI**, born 2.06.1945, elected 1986, physics. University of Tartu 1968. Head of the Laboratory of Spectroscopy of Crystals, Institute of Physics at University of Tartu (1976); Riia 142, 51014 Tartu ESTONIA, Tel: +372 7 383 016, Fax: +372 7 383 033, E-mail: psaari@fi.tartu.ee. HOME ADDRESS Fortuuna 1-45, 50603 Tartu ESTONIA, Tel: +372 51 09 018. Married, two daughters.

**Mart SAARMA**, born 29.06.1949, elected 1990, molecular biology. University of Tartu 1972. Director of the Institute of Biotechnology, University of Helsinki (1990); P.O. Box 56 (Viikinkaari 9) FIN-00014 University of Helsinki FINLAND, Tel: +358 9 191 59 359, Fax: +358 9 191 59 366, E-mail: mart.saarma@helsinki.fi. HOME ADDRESS Kulosaaren puistotie 38A-4, FIN-00570 Helsinki FINLAND, Tel: +358 9 684 5721. Divorced, a son and a daughter.

**Valdur SAKS**, born 3.09.1943, elected 1993, biochemistry. Moscow State University 1967. Head of the Laboratory of Bioenergetics, National Institute of Chemical Physics and Biophysics (1993); Akadeemia tee 23, 12618 Tallinn ESTONIA Tel: +372 639 8363, Fax: +372 639 8313, E-mail: saks@kbfi.ee. HOME ADDRESS 13 Rävåla pst 13-3, 10143 Tallinn ESTONIA, Tel: +372 644 8643. Married, a daughter.

**Arved-Ervin SAPAR**, born 7.02.1933, elected 1990, astrophysics. University of Tartu 1957. Head of the Department of Astrophysics, Tartu Observatory (1993); 61602 Tõravere, Tartu maakond ESTONIA, Tel: +372 7 410 465, Fax: +372 7 410 205, E-mail: sapar@aai.ee. HOME ADDRESS Observatooriumi 6-6, 61602 Tõravere, Tartu maakond ESTONIA, Tel: +372 7 410 335. Married, a son and a daughter.

**Karl SIILIVASK**, born 20.01.1927, elected 1977, history. University of Tartu 1951. Chairman, Estonian Union of the History and Philosophy of Science (1974); 7 Estonia pst, 10143 Tallinn ESTONIA, Tel: +372 645 4594. HOME ADDRESS Ilmarise 23-7, 11613 Tallinn ESTONIA, Tel: +372 651 4107. Married, a son.

**Hans-Voldemar TRASS**, born 2.05.1928, elected 1975, botany and ecology. University of Tartu 1952. Professor emeritus, University of Tartu (1994); Lai 38, 51005 Tartu ESTONIA, Tel/Fax: +372 7 376 222, HOME ADDRESS Riia 13-39, 51010 Tartu ESTONIA, Tel: +372 7 420 481. Married, a son and a daughter.

**Peeter TULVISTE**, born 28.10.1945, elected 1994, the Humanities and social sciences. Moscow State University 1969. Vice-President, Estonian Academy of Sciences (1994); Estonian Literary Museum, Vanemuise 42, 51002 Tartu ESTONIA, Tel: +372 7 420 504, E-mail: ysirk@haldjas.folklore.ee. HOME ADDRESS Sihi 25, 50411 Tartu ESTONIA, Tel: +372 7 304 706. Married, a son and a daughter.

**Enn TÕUGU**, born 20.05.1935, elected 1981, informatics. Tallinn Technical University 1958. Professor, Estonian Business School (2000); Lauteri 3, 10114 Tallinn ESTONIA, Tel: +372 665 1315, E-mail: tyugu@ieee.org. HOME ADDRESS Trummi 4-29, 12616 Tallinn, ESTONIA, Tel: +372 672 6526. Married, a son and two daughters.

**Raimund-Johannes UBAR**, born 16.12.1941, elected 1993, computer science. Tallinn Technical University 1966. Research Professor (2002), Tallinn Technical University (1992); Raja 15, 12618 Tallinn ESTONIA, Tel: +372 620 2252, Fax: +372 620 2253, E-mail: raiub@pld.ttu.ee. HOME ADDRESS Õismäe tee 45-77, 13514 Tallinn ESTONIA, Tel: +372 657 4732. Married, a daughter.

**Mart USTAV**, born 16.07.1949, elected 2001, biomedicine. Professor of microbiology and virology, University of Tartu (1992); Riia 23, 51010 Tartu ESTONIA, Tel: +372 7 375 047, Fax: +372 7 420 286, E-mail: ustav@ebc.ee. HOME ADDRESS Jaama 58A, 50604 Tartu ESTONIA, Tel: +372 07 403 312. Married, a son and three daughters.

**Gennadi VAINIKKO**, born 31.05.1938, elected 1986, mathematics. University of Tartu 1961. Professor of the Institute of Mathematics, Helsinki University of Technology (1995); Institute of Mathematics, Helsinki University of Technology, Otakaari 1M, FIN-02150 Espoo FINLAND, Tel: +358 9 451 3050, Fax: +358 9 451 3016, E-mail: gennadi.vainikko@hut.fi. HOME ADDRESS 4E 57 Otakallio FIN-02150 Espoo FINLAND, Tel: +358 9 455 4356; Vase 10-24, 10125 Tallinn ESTONIA, Tel: +372 648 4409. Married, two sons and a daughter.

**Mihkel VEIDERMA**, born 27.12.1929, elected 1975, inorganic chemistry. Tallinn Technical University 1953. Professor emeritus, Tallinn Technical University (1997). Secretary General, Estonian Academy of Sciences (1999); Kohtu 6, 10130 Tallinn ESTONIA, Tel: +372 644 5810, Fax: +372 645 1805, E-mail: veiderma@akadeemia.ee, tr@akadeemia.ee. HOME ADDRESS Jääraku 54, 12015 Tallinn ESTONIA, Tel: +372 623 8757. Married, three daughters.

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## FOREIGN MEMBERS

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**Endrik NÖGES** (USA), born 5.04.1927, elected 1995, automatic control. Professor emeritus, University of Washington (1992); Department of Electrical Engineering, University of Washington, Box 352500, Seattle, WA 98105, USA, Fax: +1 206 543 3842, E-mail: noges@ee.washington.edu. HOME ADDRESS 6826 NE 149th St, Kenmore, WA 98028, USA, Tel: +1 425 488 9812, E-mail: enoges@attbi.com. Married, two sons and a daughter.

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**Ivar UGI** (Germany), born 5.09.1930, elected 1991, chemistry. Professor emeritus, Technical University of München (1999); Institut für Organische Chemie und Biochemie, Technische Universität München, Lichtenbergstrasse 4, D-85747 Garching, GERMANY. HOME ADDRESS am Mühlbach 19, D-85748 Garching, GERMANY, Tel: +49 89 320 1494. Married, a son.

**Henn-Jüri UIBOPUU** (Austria), born 11.10.1929, elected 1995, jurisprudence. Honorary Professor, University of Salzburg (1995); Institut für Völkerrecht und ausländisches öffentliches Recht, Churfürstenstr. 2, A-5020 Salzburg, AUSTRIA, Tel: +43 662 8044 3656, Fax: +43 662 8044 135. HOME ADDRESS W.Hauthalerstr. 17, A-5020 Salzburg, AUSTRIA, Tel: +43 662 848 4962, Fax: +43 662 848 4964. Married, a son and a daughter.

## ESTONIAN ACADEMY PUBLISHERS

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Founded 1994  
Address: Estonia pst 7, 10143 Tallinn, ESTONIA  
Website: <http://www.kirj.ee>  
Director: Ülo Niine Tel: + 372 645 4504,  
Fax + 372 646 6026  
E-mail: [niine@kirj.ee](mailto:niine@kirj.ee)



In 2002, the Estonian Academy Publishers continued at their traditional pace issuing ten scientific journals, pre-reviewed and indexed in international review publications and expert databases. The Publishers' main mission has been to maintain a high standard as regards the contents of journals, their typographic performance, timely release and introduction of electronic version of journals, besides hard copy.

In 2002, 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	85,25
whereof the series		
Biology. Ecology	4	19,0
Physics. Mathematics	4	17,0
Geology	4	16,25
Chemistry	4	15,0
Engineering	4	18,0
Oil Shale	5	28,0
Linguistica Uralica	4	20,0
Trames	4	24,5
Acta Historica Tallinnensia	1	12,5
Journal of Estonian Archaeology	2	10,0
Total	36	180,25

In the five series of "Proceedings of the Estonian Academy of Sciences" there were published 90 articles, of which 23 from international authors or with their participation. In all, there were 41 foreign authors (including those co-authoring) from 17 countries (Argentina, Austria, Israel, England, Iceland, Canada, Lithuania, Latvia, Poland, Sweden, Germany, Finland, Switzerland, Turkey, Ukraine, Hungary, Russia). There were 176 Estonian authors, distributing as follows, as per universities:

Research establishment	No of authors	% of total no
Tallinn Technical University	76	43,2
Tartu University	48	27,3
Tallinn Pedagogical University	16	9,1
Estonian Agricultural University	20	11,4
Other research establishments	16	9,0
Total	176	100,0

There were three special issues of journals:

“Biology. Ecology” no. 1: *Special issue on the ecosystem of Lake Võrtsjärv* (5,5 sheet);

“Geology” no.1: *Special issue on geophysics* (4 sheet);

“Engineering” no. 2: *Special issue on prestressed suspension structures* (5 sheet).

The journal “Oil Shale” released 47 pieces of writing, of which 21 scientific articles in English and 2 in Russian, including 6 articles from international authors. In addition to the four scheduled issues, there appeared the fifth special issue commemorating Member of Academy Ilmar Öpik, containing 9 articles and Ilmar Öpik’s bibliography. The journal is indexed by the highly reputed “Current Contents”.

The journal “Linguistica Uralica” published 24 pieces of scientific research, 22 reviews, synopses and various pieces of information, total 48 writings. As compared to the previous year the overall number of pieces of writing decreased, however the number of research articles increased. The third issue of the journal was fully topical, containing articles focused on evidentiality (the devices of expressing obliqueness) in Finno-Ugric and Samoyed languages. There were 19 contributions from Estonia, 25 from Russia’s Finno-ugric centres, 2 from Finland, 3 from Hungary and 1 from Germany. Of the total annual volume 56% was published in Russian, 25% in English and 19% in German.

The journal of social sciences and the humanities “Trames” released four issues in 2002, of which a special issue (in theology – “Epistemes of Faith”). The articles published in regular issues, treated the problems of philosophy (5), linguistics (2), public administration (2), sociology (1), psychology (1), conservation of environment (1), theology (1) and anthropology (1). In all, in 2002 “Trames” released 20 articles, with 19 authors from Estonia, 1 from abroad.

The journal “Acta Historica Tallinnensia” (one issue released) and the “Journal of Estonian Archaeology” (two issues released) published the total of 22 articles, of which 6 authored by international authors, with 3 of them in English. The bulk of articles came from authors affiliated to Tartu University and Institute of History.



2002 witnessed the publication of 17 books, either as a result of direct publishing effort of the Publishers, or with a contribution of the Publishers (the total of 3585 pages), all commissioned. Worth of special mention are the following:

- monograph “Annals of Estonian Art 1523–1944” (authors R. Loodus, J. Keevalik and P. Ehasalu, 288 pp.);
- monograph “Present and potential production of salmon in Estonian rivers” (editors M. Kangur and B. Wahlberg, 96 pp. + 12 pp. coloured inserts);
- the 4th part of retrospective national bibliography “The Estonian Language Press in 1766–1940” 1st and 2nd volumes (editors E. Annus and T. Loogväli, 1008 pp.).

The Publishers have participated in Frankfurt and London Book Fairs, with selective exposition on joint stand of National Publishers’ Association, and have attended several exhibition-sales of books.

In 2002 the sales figures through e-mail increased notably, hence also the feedback with the readership.

In 2002, the home page of the Publishers <http://www.kirj.ee> was upgraded. The lists of contents and annotations of articles of all ten journals are available on the website. The full texts of the articles of 2001, all five series of the journals “Proceedings of the Estonian Academy of Sciences” and the “Linguistica Uralica” are presented electronically in Internet on home page of the Publishers. Starting from 2002 full texts of articles of all five series of the journals “Proceedings of the Estonian Academy of Sciences” and those of the journal of social sciences and the humanities “Trames” are presented electronically in home page of international electronic publishers EBSCO Publishing (EBSCOhost®). In progress are negotiations to have the articles included in database EBSCOonline®.

## **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: 19, including 14 researchers

Address: Roosikrantsi 6, 10119 Tallinn, ESTONIA

Museum: Väikese Illimari 12, 11623 Tallinn, ESTONIA

E-mail: [piret@eki.ee](mailto:piret@eki.ee), [jana@eki.ee](mailto:jana@eki.ee)

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

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

Research Secretary: Piret Kruuspere, Tel: + 372 644 3147, [piret@eki.ee](mailto:piret@eki.ee),  
[piret@utkk.ee](mailto:piret@utkk.ee)

Head of the Museum: August Eelmäe (31.03.2002)

from 3.06.2002 Eha Rand, Tel: + 372 672 2847, [tuglas@hot.ee](mailto:tuglas@hot.ee)

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

The Centre's development activities focus on the publication of source materials for the Estonian national literature and the humanities. The affiliated Museum in Nõmme (Tallinn) maintains the estate of Friedebert Tuglas (1886-1971), the Member of the Academy and a man of letters. The estate comprises over 41,000 items of cultural value and includes his library and art collection, but also the house and appurtenant garden. The latter serve as grounds for lectures and guided tours and offer individuals research facilities.

In 2002, the Literature Centre continued its research into two target-financed topics.

The topic "Models of cultural discourse" (1998-2002, supervised by Jaan Undusk) concentrated on analysing the logical and ideological constructs of large language-usage domains *viz* discourses, operating in culture, and their transformation in the course of history. Objects under observation have been literature, theatre, historiography, religious and philosophical texts and fine arts, of mostly the 19-20<sup>th</sup> century Estonian or Baltic-German origin, encompassing, however, also a wider European context in both space and time. Individual re-

search topics have studied rhetoric models of language and culture and the discourse of the Baltic-German literary space (Jaan Undusk), theory and history of the concept *topos* (Rein Undusk), narrative and fictional discourse (Epp Annus), models of intertextuality (Anneli Mihkelev), theatrical reception of Estonian literature (Piret Kruuspere), history of Estonian exile literature (Piret Kruuspere; Janika Kronberg, Chairman of the Tartu Department of Estonian Writers' Union), and reader-response criticism (Jaanus Vaiksoo, Head of the Humanities Department of Rocca al Mare School). The terms used in research have been the concepts familiar from neo-rhetoric and narratologic discourse analysis, theatre and arts semiotics, reader-response criticism or reception theory.

The topic "Semiotic aspect of Estonian literary history" (1998-2002, supervised by senior researcher Virve Sarapik) has focused on the study of the aspects of the poetical space of Estonian literature and its animalistics (Maie Kalda), eco-semiotic aspect of the literature (Kadri Tüür), Scandinavian-Estonian literary contacts (Hilve Rebane) and German-Estonian literary contacts (Liina Lukas); the semiotics of art, the interconnection between visual and verbal texts (Virve Sarapik), the processes shaping and affecting literary history (Aare Pilv); feminist approach (Elo Lindsalu) and early history of Estonian literature (Hilve Rebane, Maie Kalda).

"History of Estonian literary language, culture and science", a sub-programme of the state programme "The Estonian language and national culture", is performed by the affiliate Museum in collaboration with external researchers. The project in hand at present is the edition of Collected Works by F. Tuglas (project leader Ülle Kurs). The series has reached by now to the critical heritage and essays of Tuglas. The goal is to comment the monographic volumes (vol. 12-14) of the 15-volume Collected Works, to edit them textologically and get published the volumes of criticism.

In addition to the above target-financed topics and the research project, the Centre performed two Science Foundation grants: ("The temporality of narrative and the time of the body", grantee E. Annus; "Textuality and structure of the work of art", grantee V. Sarapik).

The Literature Centre has been constantly harassed by the lean and unstable funding for the upkeep of its affiliated Museum in Nõmme (the former F. Tuglas Museum, built originally by A. Adson and M. Under), and the appurtenant real estate. Presently the related costs have partly been covered at the expense of research budget. It should be mentioned, as a positive development that in 2002 the state budget made an allocation for investment into the affiliate Museum building (the new electrical wiring and fire alarm system were installed, the windows were insulated and the foundation fixed).

The Centre continues to hold that the collections of the Museum and the dendrologically unique garden are part of the national heritage which must be protected and maintained as accessible to public on account of allocations from the state budget. This can not be effected as dependent on research projects of limited duration. Nor should the expenses on the infrastructure of this unique establishment be pegged to the research budget of the Centre. It is heartening to note that in the 2003 budget, there was a certain shift to positive direction, in this specific matter.

The Literature Centre runs two series of publications: “Collegium litterarum” for studies on literary history, and “oxymora”, devoted to dominantly theoretical writings; plus the Collected Works by Friedebert Tuglas.

On 27 June 2002 Epp Annus defended at Tartu University her Ph.D. thesis, the monograph “How to tell time”, treating the literary time and narrative, published as the fifth book in the series “oxymora” (Tallinn 2002, 364 pp.).

Furthermore, 4 books were published in the series “Collegium litterarum” (CL): Janika Kronberg’s monograph “Under the logo of winged steed. Estonian Writers’ Co-operative 1950-1994” (CL 13, 288 pp.), Aarne Vinkel’s collection of articles “The last furrows: Notes on Estonian literary landscape” (CL 14, 394 pp.), individual studies by Aare Pilv and Kadri Tüür entitled “Event. Place” (CL 15, 192 pp.) the collection of articles basing on papers delivered at an interdisciplinary paired conference (2001, 2002) “Signs of adaptation” (CL 16, eds V. Sarapik, M. Kalda, R. Veidemann, 368 pp.).

In co-operation with the Institute of Art History of the Estonian Academy of Arts the book “Place and Location II” (eds. V. Sarapik, K. Tüür, M. Laanemets, 544 pp.) was published, bringing together the articles completed on the basis of papers of the international seminar “Place and Location” held in 2000 in Tallinn.

Besides the said publications, the 2nd edition of Maie Kalda’s gymnasium textbook “From Tuglas to Ristikivi. Estonian prose 1906-1940” (144 pp.) should be mentioned.

In 2002 the researchers of the Literature Centre authored altogether 12 scientific publications in foreign languages and 45 in Estonian, whereof 22 in pre-reviewed issues. Besides, abstracts of 3 scientific papers in foreign languages, two of them also in Estonian were published.

The Centre continued its editorial work on a number of issues: “Estonian exile literature in the 20<sup>th</sup> century”; “*Eroica Norden*”, a collection of critical essays by H. Rebane on Scandinavian and Finnish writers, a collection of articles on the basis of papers of international conference “Eros and Language” and the 10<sup>th</sup> volume of Collected Works by Friedebert Tuglas. In co-operation with Latvian and Lithuanian colleagues a lexicon of Baltic writers is being compiled.

In 2002, there were a number of research symposia:

18 February – Juhan Smuul's Day in Muhu (in co-operation with Muhu Museum, Muhu Grade School and Muhu Parish Government); moderator K. Tüür, papers from K. Tüür, M. Kalda, P. Kruuspere, A. Pilv.

5–6 April – scientific conference in Tartu “Signs of adaptation II” in co-operation with the Department of Estonian Literature of Tartu University; moderators on part of the Literature Centre V. Sarapik and K. Tüür; there were 19 papers, the Literature Centre was represented by M. Kalda, P. Kruuspere, E. Lindsalu, A. Mihkelev, V. Sarapik and K. Tüür.

31 May – 2 June – international seminar at Käsmu in co-operation with the Institute of Literary Studies of the Hungarian Academy of Sciences and the Hungarian Institute in Tallinn “Eros and Language: Rhetorical Patterns of Translatibility and Understanding”, moderators P. Kruuspere, J. Undusk and R. Undusk. There were 11 papers by participants from Hungary, Latvia, Sweden and the U.S.A. The Literature Centre was represented with papers by E. Annus, E. Lindsalu, A. Pilv, J. Undusk and R. Undusk.

19–21 September – international conference in Tallinn “Place and Location III. City: topias and Reflections” (in co-operation with the Institute of Art History of the Estonian Academy of Arts and Estonian Semiotics Society), moderators V. Sarapik and K. Tüür. There were 40 participants, the Literature Centre was represented with papers by V. Sarapik and K. Tüür.

In 2002 the researchers of the Literature Centre delivered 46 scientific papers and expert lectures, of which 22 were given at international scientific symposia; besides those mentioned above, these conferences include “Intermedialities: Conference of the International Association for Philosophy and Literature” in Rotterdam (the Literature Centre was represented by E. Annus), “Nation Outside its Borders. Exile in Literature and History of the Countries of the Baltic Region” in Stockholm-Runö (J. Undusk, P. Kruuspere, A. Mihkelev); “Crises in Art and Literature Reflection and Reaction” in Groningen (L. Lukas); IFTR/FIRT XIV World Congress “Theatre and Cultural Memory. The Event between Past and Future” in Amsterdam (P. Kruuspere), seminar “Helsinki – Virolainen kaupunki?” in Helsinki (A. Eelmäe), seminar of international programme “Euroculture” (L. Lukas), 8th international Hamann colloquium in Halle-Wittenberg (J. Undusk), international doctors' colloquium in Göttingen (L. Lukas) and international seminar “The Display Work in Literary Memorial Museums” in Kiev (E. Rand).

Researchers took 10 mission trips (including trips to Sweden, Finland, Germany, Holland, Ukraine); J. Undusk worked as a visiting-researcher for 3 months in Library of Duke August of Wolfenbüttel in Germany (the topic of the grant “The Language Philosophy Thinking in 18th Century and its

Reflections in the Baltic German Cultural Space”); P. Kruuspere sojourned as a visiting-researcher for 10 days in April at Helsinki University.

M.A. theses were defended by Aare Pilv at Tartu University and by Kadri Tüür at the University of Turku.

In April 2002 Head of the affiliated Museum in Nõmme August Eelmäe retired; on 20 May 2002 the scientific council elected Eha Rand, as his replacement, by open competition.

The affiliated Museum in Nõmme served 54 researchers in 113 cases. 22 excursion tours were conducted, 16 individual guests from abroad (Austria, Canada, Sweden, Finland, Hungary, the U.S.A.) and altogether 800 guests to the Museum were welcomed. Several literature and cultural events took place. 166 sound recordings in danger of peril were re-recorded for archives and researchers.

The staff of the Museum has the responsibility for the upkeep of stocks, interior premises and the garden of the house, in 2002 it also did the various jobs related to repairs.

Collaborators of the Literature Centre have given 10 popular talks over the radio cultural programmes, at presentations of books etc.

The Literature Centre encourages co-operation with universities, and thus 10 of its collaborators have lectured at Tartu University, Tallinn Pedagogical University, Estonian Academy of Arts and the Estonian Institute of Humanities; besides they have supervised over students' course papers, reviewed and opposed M.A and Ph.D theses. The contacts are close also with the Estonian Academic Library; the Centre was involved in working out the programme of literary classic at Ministry of Culture, its representatives have participated on the panels of 125th Anniversary of A. H. Tammsaare and 200th Anniversary of Fr. R. Kreutzwald.

# FINANCIAL ACTIVITY

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## BUDGET OF THE ESTONIAN ACADEMY OF SCIENCES FOR 2002 AND ADMINISTRATION OF BUDGET (thou kroon)

	Budget	Implementation
BALANCE BY BEGINNING 2002		2033,3
incl. Allocations from the state budget		567,1
Target allocations		669,1
Earnings		797,1
INCOME		
ALLOCATIONS TO THE ACADEMY OF SCIENCES FROM THE STATE BUDGET	16510,0	16510,0
incl. for main activities of the Academy	5396,0	5396,0
to Estonian Academy Publishers	3430,0	3430,0
to scientific Societies	1130,0	1130,0
fees of research professors	1500,0	1500,0
fees of Member of Academy	5054,0	5054,0
OTHER RECEIPTS	2750,0	3112,5
Target allocations of Ministry of Education	970,0	1153,0
incl. to capital repairs of Academy premises	627,0	627,0
for membership fees to international science organisations	343,0	426,0
for publication of collection "National science prizes 2002"		100,0
from letting the premises and guest rooms	390,0	426,1
from sale of printed matter and commissioned works (Academy Publishers)	1140,0	1159,2
receipts from other institutions for compensation of running costs of premises (6 Kohtu St)	250,0	253,6
others		120,6
ALLOCATIONS TO UNDER AND TUGLAS LITERATURE CENTRE	2244,0	2318,5
through Ministry of Education	1901,0	1905,6
grants of Estonian Science Foundation	98,0	98,0
target allocations	190,0	261,0
others	55,0	53,9
TOTAL INCOME	21504,0	21941,0

EXPENDITURES

GENERAL BREAKDOWN

Academy Office	6379,0	6530,4
Estonian Academy Publishers	4570,0	4835,7
fees of research professors	1500,0	1500,0
fees of Member of Academy	5054,0	5053,3
Under and Tuglas Literature Centre	2244,0	2194,0
Scientific societies	1130,0	1130,0
incl. Estonian Naturalists' Society	445,0	445,0
Mother Tongue Society	145,0	145,0
Estonian Geographical Society	125,0	125,0
The Society for Estonian Regional Studies	115,0	115,0
Estonian Union of the Philosophy and History of Science	100,0	100,0
Estonian Learned Society	95,0	95,0
Estonian Literary Society	105,0	105,0
Capital repairs of the Academy premises	627,0	627,0
TOTAL EXPENDITURES	21504,0	21870,4

BALANCE BY END 2002

		2103,9
State budgetary means		521,5
Target allocations		398,7
Earnings		1183,7



## **ASSOCIATED INSTITUTIONS**

Subject to the Act on the Estonian Academy of Sciences, adopted in Riigikogu in 1997, the research, development and cultural institutions, as well as the scientific societies not belonging to the structure of the Academy, whose activities and goals are compatible with the activities and goals of the Academy, can associate with the latter. Association of the institutions with the Academy is effected under bilateral agreements, specifying the goals of association, the tasks and obligations assumed by both parties.

The Academy has entered into association agreements with Institute of Zoology and Botany at the Estonian Agricultural University, Tartu Observatory, Institute of Ecology at Tallinn Pedagogical University, Estonian Academic Library; Institute of the Estonian Language and Estonian Literary Museum.

The association agreements specify, as one of the forms of co-operation, the reciprocal information exchange. As from 1998, there are synopses of the activities of the associated institutions of the Academy in the Year Book. They differ as to their build-up, manner of presentation and scope. The said materials have been published in the Year Book basically in the form they were delivered by a respective institution. Those few editorial corrections suggested by the editors of the Year Book were taken due notice of.

## **INSTITUTE OF ZOOLOGY AND BOTANY AT ESTONIAN AGRICULTURAL UNIVERSITY**

Associated with the Estonian Academy of Sciences  
27.01.1998

Founded 1947

Personnel: 121, whereof 60 researchers

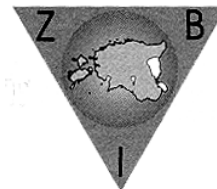
Address: Riia 181, 51014 Tartu, ESTONIA

E-mail: [zbi@zbi.ee](mailto:zbi@zbi.ee)

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

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Scientific Secretary: Märt Rahi, Tel: + 372 7 428 021, [mrahi@zbi.ee](mailto:mrahi@zbi.ee)



As compared to earlier years, there were no major changes in the research topics of the Institute. The Institute had 23 grants from Estonian Science Foundation, there were six target funded research topics, of which five were completed in 2002. Principals, commissioning the research were, as usual the Ministry for Environment of Estonia, Health Inspectorate, and several higher schools. The participation of the Institute in the EU framework programmes was widening in scope – notably, the Institute is now involved in research of reservoirs (programme “Mantra”), in programme “BioCASE” merging virtually the European biological collections and in the applied “LIFE and Environment” programme. (The geography of so-operation relations is manifesting the signs of enlargement, however the scientists of Nordic countries and West European countries have remained our stable major partners.)

The hydrobiologists were provided an opportunity, by rare summer of 2002, exceedingly dry and hot, to study the impact of temperature on processes taking place in the lakes. Seen in the longer time-frame, the structure of the benthic community has significantly changed in the lake Peipsi: the phytoplankton is increasingly dominated by the blue-green algae *Cyanophyceae*, needing little biogen, and capable of fixing air nitrogen. Diminished has been the share of diatoms *Bacillariophyceae*. In 2002 water blooming in lake Peipsi (blue-green algae *Gloeotrichia echinulata*) started one month earlier than usually, in the first days of June. The mass fish kill in summertime in the lake Peipsi was due to conflation of several negative factors, however indisputable was the link between asphyxiation of fish and the enrichment of water with plant nutrients, depleting the lake of oxygen. Furthermore, the measurements of ammonium ion and oxygen content, as well as the measurement of water acidity displayed vast temporal and spatial diversity.

Due to eutrophication evidenced in recent decades the reed area has proliferated in the lake Peipsi, thereby shortening the stretches of sandy beach. This, in its turn deteriorates the spawning and feeding conditions of some commercial species (bream, roach, pike) and will evidently diminish their numbers. The age pyramids of the fish communities in the lake Peipsi suggests the excessive overfishing in recent years.

The Institute continued monitoring the small lakes Verevi and Prossa. Found out was the dynamics of ecological state of the lake Verevi since 1920s. The long-term fluctuations of balance of matter in the lake evidence widening of the discrepancies between surface water and bottom water, which significantly changes the circulation of matter in the reservoir. The composition and quantities of epiphytes (air plants) is very divergent, year by year, depending on weather and the specificity of circulation of matter. The species and number of benthic communities is decreasing with the depth of the reservoir. The composition of fish has been depleted, over the time. In view of the steady deterioration of the ecological state of the lake, the Institute submitted a limnological motivation for rejuvenation of the lake Verevi.

The natural reservoirs contain multiple composites deriving from human activities and damaging to organisms (polycyclic aromatic hydrocarbons, chlororganic substances, heavy metals). There was research done of the link between eutrophication, toxic substances and toxicity of water in Estonian rivers. Accumulation of polycyclic aromatic hydrocarbons in fish was found to be in correlation with the fish species / type of its feeding and how eutrophic the reservoir is. The polycyclic aromatic hydrocarbons of larger molecular weight break down in fish more rapidly than the lesser molecular weight compounds. Completed was the hydrodynamic, ecological and toxicological model of the basin of the river Narva.

Increasingly prevalent in the work of botanists is the problem range related to biological diversity, in the first place the research into plant species of diminishing numbers. Besides the habitat destruction, essential in this process are also the biological characteristics of the species, in particular the versatility of the vegetative capacity for reproduction.

Long term fertilization experiments in Laelatu wooded meadow have shown that there is a major change taking place in the species communities of wooded meadow under the impact of fertilization. Fertilizing with phosphorus and potassium brings about the increase in species in the community, possessing the ability for rapid vegetative mobility and having large vegetative potential for reproduction. With the availability of nitrogen increasing, however the vegetative mobility and the potential vegetative reproduction will decrease.

The plant taxonomists continued work on inter-species relations of polyploid complex *Bromus diandrus-rigidus* with its kin species *B. sterilis*. There were

four different cytotypes established, distributing into two species, by isoenzyme and morphological features: *B. sterilis* (2n=14, 28) and *B. diandrus* (2n=42, 56). There were analysed, with AFLP technique the DNA of English and Estonian subspecies of two *Orchis ustulata* populations, suggesting that because of genetic similarity of taxons, they do not merit a status of different subspecies, however the geographical differences between the populations seem to be of importance.

It has been found out during the research of short rotation forests that the canopy production of willows decreases in the course of the second rotation period. The growth rates of different clones change per years / per rotation periods; the significant factor decreasing the productivity of plants is their contagion with bacteria.

Mycologists completed the manuscript “Estonian Aphyllophorales s.l.: biological diversity, distribution, ecology and protection”, providing the characteristics of distribution and biology of 201 species identified in Estonia, assessment to their economical value and need for protection, as well as maps of distribution. About half of the species *Basidiomycotina* are rare or very rare, 17 species are major actors in creating rot in living tree. 79 species are hemerophobic, growing mainly in primeval and natural forests, many of them are useful to estimate the state of the forests. Six species have been steadily disappearing in Estonia during the past half century. Mycologists also studied the regularities of geographical and ecological distribution of the family *Dermateaceae* and described 2 new families, 8 new species and 2 new subspecies.

Entomologists carried out an extensive series of experiments to study the dependence of growth rate of lepidopteran larvae on body size and other morphological parameters. The information obtained will underlie the optimisation model of larval growth rate, within the theory of evolution of life histories. They continued the analysis of database (over 1 million entries) collected by international monitoring of moths (1994-2001) updated with agro-meteorological data.

Ornithologists elucidated the issue of genetic and morphological diversity of great snipe in Europe, as compared to East Europe (Estonia and Poland) and Scandinavian habitats. There was found genetic proof to long stability of high numbers of the habitat. In co-operation with Norwegian and French ornithologists, our specialist continued to study in Estonia the feeding biology and habitat selection of that species. The ornithologists participated in compilation of international Great Snipe Action Plan (IUCN & BirdLife International).

In progress were the studies in one of the best studied common gull population in the world, at the Matsalu Nature Reserve. Under scrutiny was the share of extra-pair parentage, by using the methods of genetics (loci of polymorphic microsa-

tellites). Due to strong birth site fidelity (60% of male and 15% of female first-time breeders will breed in their birth colony) this population is extremely inbred.

There was carried out the count of the cormorant colonies over the whole area of Estonia. The numbers of that piscivorous species in Estonia has increased by the year, attaining 8000 pairs in 21 colonies and calling for some restriction, in the forthcoming years.

There was a synopsis published about rare birds encounters in 1998-2000. Arrangements were continued for making the new list of endangered species in Estonia. Consolidated in a unified databases were the data on invading species among Estonian birds and mammals, with the estimate on potential damage they may wreak on our own nature and the possible opportunities to block their roaming further.

In 2002 the personnel of the Institute released 104 scientific publications; Member of Academy Erast Parmasto was awarded the national science prize for long productive work in research and development.

Of traditional scientific events, there was the Baer Day and the annual conference of the Institute, focusing on biological diversity. Limnological Station of Võrtsjärv held a seminar on implementation of the water related EU frame directive. The international seminar of ornithologists at Roosta discussed the research and protection of common and Steller's eider. Mycologists organised an expedition to Saaremaa, collectively with Swedish scientists.

## TARTU OBSERVATORY

Associated with the Estonian Academy of Sciences  
8.05.1998

Founded 1808

Personnel: 56, whereof 35 researchers

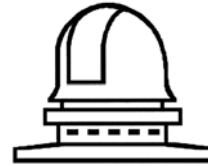
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Tartu Observatory concentrated on fundamental studies in astrophysics and atmospheric physics. In the latter field, there were also some application oriented studies. Our activities were financed within the framework of three target-financed topics, 14 Estonian Science Foundation grant projects, and a few European Union projects and contracts with Estonian organizations.

Our scientists published 62 scientific papers in 2002, 23 of them in the journals reviewed by Current Contents. The number of popular science articles was 79. Senior research associate Izold Pustõlnik together with Vitali Bronshten from Moscow published a scientific biography of the world-renown Estonian astronomer Ernst Julius Öpik. Traditionally, the next issue of the Calendar of the Observatory came out. The more detailed annual report which up to now was published in English only, is now available in Estonian, too. Below we present a few examples of our research efforts and other activities in 2002.

Member of Academy Jaan Einasto continued to supervise the topic concentrated on the large scale structure and its formation in the universe. In recent years, there have been several new deep sky surveys undertaken. First data releases from two such projects – the 2-degree-Field and the Sloan Digital Sky Survey – are now freely available to every astronomer. Based on these data, Jaan Einasto and PhD student Gert Hütsi with several colleagues developed techniques to compute 2-dimensional density fields, and using density fields they compiled catalogues of galaxy clusters and superclusters. It occurred that the clusters are the brighter, the higher is the density of the ambient medium. The department of cosmology was involved also in N-body simulations of the structure of the universe, calculating mass distributions of small galaxy groups, studies into neutral hydrogen clouds in the Milky Way, and other problems.

Topic on stellar physics was for the last year supervised by Member of Academy Arved-Ervin Sapar. Novel theoretical results concern, for instance,

radiative transfer in planetary atmospheres and in close binary stars during their pre-cataclysmic evolutionary stage. Jaan Pelt continued developing elegant statistical methods to investigate astrophysical phenomena. Those new methods can be applied to very different objects from the Sun to distant quasars and gravitational lenses. A miniseminar devoted to gravitational lenses was held at Tõravere. Observations of the stars were performed at Tõravere, but also, for example, on the 6-meter telescope in Russia and on the Nordic Optical telescope in Las Palmas (Canary Islands, Spain). The nature itself offered a highlight for the observers in 2002: peculiar eruption of the star V838 Monocerotis, which was monitored spectroscopically in our Observatory, too. We registered over 70 spectra of this star, however nobody knows yet the underlying nature of it and its mysterious outburst.

Topic on atmospheric physics was supervised by Tiit Nilson. We must mention with sadness that grand old man of this field Member of Academy Juhan Ross passed away this year. The investigations initiated by him are still continuing. In summer 2002, main attention was paid to the biometry of the grey alder plantation, yielding basic data for analysis and modelling of the radiation field in the canopy. To a lesser extent, the measurements were made in willow plantations. The forest reflectance model was updated, and catalogues of the reflectance spectra of the ground vegetation in Estonian and Swedish forests was compiled. The application oriented work ordered by the Ministry of Environment – mapping forest clear cuts from satellite images – attracted quite a great interest in the community. Retrospective estimates of the erythemal ultraviolet radiation and of the long wavelength component of the radiation balance were performed. But perhaps the most important event was installing at Tõravere the sunphotometer, belonging to NASA AERONET network. Its measurement results about the atmospheric aerosol are of great interest to our researchers of atmosphere and ground surface, and also to the meteorologists from Tartu Meteorological Station.

Besides the above mentioned gravitational lenses miniseminar, the Observatory organized two international conferences. In July a meeting of the GAIA Photometry Working Group with 25 participants was held in Tartu. GAIA is a European space project scheduled for launch in 2009 to measure parameters of billion stars in the Milky Way. In August, Estonian Literary Museum and Tartu Observatory jointly organized an interdisciplinary conference “Cultural Context from the Archaeoastronomical Data and the Echoes of Cosmic Catastrophic Events”. More than 40 participants represented 15 countries.

The number of people employed by the Observatory decreased by about ten during the year, mostly, because the boilerhouse was transferred to the local Nõo municipality. Step by step we are relieving the Observatory also from other side obligations. Some research associates also left the Observatory, but fortunately we were able to employ two new young researchers.

Lack of sufficient number of young researchers and engineers still continues to be main problem of the Observatory in the future perspective. However, there are quite a few master and Ph.D. students supervised by our scientists at present. There were even two very strong and almost equal candidates for the annual Ernst Julius Öpik fellowship – our scientific council, as an exception, decided to award this fellowship to both students: Anti Hirv and Indrek Vurm. We hope that some of the young students will be in our permanent staff soon.



**INSTITUTE OF ECOLOGY  
AT TALLINN PEDAGOGICAL UNIVERSITY**

Associated with the Estonian Academy of Sciences

16.06.1998

Founded 1992

Personnel: 39, of whom 26 researchers

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Scientific Secretary: Ene Kadastik, Tel: + 372 662 1853, [ene@eco.edu.ee](mailto:ene@eco.edu.ee)



In 2002, scientific research was carried out within the framework of 52 topics of different levels and projects, incl. 4 topics target-financed by Ministry of Education and 10 Estonian Science Foundation grants. Fundamental research was also carried out in the framework of 5 international co-operation programmes and 9 Doctoral and 1 Master's works. Implementation in practice of research outcome was effected under 33 co-operation agreements.

The Institute was mainly concerned with four target-financed topics. Topic "Natural and human induced trends of the lake trophicity development in the Holocene: reconstructions and projections"(supervisor Jaan-Mati Punning) focused on the investigation of carbon cycle in different time scales. It occurred that the changes of carbon cycle (and trophic state of medium period (hundreds of years) in the lake are highly influenced by fluctuations of the lakes' water level. The tentative results suggest that in the lake Viitna Linajärv the carbon accumulation during Holocene changed from 30 to 125 g per square metre. According to GCM models, the possible climate warming and increased amount of precipitation could increase the mitigation capability of small lakes to greenhouse warming.

The pollen analysis of surface sediment samples of the lake Väike Juusa showed that the distribution of pollen in the lake bottom is subject to certain species-specific regularities. The results obtained may be used to interpret the results of the pollen analysis covering the whole Holocene, and correlate the different cores from the lake.

The Institute started to evaluate the quality of deposited organic matter in sediments from the aspect of potential microbial decomposition. For that purpose the modified technique of the classical BHT<sub>5(7)</sub> method was elaborated.

Research in the framework of the topics "Impact of climatic change on structure and functioning of wetlands" (supervisor: Edgar Karofeld) confirmed that

the changes in location and contours of coastline have significantly accelerated, since 1980s due to the conflated effect of heavy storms, high water level and ice-free sea caused by mild winters. Due to imbalance of accumulation and abrasion processes the original state of coast does not restore, in the period between storms, hence extensive changes may be forecast, in Estonian coastal areas.

With the aim to find out about the impact of climatic change on water balance of bogs, there were installed in different micro-landscapes of the Endla bog massif, the devices for measurement of acrotelm transmission, bog water level and the amount of rainfall. The team developed the model of accretion of the bog massif and showed that the long-term stability of water balance of the raised bog as a whole is provided for by the space-pattern dynamics of the bog's micro-landscapes. The geobotanical analysis suggested the importance of commensalism in distribution of Sphagnum species – when in commensalism with *S. fuscum*, the *S. rubellum* is able to proliferate above the water level, and do it in higher place than growing in pure community. It was shown that the carbon balance in the bog depends on bog microforms and plant cover.

Within the study “Ecophysiology of carbon cycle”(supervisor Olevi Kull), the team investigated the dependence of the growth of tree crown and leaf area on distribution of photosynthetic production within leaf canopy. Although the production of leaf surface on tree level occurs in parallel with spatial distribution of photosynthesis, extension growth of tree crown is only partly related to the distribution of intra-canopy radiation field and species differ substantially in their extension growth and space-filling strategy.

The team started research in carbon cycle in the time series of mixed spruce-birch forests, with the aim to establish the dynamics of carbon reserves of this important type of forests in Estonia, and the impact of forest management on carbon balance of the forest.

It was found that the leaf acclimation to light in three birch species (*Betula pendula*, *B. pubescens*, *B. nana*) depends on nutrient availability. The team studied the morphological and physiological adaptations of plants (coniferous trees) to the variation of availability of light and nutrients. Changes in shoot and leaf (needle) morphology and in physiological parameters of leaves in response to resources availability affect considerably photosynthetic light use efficiency of trees.

Within the framework of topic “Natural-anthropogenic directions of development of artificial landscapes in North-East Estonian oil shale mining area” (supervisor: Valdo Liblik) the nature and extent of impact of blasting in mining, mine water and air pollution on different ecosystems in North-East Estonia was studied.

The team studied the restoration of base undergrowth in recultivated quarry dumps and in areas left for natural renovation, the alternative opportunities of recultivation of quarries and after effects on environment in the result of the termination of mining works and closing of the mines. It was found that the number of species of undergrowth was much larger in naturally renovated small woods (12.4 species m<sup>-2</sup>) and in the common alder woods planted in recultivation (12.2 species m<sup>-2</sup>); in the planted birch groves and pine tree coppices the same indicator is significantly lower – 7 species m<sup>-2</sup>. The Shannon information index characterising the diversity of undergrowth is lower in birch groves (0.86), varying in other small woods researched within 1.52-1.73. It was found that the economic contribution, i.e. the share of energy, labour, materials and others in the overheads of production of the general biomass and timber is the lowest in natural small woods, as compared to planted pine tree coppices and common alder woods.

In connection with the closing of Sompä, Tammiku and Kohtla mines in 2000–2001 the impact of mine water on hydrologic state of the rivers in the Purtse catchment area decreased significantly, whereas its changed balance has set more favourable conditions for development of phytoplankton. There were composed the regression formula characterising the general numbers of phytoplankton and correlation diagrams of linkages depending on the river flow amount, the annual quantity of mine water, the sulphates and chlorides content in mine water and the annual precipitation amount in the lower course of the Purtse river. A method for retrospective determination (after closing of quarries) of seismic impact of blasting on the land was elaborated.

In 2002 the personnel of the Institute published 40 scientific articles and monographs. Among them 28 articles and one doctoral thesis published in scientific issues of international readership, 8 articles and three monographs in the Estonian language – V. Liblik, K. Maalma, “Science of ecology and environmental research in East-Virumaa 1990-2002: Bibliographic list of R&D activities, publications and papers” (58 pp.); “The naked world: isles of the Kolga bay”, eds. T. Peil, U. Ratas, E. Nilson (132 pp.); E. Reinsalu, A. Toomik, I. Valgma; “Land excavated” (98 pp.). The latter two were either authored or edited by one collaborator of the Institute. Plus popular science articles, abstracts etc. In international conferences, 28 papers were delivered. In national conferences and Institute seminars the respective figures were 9 and 26.

The applied research was mainly designed to perform different monitoring programmes and survey of the status of environment, and to analyse the opportunities to improve it. Carried out were Government-commissioned estimates of environmental impact in the area of the designed North-Kiviõli oil shale pit and in the pit of Harku Karjäär LTD. The Institute compiled the inventory of Estonian greenhouse gases for 2001 and the 3<sup>rd</sup> Climatic Report of Estonia.

In 2002 the Institute of Ecology celebrated its 10th anniversary. To mark the event, the exhibition “Institute of Ecology 1992-2002” was staged in the Estonian Academic Library, and a scientific conference was held titled “10 years of the science of ecology in the newly independent Estonia”.

Impressive was the performance of the Institute in training young scientists. Researchers of the Institute actively contributed to the faculty effort in universities, both delivering lectures and supervising undergraduate and post-graduate students in Tallinn Pedagogical University, University of Tartu, Tallinn Technical University and Estonian Agricultural University. Under the supervision by the Institute’s researchers 3 Doctor’s and 4 Master’s papers were defended with various universities. MSc in geocology was awarded to Galina Kapanen, the Doctor’s degree in hydrology to Elve Lode, both researchers of the Institute.

## ESTONIAN ACADEMIC LIBRARY

Associated with the Estonian Academy of Sciences 17. 06.  
1998



Founded 1946

Personnel: 164

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Scientific Secretary: Aita Kraut, Tel: + 372 665 9404

From 1 January 2002 Estonian Academic Library has been operating in the administrative domain of the Ministry of Education, on 16 January the new Statute of the Library was approved.

Library is a member of the following international organisations:

- IFLA (International Federation of Library Associations);
- ISKO (International Society for Knowledge Organizations);
- CERL (Consortium of European Research Libraries);
- Bibliotheca Baltica (Amalgamation of Libraries of the Baltic Sea Countries).

Library is a founding member of ELNET Consortium (Estonian Library Network).

### REPLENISHMENT AND DEVELOPMENT OF STOCKS

Allocated from state budget for replenishment of stocks was EEK 5.5M, less by 29% than in 2001. The active holdings of the Library were replenished by ca 19.1 thou units of printed matter, of which 11.6 thou books, 2.2 thou annual sets of journals. Of each Estonian publication the Library regularly receives one deposit copy. There is an expert commission (chaired by Member of Academy Hillar Aben) to help with the development of collections. Co-operation agreements for replenishment and development of collections have been made with 23 research institutions.

Through ELNET Consortium, the Library continued joint commissioning of electronic databases, including *EBSCO* and *ScienceDirect*.

Added in 2002, as new joint purchase were the abstract database *Psycinfo* and *SpringerLINK* containing the full texts of 453 journals by Springer Publishers. For shortage of funds, the Library suspended further ordering of the abstract databases *Science Citation Index* and *Chemical Abstracts*. All in all, the

Library has now access to 7,057 electronic journals. The lists of the ordered foreign language periodicals and on-line databases are available on the website of the Library.

The foreign exchange relations were maintained with 313 institutions and organisations in 33 countries.

By the end of the reporting year, the Library had *ca* 2.5 million stock units of printed matter. On the open access of periodical issues were more than 1.2 thou titles of journals and magazines, whereof *ca* 1.1 thou in foreign languages.

The entries of the new acquisitions are recorded, as they are received, into the joint electronic catalogue of research libraries ESTER. At the same time, the card catalogues are being converted. By the end of the year 20% of active holdings were available in the electronic catalogue.

#### READER SERVICE

By the end of 2002, registered in electronic database of readers were 20,630 readers.

In that year, the Library was visited by by *ca*. 2 thou readers more than in 2001. The increase was mainly due to university students and specialists. The target group of readers – research staff, faculty members, specialists, university students, post graduate and doctoral students – account for 80% of readers. Of public law based universities, Tallinn Pedagogical University and Tallinn Technical University contributed the largest slice of readership, of private higher schools it was the Estonian Institute for the Humanities.

Transition to computer services is proceeding at a steady pace. E-service enables one to use the library without putting up an appearance in person. It allows one to mail the information requests and orders for loaning literature both from the collections of the Library and through inter-library loan service, to prolong the term of loan, to search in the electronic catalogue ESTER.

At the disposal of the readers are 8 computers and 14 terminals. One may use, in the reading halls also one's own laptop.

#### BIBLIOGRAPHICAL AND REFERENCE WORK. PUBLIC RELATIONS

In co-operation with the software office "Sirvi", provided was the Internet search from five databases compiled in the Library: Science (9,361 entries), Congress (3,651 entries), Finno-Ugric (3,440 entries), Geology (3,174 entries) and Publications of Estonian Academic Library (1,988 entries).

Continuing was the work for compilation and preparation for publication of the retrospective national bibliography.

Released from print was the 4th part of the bibliography – The Estonian-language press 1766-1940, 1-2 vol.

Published was Bibliography of Finno-Ugric ethnography and folklore for 2001 and Estonian Academic Library Year Book 2001.

With a view to present the accessions, 41 exhibitions were held and 82 bulletins compiled. Readers can get information about ordered journals and new acquisitions also on the website. There were organised 37 topical and anniversary exhibitions. The Library organised the third exposition in the series “New generation scientists of Estonia. History, ethnology, archaeology” and another exhibition in the series presenting the Nobel Prize winners, currently dedicated to chemistry. The Library continued the series of anniversary exhibitions, introducing the activities of Members of the Academy of Sciences, in the reporting year to Raimund Hagelberg, Harald Keres and Hans Küüts.

The keynote event in 2002 was the commemoration of the 450th anniversary of the collection *Bibliotheca Revaliensis ad D. Olai* – released in print was the volume “Bibliotheca Revaliensis ad D. Olai : Tallinna Oleviste Raamatukogu”; on display were 3 various exhibitions – in Tallinn Town Hall, in the City Archives and in the Library.

#### RESEARCH AND DEVELOPMENT

The traditional directions of research work at the Library are the history of the Estonian book and printing business, the history and composition of the collections of the *Baltica* Department, collection development and use, preservation of collections, readers and reader service, classification and subject indexing.

The Library continued the research of the use of scholarly periodicals and foreign books, as well as the study of the composition of readership.

There was organised an international conference “Books and libraries in the Baltic Sea culture area in the 16th-18th C.”

Articles in domestic and foreign specialist publications appeared from 14 authors (29 articles). The Library’s personnel delivered lectures and papers at conferences, information days and seminars (total 26).

In order to develop the virtual library, the programmes of the software office “Sirvi” were used to create the digital collections of maps, books, post cards and other items as well to enlarge the scope of their use and guarantee the preservation of the unique collections. The digitization of the map collection of the *Baltica* Department was started.

Continuing in 2002 was the reorganisation process of Estonian Academic Library, set going simultaneously with the reorganisation of the whole Estonian Academy of Sciences system.

On 28 January the Minister of Education and the rectors of state universities signed the Protocol of Common Plans, under which Estonian Academic Library would be joined with Tallinn Pedagogical University and subsequently

become a member in network of academic libraries, affiliated with universities, whereas its own historic role would be held in due regard.

On 30 August the Minister of Education formed a commission with the task of making preparations for the incorporation of Estonian Academic Library with Tallinn Pedagogical University. On 2 December 2002 the commission worked out a draft merger agreement and a plan for restructuring the Library. The merger was scheduled to be completed within 2003.

On 15 May the Deputy Mayor of Tallinn, the Minister of Education, the directors of the Institute of History and Estonian Academic Library, the Chairman of the Council of the “Estonian Institute for the Humanities” Foundation, the rectors of Estonian Institute for the Humanities, Estonian Academy of Arts and Tallinn Pedagogical University signed a Declaration of Common Plans, declaring their mission to establish Tallinn University and to transform Estonian Academic Library into Tallinn University Library.



## **INSTITUTE OF THE ESTONIAN LANGUAGE**

Associated with the Estonian Academy of Sciences 11.05.1999



Founded 1947

Personnel: 75, of whom researchers 30, editors 15

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Institute of the Estonian Language is successor of Institute of Language and Literature, founded in 1947 in the composition of the Estonian Academy of Sciences. As from 1995, the Institute has belonged to the administrative domain of Ministry of Education

Research in the Institute is done in three departments:

- Department of lexis of literary Estonian headed by Margit Langemets. Target financed research topic “Origin and structure of lexis of literary Estonian” (1998-2002), supervisor Urmas Sutrop.
- Department of Estonian dialects and the nearest kin languages headed by Kristiina Ross. Target financed research topic “Grammar and lexis of Estonian dialects and the nearest kin languages” (1998-2002), supervisor Kristiina Ross.
- Department of grammar of literary Estonian headed by Peeter Päll. Target-financed research topic “Grammatical structure and typology of literary Estonian” (1998-2002), supervisor Ülle Viks.

DEPARTMENT OF LEXIS OF LITERARY ESTONIAN continued, in keeping with the schedule, the editing of large base-dictionaries: Dictionary of Literary Estonian, Estonian-Russian Dictionary, Estonian-X-Dictionary.

Released was the 2<sup>nd</sup> fascicle of vol. 6 of Dictionary of Literary Estonian (*tinakatk–tundlus*) (edited by Rudolf Karelson, Leidi Veskis and Mai Tiits (191 pp.).

The Department continued studies of Estonian in different lexical-semantic areas: foreign words (Merike Mägedi), neologisms (Indrek Peterson), polysemy (Margit Langemets), connotations in Estonian (Piret Voll), vocabulary of fragrances, smells and odours (Urmas Sutrop).

DEPARTMENT OF ESTONIAN DIALECTS AND THE NEAREST KIN LANGUAGES continued editing the Dictionary of Estonian dialects, the replenishment of etymological card file of the Estonian language and the compilation of Estonian etymological basic dictionary. Released were: Estonian Dialects III, fascicle 12 (*kirikline – kohaline*) (edited by Anu Haak, Evi Juhkam, Mari Kendla, Varje Lonn, Piret Norvik, Vilja Oja, Jüri Viikberg) (208 pp.) and fascicle 13 (*kohalt - koor-*) (edited by Anu Haak, Mari Kendla, Varje Lonn, Helmi Neetar, Vilja Oja) (200 pp.).

Accomplished was the publication of dialectal texts. The 8-volume series “Estonian dialects” was finalised with the texts of Estonian isles and the county of Võru: Varje Lonn, Ellen Niit. Texts of the dialect of isles. Estonian dialects VII (editor Evi Juhkam (688 pp.)); Hella Keem, Inge Käsi. Texts of the dialect of Võru. Estonian dialects VI (editor Aldi Sepp (500 pp.)).

The series has perpetuated all Estonian dialects, both those withered away or in the process of doing so, just like they were recorded in the middle of the past 20th century “from the horse’s mouth” (from the original source – the experienced language guides).

Published per dialects in each volume are the characteristic texts of the respective dialectal area in scientific transcription, supplied with commentaries, list of dialectal words and subject register. Provided, at the beginning of every volume is the linguistic synopsis of the history of formation of the respective dialect, its important phonetic and grammatical characteristics and lieu in relation to other Estonian dialects. The linguistic introductions in the volumes of texts are a singular grammatical description *per se*, covering all Estonian dialects.

DEPARTMENT OF GRAMMAR OF LITERARY ESTONIAN did research in the following topics: Syntactic structure of the Estonian language, with emphasis on typologically and contrastively distinctive features (Helle Metslang and Heete Sahkai); Word formation of the Estonian language: typological characteristics, structure of niduses of formation, outline of the Estonian lexis with reference to load on root, its derivational structure and potential (Silvi Vare); Formalization of description of language on different levels and development of interpreters of respective instructions, the techniques of presentation in computer of linguistic information (Ülle Viks and Tiina Puolakainen); General typological distinctive features of the Estonian literary language, as compared with other Balto-Finnic languages (notably with Finnish), of the one part and with Indo-European languages, of the other part (Helle Metslang and Maria-Maren Sepper); Language planning (Tiiu Erelt, Tiina Leemets, Sirje Mäearu, Peeter Päll, Maire Raadik). Published was Tiiu Erelt’s monograph “Estonian language planning” (456 pp.).

The Institute continued with the compilation of the “Student’s ÕS” and made arrangements for compilation of ÕS 2005. Assembled was the collection of

Henn Saari's famous radio programme Linguistic Whiles. In the framework of name regulation, the work with the database of standardized place names carried on. One was also active in international co-operation.

In the area of language technology, the text-speech synthesis continued as the order of the day (Meelis Mihkla, Hille Pajupuu). In the area of semantics, the vocabulary of emotions was focused on (Ene Vainik). The outcome of respective research is contained in the article: Ene Vainik. Emotions, emotion terms and emotion concepts in an Estonian folk model. – *Trames* nr 4 Vol 6(56/51) pp 322-341.

Language consultation service of the Institute continued as popular as ever (staffed by Tiiu Ereht, Tiina Leemets, Sirje Mäearu, Peeter Päll, Maire Raadik, Elli Riikoja). In the reporting year, there were 6952 language help seekers putting calls through to consultation service. The Service made 35 letters (including language expert examinations and letters on name regulation). Language consultation is available at <http://www.eki.ee/keeleabi>.

2002 witnessed 10 publications from researchers of the Institute, in book format. They delivered 67 papers.

Institute of the Estonian Language is involved in joint projects:

- Finnish-Estonian Dictionary (1998-2002), with the Kotimaisten kielten tutkimuskeskus (Helsinki) and the Institute of the Estonian Language (Tallinn) in partnership. In the course of the project, compiled (by Anu Haak, Paul Kokla, Külli Kuusk, Helga Laanpere) and edited (by Valdek Pall, Maija Länsimäki) was this large contemporary reference book. Editor in chief Valdek Pall. The dictionary has been left with the printers.
- *Atlas Linguarum Fennicarum* (ALFE). Compilation and editing of an atlas of Balto-Finnic languages (Arvo Laanest, Helmi Neetar, Vilja Oja) conjointly with Finnish and Karelian linguists. Editor in chief Professor Tuomo Tuomi (Helsinki).
- Atlas of European languages *Atlas Linguarum Europae* (ALE). Atlas will present in parallel the dialectal linguistic matter of all languages spoken in Europe, from 2631 mapping points. In 1976-2000, ALE obtained an introductory part and 5 map folders, with volumes of commentaries appended. The project sponsored by UNESCO has attracted linguists of 51 European countries. Of Estonian linguists, sitting on editorial board are Helmi Neetar and Vilja Oja.
- Estonian-Latvian Dictionary (2001-2004). Partners in this project are the Institute of the Estonian Language and the University of Latvia. Participating in the project are Katrin Kuusik, Külli Kuusk, Jane Lepasaar, Lembit Vaba, Margit Langemets, Ülle Viks.
- Text-speech synthesizer of the Estonian language for the visually handicapped – in the framework of Phare Access programme. Partners: The

North Estonian Union of the Visually Impaired (Tallinn), The Finnish Federation of the Visually Impaired (Helsinki), Institute of Cybernetics (Tallinn), Institute of the Estonian Language (Tallinn), Emajõe School of Tartu (Tartu), The Estonian Union of the Visually Impaired (Tallinn), OÜ Filosoft (Tartu).

- eVikings II “Establishment of the Virtual Centre of Excellence for IST RTD in Estonia”. Partners: Tallinn Technical University, Institute of Cybernetics at Tallinn Technical University, University of Tartu, Achimedes, Foundation of Estonian Information Technology, Ericsson Estonia, EPFL-LGPP (Switzerland), Helsinki University of Technology (Soome), Cybenetica, EMT, PRAXIS, Artec Design, Linköping University (Sweden), Fraunhofer Institute (Germany), Ilmenau Technical University (Germany), Tartu Science Park.
- Internet portal KeeleWeb <http://ee.www.ee> is maintained by Jaak Vilo, Institute of the Estonian Language, EKSA, OÜ Filosoft, assisted by Ülle Viks, Indrek Hein, Margit Langemets.

In greater detail of tasks and jobs of the Institute cf. <http://www.eki.ee/eki> .

## **ESTONIAN LITERARY MUSEUM**

Associated with the Estonian Academy of Sciences  
11.05.1999

Founded 1909

Personnel: 97, of whom 61 researchers and assistant researchers,  
16 librarians and bibliographers

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In autumn 2001, the scientific council of the Estonian Literary Museum voted for a move that the Museum and the target-financed research topics fulfilled at the Museum should be subjected to international evaluation at the beginning 2002. The year of 2002 was the fifth year the Museum had been operating as the state R&D facility. To plan the further work, the opinion and assessment of impartial experts on main directions of work and recent development of the Museum and its substructures was imperatively called for. It was specifically in spring 2002 that we needed the international evaluation, to have an answer at hand to many principled questions, before we would apply for target financed research topics for the period 2003-2008.

Making of the evaluation reports was a complicated process, because the outcome of every scientific topic was to be tested and every individual researcher to be posed the delicate question of whether she or he had summoned all the effort she could muster, in response to a need. The discussion over our achievements and the new goals to set, continued unabated after the written reports were produced. As a matter of fact, those discussions gave birth to new tasks, in respect to the ongoing research topics (“History of Estonian culture as a factor in formation of national literature”, “Creation, delivery, interpretation of folklore. Process and institutions”, “Folklore of Estonians and other nations: heritage, identity, and globalisation”, “Musical text and context in traditional culture”).

On 13 March 2002 the evaluation commission, headed by Jukka Siikala, Professor of Social Anthropology of Helsinki University, with Professor of Cultural Anthropology Karen Armstrong of Helsinki University, Professor of Folklore Studies of Åbo Academy Ulrika Wolf-Knuts and Professor of Ethnology of Turku University Pekka Leimu as members, arrived in Literary Museum.

The estimate given to the status and place in society of the Museum in the evaluation report of the Commission, notably, how the tasks assumed by the Museum and its scientists had been fulfilled, the proper working conditions for research created and necessary equipment made available, was “excellent” in all counts. ([http://www.ekak.archimedes.ee/eval/Social-Anthropology-Ethnology-and-Cultural Studies.doc/](http://www.ekak.archimedes.ee/eval/Social-Anthropology-Ethnology-and-Cultural-Studies.doc/)). To us, even more important than the estimate are the conclusions presented by the Commission, expressly admitting that the Literary Museum is a poly-functional establishment, bringing together in one place all important sources of national culture, their research and presentation, and that the Museum is necessary for preservation of the identity of the Estonian people, for promotion of culture and scientific life. As encouraging to us are the recommendations of the Commission emphasising that the Literary Museum has attained a level, with its research and educational-cultural activities, when it must be provided the funding, which will ensure the sustainable development of the Museum and its subunits.

#### PLACE AND TASKS IN ESTONIAN CULTURAL SPACE

The Estonian R&D activities strategy “Knowledge based Estonia” makes a point, besides emphasising the forced development of key areas of Estonian R&D activities, the need to provide for the continuity of research in national culture, nature and social sphere, keeping intact national identity. The continuity of the research is made possible by the existence of scientists competent in their respective areas, as well as by the availability of the complete and comprehensive source material for research, and by the opportunity to use it.

In the virtue of history and the twists of its development Literary Museum is the actor with several roles to perform: to open Estonian culture to everybody interested in it, and to convey meaning to important basic texts of national science, to meet the challenges in the area of the humanities, prompted by educational goals of the society, to stand up for preservation and replenishment of source materials collections, necessary for national culture.

In all those tasks the Literary Museum was successful, in 2002. Released was the second volume with Fr. R. Faehlmann’s original texts “Works. II” (compiled and commented by Kristi Metste), containing the materials heretofore kept in archives only, plus Faehlmann’s standpoints and views on the Estonian language and the medical science. There was released, too the second volume of the academic edition “Estonian riddles” (compiled by A. Krikmann, R. Saukas, P. Voolaid, A. Hussar). Seconding the completion of the 3rd part of the “Estonian riddles”, the project of proverbs under supervision of Asta Õim has been successfully launched. In recent couple of years, the academic editions have been complemented by pocket book editions of adages, proverbs, curses, stories and puzzles, which would enable the people, in their everyday life distant in interest and feeling from the riches of the academic antiquities, to enjoy them in their small way. The selection by Rutt Hinrikus of Karl

Ristikivi's letters "Choice of letters 1938-1977" is not only a supplement to the life and creation of that eminent man of letters – it also casts light on relations between society and literature. The collection "From collection to research", which appeared by the 75th anniversary of the Archive of Estonian Folklore, will surely become a source material, in the course of times, because it presents reviews, conclusions, statistics of collection and handling of Estonian folklore during the past 75 years. The collection of articles of the Department of Ethnomusicology "Traditional music in this changing world" (compiled and edited by Triinu Ojamaa and Ingrid Rüütel) and the collection by Estonian Archive of History of Culture "Works on literature and history of culture", the first edition of which is the book "On the tottering wall of truths" by Sirje Olesk, containing studies in literary criticism, provide the frame of reference to understand the place and meaning of literature and folk music in the world of past and present.

Presentation of traditional texts and source materials in electronic format, besides paper format has been on a steady increase, by the year. In 2002, the Literary Museum released as e-editions 33 different titles (the Folklore Department was the most progressive, in that respect). Electronically available now are both Matthias Johann Eisen's "Spooks" and "Jaaniraamat" and the bibliography of Estonian folklore. The decisions on what texts are to be presented in paper format, and what in the electronic one depend on the material and the potential readership. Presently the decisions taken have proved justified.

The collections of the Archive of Estonian Folklore and the Archive of Estonian History of Culture grew, in the past year by donations and field work, in the first place. The field works of the Archive of Estonian Folklore at places of resident of expatriate Estonians in Saratov, Samara and Uljanovsk regions, in Sõrve, Kullamaa and other places supplied proof to vitality and viability of popular tradition and yielded ample material to study the life and traditions of today. The Archive of Estonian History of Culture focused on collection of cultural and literary life of the Soviet period, continuing, besides the collection of literature-centred material, also the collection of the history written by people – biographies.

Archival library, responsible for keeping the most complete stock of older Estonian publications, was nominated, by Order of Minister of Education no. 593 of 28 May 2002, for five years the Archives Library. Actually, the said order legally sanctioned the activities the library has been engaged in since 1909: the Order approves the library's commitment to collect and preserve the texts in Estonian. Still, the Order does not mean the solution of the pestering problem of the Library: the project-specific funding fits ill with the essence of the library. The collection of nationally vital printed matter must be sure to survive the vicissitudes of times, unaffected by ever changing funding principles and *ad hoc* commissions, set up by decisions made on the spur of the moment.

The rich collections of source materials in the archive of the Literary Museum are an inalienable part of national cultural heritage. In order to bring home that premise, which was clear as day already in 1925, when the "Law on protection of antiquities" was adopted in the Republic of Estonia, the Literary Museum has been actively engaged in working out the strategy of preservation of cultural values. Besides conferences, meetings and seminars, in addition to work done in the Council of Preservation of Cultural Values at Ministry of Culture, we did our homework with due diligence in 2002. The archivists working in the archives passed a vocational exam at National Archives and are certified records keepers now, knowledgeable in how the archival materials are to be deposited and used, nowadays.

Three reading halls of the Literary Museum are open to readers every working day. Besides the researchers there are almost daily visitors and school excursions from all over Estonia. This work is not reflected in the reports of our scientific effort, and is done for nothing, seemingly redundant. However, how could the personnel of the Museum possibly ignore that sector of work? The responsible performance means knowing and recognising one's place and acting to the best of one's skills and opportunities. The Estonian Literary Museum admits its onus, its duty to fulfil to the Estonian cultural heritage. Hence the Museum carries on with its chores, looking farther and wider than today and tomorrow.

#### COOPERATION AND COMMON OBJECTIVES

The UNESCO funded project THULE, in the framework of which there was research done in 1998-2000 of the situation of cultural values in larger libraries of Estonia and in which the Literary Museum's Archives Library participated, attained in 2002 the phase of development, as the follow-up project of UNESCO, allowing us to start formulation in 2003 of the precepts, the principles of selection and the goals of the so called Red Book, the national publication still lacking in Estonia. In progress at the same time will be the elaboration of strategy of preservation of the analog and digital printed matter. Those are the principled issues, vitally concerning all Estonian archives, libraries, and museums. They can be easier solved, if European archives, libraries, and museums are involved and can contribute to that effort.

The Literary Museum holds a solid place among the Literary Museums of Europe and the world. This place has been accorded it, mainly through International Committee of Literary Museums (ICLM) of the International Council of Museums (ICOM), on the management council of which the Literary Museum is sitting. From 2002, ICLM has stressed the issue of how to keep and protect the world cultural heritage, while holding every national culture intact.

Literary Museum is linked, by keeping and studying the Estonian cultural thought, through co-operation agreements with the Finnish Literary Society, H.



Heine Institute, Czech Literary Museum Lithuanian Musical Academy, Institute of the Russian Language of the Russian Academy of Sciences etc. Joint projects (Estonian-Iceland-German project “Sagas and Societies”, Nordic-Estonian project “Masks and Mummers in the Nordic Countries. A Synchronic, Diachronic and Comparative Investigation in Folklore and Related Disciplines” etc.) have taught us to notice, in treatments of culture, and to interpret each and every tiniest common and different trait.

We are seen and heard in the world, and our co-operation until now indisputably suggests the maxim: the more pride we hold in our spiritual assets, the more confidence is put in us, as partners of co-operation.

## ASSOCIATED SOCIETIES, UNIONS

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### ESTONIAN NATURALISTS' SOCIETY

Associated with the Estonian Academy of Sciences  
23.01.1998



Founded 1853

Membership: 799 active members (incl. 33 permanent), 17 honorary members  
and 640 trustees

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Scientific Secretary: Linda Kongo, Tel: +372 7 341 935, +372 55 907 544,

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Estonian Naturalists' Society is bringing together *ca* one and a half thousand natural scientists and amateur-naturalists. Units of the Society are Estonian Malacological Society, Jakob von Uexküll Centre, Estonian Theriological Society, Estonian Mycological Society and sections of botany, entomology, forestry, geology, anthropology, theoretical biology, palaeontology, biology, the section of weather fans and the Commission of Lakes. Reporting to the Society are three special commissions: Commission on observation networks, Commission on library and Commission on history of natural sciences.

Moreover, there are the following subordinated units attached to the Society: Assembly of the honorary members of the Society, Estonian inter-societal ecological assembly, Union of scientifically-minded greens, Centre of game biology and Working group on informatics. Under a co-operation agreement with Estonian Society of Foresters, the Society organised the activity of Research centre of rodents, located in Elistvere Animal Park.

The main concern of the Society, the nature observations were continued. The Society organised phenological observations and continually monitored the diversity of nature (the hoofed animals, flying squirrels, bats, crayfish), and studied the protected small mammals. There was some research done into large Invertebrata in the effluent of the Baltic Thermal Power Plant and into the opportunities to use biological indicator methods in the monitoring of hazardous substances. The Society contributed to the making of Red Book of Estonian habitats and was involved in the work of commission of Estonian botanical terminology. It updated the database of plant names in Estonian in Internet. Under support by Ministry of the Environment there was held a

seminar “Natural science collections – keepers of diversity of life”. There was organised a spring mushroom camp in the Raplamaa alvars, with the excursion to Tõrasoo nature preserve, and the mushroom camp in Sagadi training centre. Members of the Society attended the Baltic Mycology and Lichenology Symposium in Lithuania. The forestry research and the study of history of natural sciences proceeded unabated.

The Society convened 7 general meetings (one of them as Baer Day) and ca 50 meetings with papers of the subordinated units. There were held the XXV Estonian Naturalists’ Congress in Tõstamaa “Nature of Pärnumaa”, the XXVIII Spring School of Theoretical Biology in the Nina village “Theory of networks”, the XIII Estonian Ecological Conference “Regarding the ecology and economy of the Estonian carbon balance”. Together with the Centre of Physical Anthropology of University of Tartu, there was held, in Tartu a national conference on anthropology and a day of scientific papers, to commemorate J. Aul. Jakob von Uexküll Centre continued organisation of one-day seminar series “Text and Nature”, focused on evolution in the Estonian culture of the tradition of depicting nature and the nature-oriented literature. An innovative series of seminars “Personal natures” was started. The Section of Entomology organised, at Vormsi the international symposium “Biodiversity of insects and spiders on the islands of the sea”. Many young people were attracted to all those events. The Society commemorated the anniversaries of venerated scientists K. E. von Baer, Juhan Aul and Viktor Masing. Members of the Society participated at international conferences and delivered papers.

The Society started preparations for celebrating its 150th anniversary in 2003. In the premises of the Society, the session of the Board of the Estonian Academy of Sciences was held, to discuss the respective undertakings of the Society for preparation to the anniversary.

Released were the following publications:

- Papers of the XXV Estonian Naturalists’ Congress “Nature of Pärnumaa” (76 pp);
- *Schola Biotheoretica*, XXVIII – “Theory of Networks” (88 pp.);
- Lepinfo no. 13 (jointly with Estonian Lepidopterological Society, 87 pp.);
- The Internet journal of the Section of Botany “The Friend of Lichen’s” no. 5.

The library of the Society numbered, by the end 2002, 158,453 tally units of printed matter. The titles were exchanged with 103 institutions and organisations from 24 countries.

## ESTONIAN GEOGRAPHICAL SOCIETY

Associated with the Estonian Academy of Sciences  
27.01.1998



Founded 1955

Membership: 411 active members, 10 honorary members,  
and 4 foreign members

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E-mail: kotliegs@hotmail.ee

President: Jaan-Mati Punning, Tel: +372 662 1853, +372 525 1095

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In the reporting year, the activity of the Society was carried out in five sections: Section of Physical Geography, Section of Climatology and Hydrology, Section of Landscape Ecology, Section of Economical Geography and Section of School Geography, plus the Tartu Department.

The Society continued elaboration of scientific foundations of picking geological rarities, setting up water preservation areas and compiling descriptions of nature study tracks. It participated in several environmental protection projects, like for instance the environmental monitoring in the ports of Paldiski; compilation of protection guidelines and drafting schedules for environment organisation for Tuhala, Kuimetsa, Pae, Aandu and Palamulla landscape preserves; water monitoring in the area of the Kunda-Ubja mine, being planned currently, and in the Keila river in connection with the reopening of the Keila-Joa hydroelectric plant (Hella Kink, Toomas Metslang).

The School Geography Section was engaged, jointly with Institute of Geography of University of Tartu and Ministry of Education in organising the training for geography teachers, in respect of solution of scientific-methodological problems of teaching geography, and development work between teachers, in particular the discussion of curricula and grading guidelines, organisation of seminars and lectures, publication of textbooks. The Society supervised the extra-curriculum geographical research of school students, organised the hiking tours and study visits to nature preserves and landscape preservation areas. The Society participated at organisation of National Geographical Olympiad, with final competition at Kanepi 26-28 April. Invited to the final competition were 100 school students (main organisers Arvo Järvet and Ülle Liiber).

Estonian Geographical Society organised six conferences:

- Conference in Tallinn dedicated to 150th year of death of F. G. Bellingshausen (3 papers).

- Commemoration of E. Kant's 100 anniversary in Tartu City Museum jointly with Institute of Geography of University of Tartu and Tartu City Museum (8 papers).
- Celebration of International Day of Meteorology and Water by scientific conference "Recent outcome of research into Estonian climate and water bodies" in Tallinn (9 papers).
- International conference dedicated to J. G. Granö and E. Kant "From native and landscape research to urban and regional studies" in Tartu, in co-operation with Institute of Geography of Tartu University, supported by International Geographical Union. Attending at that event was the IGU President Professor A. Buttner. The Conference was organised by Ott Kurs, Hannes Palang, Jussi S. Jauhainen and Garri Raagmaa.
- International conference "The 20<sup>th</sup> session of the Permanent European Conference for the study of the Rural Landscapes" in Pärnu in co-operation with Institute of Geography of Tartu University (main organiser Hannes Palang).
- Conference dedicated to the 100th year of death of the polar explorer E. Toll in Tallinn in co-operation with the Estonian Polar Club (3 papers).

In the Estonian Academic Library, an exhibition was staged "Eduard von Toll – 100".

In co-operation with the Estonian Institute of Meteorology and Hydrology, a seminar was held in Narva-Jõesuu "100 years of hydrological observations in the Narva river".

The general meeting of the Society heard Tõnu Raid's research "Regarding the old maps of Livonia".

The Society organised 7 club evenings, hearing the travelogues and news in geography. The traditional scientific excursion with 85 participants was held in Ida-Virumaa. The geographers looked at nature and the problems of regional economy. The sections of the Society organised the total of 7 one or two-day walking tours to bogs and mires of Raplamaa, isles of Pakri and the hiking track Paukjärve at Aegviidu. On excursions outside Estonia, the Society visited Saint Petersburg, Petseri and Novgorod, and Finland (the SEA LIFE water museum). A team of members of the Society participated at excursion to Åland Islands, organised by the Estonian Museums Association.

Estonian Geographical Society is member of International Geographical Union and Association of Geographical Societies of the Baltic Rim.

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

Associated with the Estonian Academy of Sciences  
27.01.1998

Founded 1939  
Membership: 242 members  
Address: Kohtu 6, 10130 Tallinn, ESTONIA  
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Deputy Chairman: Elvi Sepp, Tel: +372 612 5108  
Scientific Secretary: Eva Maaring, Tel: +372 644 0475



The Board of the Society includes 9 members, attached to the Board is the Village Commission (Chairman Kaljo Laas). The Society maintains larger co-operation groups in Tallinn (80 members), Pärnu County (52 members), Järva County (24 members), Viljandi County (23 members), Ida-Viru County (Alutaguse division, 10 members), Põlva County (6 members), Harju County (Ohtu Village Society) and Rapla County.

The activity of the Society and its co-operation with the membership was held under scrutiny at the general meeting of the Society on 15 March and at the conference of representatives of branches at Võhma on 4 May. In focus has been the methodological supervision of the activities in regional studies. The Village Commission highlighted, in the past year the issue of study of the closed schools (supervisor H.Laht), highlighted in the next-in-turn reference collection, the third in sequence of the Society. The list of regional museums was updated (L.Linnus). Drawing on propositions of members of the Society, there was compiled a topical list of papers, lectures, talks and consultations by members of the Society, in order to make it easier for amateurs in regional studies to find advisers and speakers on topics they are interested in. The bibliography of publications on Estonian villages and settlements was completed (1990-2000), to be made available to the general public this year.

In the counties, there were organised study days to specialists in regional studies and to teachers supervising regional studies (Ene Luka, Vaike Birk, Milvi Hirvlaane, Heino Mägi, Eino Veskis) at schools. In co-operation with the Centre of Estonian Youth Work and promoted by it, there was organised in August the expedition "Mulgimaa" for young guides and amateurs of regional studies. On 11 October, Tallinn witnessed the completion of the 34th national competition of works in regional studies, and the respective conference.

There was improving co-operation with other associations taking interest in regional studies: Society of History of Estonian Sports, Estonian Genealogical Society, Tallinn House of Scientists, Põlva Popular Education Society named after J. Hurt, Association of Native Place of citizens of Torma, and with many

museums. The study trip in June of the Society from Tallinn through Kõrve-maa to Jäneda was supervised by member of Board Georgi Särekanno. The local study walks to the museums, establishments and places of particular interest were made under the oversight of several members of the Society (for instance the building of the Bank of Estonia was visited under the guidance of Märt Karmo).

The Society commemorated the anniversaries of several persons of note in Estonian regional studies. On occasion of the 135th anniversary of the grand man in regional studies Mihkel Kampmaa, Vaike Birk delivered a paper at the general meeting of the Society. The 80th anniversary of the merited member of the Society Helmut Elstrok was celebrated with the talk show and exhibitions.

Continuing has been the presentation of outcome of research. The members of the Society delivered numerous papers on topics of regional studies, supervised the study tours – excursions, collected local lore and compiled manuscripts, of which many have also been turned over to the institutions of deposit. The collections and periodicals issued ca 150 articles. Edited and published were local information sheets, to which the members of the Society contributed, too (Sulev Kasvandik, Mai Härm, Vaike Birk, Tiiu Pukk, Milvi Hirvlaane and others).

Books and brochures published (in Estonian):

- Vaike Hang. The Leelaste village (96 pp.);
- Leida Iir. Cultural story of Vaivere village (78 pp.);
- Aino-Monika Jõesaar. Until the war brought down it all... Economy and municipalities of parishes of Vaivara and Alutaguse until 1944 (296 pp.);
- The Society of Estonian Regional Studies. Reference collection 2. Compiled by Laine Linnus (44 pp.);
- Between two rivers. Our life across time no 1. Paikuse (64 pp.);
- Viktor Kapp. Järvamaa – the land of forests. Glimpses of history of forestry and nature preservation of the county (488 pp.);
- Kalle Kesküla. History of Nasva (196 pp.);
- Karl Käsper, Hans Salm. Sanatorium of Taagepera 1922–1982 (260 pp.);
- Karl Laane. Tallinn's cemeteries (408 pp.);
- Laine Linnus. The Rõa village in Raplamaa (78 pp.);
- Ants Loos, Hans Salm. The house ringing of music. Valga Music School 1922–2002 (149 pp.);
- We shall overcome /about the Vinni parish/. Editor Endel Molotok (232 pp.);
- Robert Nerman. Kopli. Milieu, surroundings, history of culture 1918–1940. The 2nd complemented edition (503 pp.);
- Viljam Niirman. Model of signs Lecti (34 pp.);
- Pärnu Ülejõe Primary School 1850–1958 /I, II/. Compiled by Hugo-Herbert Artma (284 pp., 111 pp.);
- Arthur Ruusmaa. Story of creation of Käva mine and workers settlement (21 pp.);

- Ronald Rüütel. Atarma. My life in Siberia (295 pp.);
- Hans Salm. On weedy paths of Köstrimäe at Helme (96 pp.);
- Silvia Sarv. Pärnu. From the town of Order to the summer capital. The 2nd complemented and amended edition (160 pp.);
- Tiina Tafenau. Tuhalaane on the crossroads of time (187 pp.);
- Tillu-Reinu – Tääksi school teachers 1875–2000. Compiled by Tiia Mikson (184 pp.);
- The stories of the Tuhala witch. Compiled by Ants Talioja, illustrated by Jüri Arrak (30 pp.);
- The 34th national school students conference on regional studies. The list. Compiled by Ene Luka (24 pp.);
- 370 years of the Gustav Adolph Gymnasium. Papers of the conference, recollections of the past and the novelties in the history of the school. Compiled by Endel Laul (96 pp.).

## **ESTONIAN MOTHER TONGUE SOCIETY**

Associated with the Estonian Academy of Sciences  
4.02.1998

Founded 1920

Membership: 341 active members, 9 honorary members

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In the reporting year, (co-)convened by the Estonian Mother Tongue Society were two conferences. In co-operation with Tallinn House of Scientists, there was held a conference in Tallinn “The Estonian language of science and the EU” (8 papers); spurred by mighty concern about the situation of Estonian the participants of the conference initiated an appeal to the public and drafted propositions to the President of the Republic, Riigikogu and Government. The papers of the conference appeared as an edition of Tallinn House of Scientists (volume “The Estonian language of science and the EU”, 96 pp.). In Tartu, the XXXV J. V. Veski Day was held “The Estonian language in the information society” (4 papers).

Convened or co-convened by Estonian Mother Tongue Society were 8 language days, of which 3 in Estonia.



On agenda at Kuressaare Old Town School were Votians and Livonians, at Valga Russian Gymnasium the job related proficiency in Estonian and the new resource materials designed to learners of Estonian, at Viljandi County Gymnasium – the history of Estonian surnames. Members of the Estonian Mother Tongue Society were active in many events held for celebrating the language days.

Outside the borders of Estonia there were held 5 language days, co-convened by Ministry of Education and local Estonian societies. The Saint Petersburg, Riga, Stockholm, Lund and Tampere language days focused on the Estonian language policy, regulation of the modern literary language, English loan words and the Estonian dialectal landscape.

There were 10 meetings with papers, of which 5 in Tallinn and 5 in Tartu. There was organised, too a mini-conference of students, with speakers from University of Tartu and the Pedagogical University. The papers at the conference tackled the Estonian dialects, grammar, names and the language of communication.

Within the framework of the discussion, initiated jointly with Tallinn House of Scientists in 2001 “The Estonian language of science and the EU” there were two discussions held in 2002: The Estonian language as a language of law and economics today and in the future, and The Estonian language as a language of science in agricultural sciences.

Estonian Mother Tongue Society, the Information Secretariat of the EU, Ministry of Education, Estonian Translation and Legislative Support Centre and the daily Postimees organised a competition of terms, with the aim to breach the gaps in the Estonian language EU related vocabulary. The participation numbered 600, the propositions amounting to *ca* 5300 (incl. those repeating). The panel recommended the following new Estonian words for use: sihtkomisjon (*ad hoc* commission), üleilmastumine (globalising), lõimimine, lõiming (European integration), kriisiohjamine (crisis management), täislepimatus (zero tolerance), lähimus (põhimõte) (subsidiarity), tõukefondid (structural funds), rakkerühm, rakkejõud (task force), mestimine (twinning).

In 2002 the language stock was replenished by 1702 cards – Ed. Leppik’s place name collection from the Rakvere parish.

The Language Commission passed a resolution to give a Latin form to written Turkmen and Uzbek names, instead of Estonian transcription, in favour of official norm in those countries; it approved the list of exemplary place names and reached an agreement on those names which may be used in their traditional form (to be published in the magazine Keel ja Kirjandus and on website of the Institute of the Estonian Language); it decided to use, as the official name of the former Black Africa the Sub-Saharan Africa.

The Society carried on co-ordination and organisation of scientific projects funded within the framework of the European Linguistic Year:

- Analysis of the areas of use and situation in the Estonian literary language (law, administration, science, higher education, journalism, entertainment etc.) (project leader Helle Metslang).
- Compilation of the book “The Estonian Language” (project leader Mati Erelt).

Involved in fulfilment of those projects have been the scientific workers of University of Tartu, Tallinn Pedagogical University and the Institute of the Estonian Language.

The analysis of the situation of the Estonian language. The results of the analysis will be added up, by areas and they will be published in a special issue of the Estonian Mother Tongue Society Year Book (project leader Mati Erelt). The project is funded by Ministry of Education.

- Compilation of the book “Cultural mirror in dialects” (responsible Mari Must, task force Eevi Ross, Helju Kaal). The work has been supported by Ministry of Culture.

Released in print in 2002 were:

- The Estonian Mother Tongue Society Year Book no. 47 (2001) (216 pp.);
- The Crimean Collection (papers of the conference “140 years of Estonian presence in Crimea”). Compiled and edited by Jüri Viikberg (240 pp.);
- The linguistic journal Oma Keel no. 1 (80 pp.), no. 2 (115 pp.);
- Aime Vettik, Rein Kull. Retrospection to history of formation of legal vocabulary (1920-1940) (60 pp.).

The Society organised, to its members and the student a pleasure trip “Manors of Järvamaa”. 51 people participated.

In 2002 the Library of the Estonian Mother Tongue Society was replenished by ca one hundred acquisitions. By the end of the year the stock of Library totalled 5 389 inventoried books.

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

Associated with the Estonian Academy of Sciences

4.02.1998

Founded 1967

Membership: 108 active members, 7 honorary members (of whom 4 outside Estonia), 6 corporate members

Address: Estonia pst 7, 10143 Tallinn, ESTONIA

Chairman: Karl Siilivask, Tel: +372 645 4594

Scientific Secretary Karl Martinson, Tel: +372 645 4415

Scientific Secretary in Tartu: Sirje Tamul, Tel: +372 7 375 657

Estonian Union of the History and Philosophy of Science is a private law science and development institution. Incorporated into the Baltic Association of the History and Philosophy of Science, the Union is also member of the International Union of the History and Philosophy of Science.

Also incorporated into the Union is the Baltic Centre of Science Philosophy and Science Methodology (Chairman Professor Rein Vihalemm), involving over 20 Estonian, Latvian and Lithuanian historians of science.

There were held four joint meetings of Board of the Union and editorial board of "Biographical Lexicon of Estonian Scientists".

The Union continued work on compilation of the manuscript of the 2<sup>nd</sup> volume of Biographical Lexicon. In the process of compiling the Lexicon, the co-operation with expatriate Estonian scientists became closer, in particular with the Estonian Scientific Society in Sweden. The latter decided to discontinue the compilation of an additional edition to the reference book "Estonian scholars and scientists abroad. Biographical directory" published in 1984 in Sweden, handing the manuscript of the said reference book to the Union for use in the Lexicon.

The Union compiled the serial collection "Glimpses on history of science in Estonia" 13th volume, dedicated to the 150th anniversary of the alumnus of the University of Tartu, the Nobel prize winner Wilhelm Friedrich Ostwald.

In the reporting period, several history-of-science focused books with contributions by members of the Union were published. Most important among them were:

- Historical Journal no. 1/2: 200 years from reopening of the University in Tartu. Compiled by L. Leppik (157 pp.);
- Maie Toomsalu. Professors of the Old Dissection Room of the University of Tartu (81 biographies) (324 pp.);

- M. Hallik, O.M. Klaassen. The imperial University of Tartu (1802-1918) and the Orient in the Context of the General Background of Estonian-Oriental Cultural Relations. (426 pp.)
- University of Tartu 1632-1802-2002. Compiled by T. Ilomets, I. Ilomets (292 pp.)
- Forest Research: Past and Present. Compiled by T. Meikar, J. Tamm (215 pp.);
- Estonian officers and military figures II. Compiled by M. Õun (128 pp.);
- Hain Tankler. Medicine in the Universities of Tartu and Berlin: historical links (24 pp.);
- Tallinn Pedagogical University 1919-1999. Compiled and edited by L.Andre-sen (270 pp.);
- Aleksander Elango 100. Compiled by V. Eksta (92 pp.).

## **ESTONIAN SCIENTIFIC SOCIETY IN SWEDEN**

Associated with Estonian Academy of Sciences  
19.03.1999

Founded 1945

Membership: 137 active members and 7 honorary members

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South-Swedish Division: c/o I. Martinson, Blåmesvägen 40,  
24735 Södra Sandby, SWEDEN

Website: <http://www.estemb.se>

Chairman: Ivar Paljak, Tel:/Fax +46 8 646 5624

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Secretary: Diana Krull, Tel: +46 8 162 852

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Chairman of South-Swedish Division: Indrek Martinson, Tel: +46 465 7308

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Estonian Scientific Society in Sweden brings together the Estonian scientists residing in Sweden and constitutes a forum, where they can present their works.

The Society organised in Stockholm its annual meeting, six meetings with papers, one excursion, one symposium and the ceremonial public meeting celebrating the anniversary of University of Tartu. At the annual meeting, the paper "On the water power" was delivered by MSc Enn Anderson. Meetings with papers focused on: recording the history of Estonians in exile; the Government headed by Otto Tief in Estonia in 1944; the issue "Freedom fight or armed mutiny in 1992-1993 in Pullapää"; increasing recurrence of degeneration of yellow spot (macula lutea) of the eye; transplantation of stem cells; and the vascular diseases and their treatment.

Symposia on the Estonian language were held both in Stockholm and in the South-Swedish Division, Lund organised by the Estonian Mother Tongue Society, Ministry of Education of Estonia and Estonian Scientific Society in Sweden focused on research of Estonian and the Estonian language policy, slang and humour, the latest English loan words in Estonian, the Estonian dialectal landscape and the vernacular of residents of Võru, as well as the Estonian-Swedish contacts.

At the ceremonial public meeting dedicated to the 83rd anniversary of University of Tartu, Toomas Kiho, editor-in-chief of the magazine *Akadeemia* delivered a paper “On the development of language and mind in Estonia”. Performing was the pianist Kābi Laretei.

The Society engaged in co-operation with the Estonian Union of the History and Philosophy of Science for publication of the “Biographical Lexicon of Estonian Scientists”. The Society is now collecting data for Estonian scientists living in Sweden.

The annual meeting of the South-Swedish Division, Lund heard the papers by Master in Philology Ivo Iliste and Candidate in Philology Birgitta Görasson on Estonian literature in the Swedish language.

At the scientific gathering marking the 83rd anniversary of University of Tartu Paavo Roos spoke about rock tombs in Anatolia. Adding festivity to the said event was the concert and awarding of the grants of the Kant & Helk Foundation.

## **ESTONIAN LITERARY SOCIETY**

Associated with Estonian Academy of Sciences

23.01.2001

Founded 1907

Membership: 255 members (incl. 12 permanent, 7 honorary members  
and 22 trustees)

Domicile: Vanemuise 19, 51014 Tartu, ESTONIA

E-mail: [eks@kirjandus.ee](mailto:eks@kirjandus.ee)

Chairman: Peeter Tulviste, Tel: +372 50 3 3659

Scientific Secretary: Krista Ojasaar, Tel: +372 7 427 079

The statutory goal of the Estonian Literary Society has been “the promotion of literature, science and arts, comprehensive study of the land and people of Estonia” and making the results of its work available to the public.

The Society pursues its activities mainly in the fields of literature and literary criticism, and also in the neighbouring areas (aesthetics, bibliology, teaching of literature etc.). The Society considers it important in its activities to unite the scientific, pedagogic and popularising approaches. The activities of the Society are aimed at all people concerned with the above mentioned areas, including the school students, university students and schoolteachers everywhere in Estonia.

At the traditional annual review meeting of the Society, speaking of the Estonian prose of the past year was Janek Kraavi (“The North versus the South, alias the defeat of the K-Commandos”), of poetry – Kalju Kruusa (“An excursus in the Estonian poetry 2001, viewed as trees and forest”), of drama – Andres Keil (“Are there the neo-narrative neo-realistic signs in the air?”), of literary criticism – Mele Pesti (“Writing of literature – with quill or by keyboard?”).

At the national Book Weeks 23 April – 7 May held in cooperation by the Society, the Estonian Publishers Union and the Estonian Book Traders Union, writers presented their new works, a book sale was organized; in Valga a book fair was set up.

The literature day in Tartu “Creation and violence” laid claims to consider the violence in creation and violence against the creation and creator. To start with, Berk Vaher presented the first issue of the Society’s quarterly “Vihik”, the publication of which was supported by Estonian Culture Capital. The papers delivered were by: Kalle Kurg “Power and Control”, Kersti Unt “Strolling in the undercurrents of the literature”, Jan Kaus “14NÜ: Torture rack for the story telling”, Ants Juske “Censorship against violence in art”, Kadri Kõusaar “Modern French roughneck literature”, Jaanus Adamson “Sadender! Sadender?” and Priit Kruus “From decorations until the end: On violence in the Estonian male prose”.

The XI Nüpli Spring School, organised by the Society and the Estonian Literary Museum, titled “Theory: *an sich* or *für uns*?” focused on theory. Speaking were Ene-Reet Soovik (“*What’s a nice girl like me doing in a place like this?*”), Rob Hughes (“The Use of Theory: A Perspective from within the American Academy”), Märt Väljataga (“Memories of Theory”), Arne Merilai (“Map of literary theories. Continuous field theory”), Riste Keskpai (“Baudrillard’s enchanting simulacrum”), Epp Annus (“Intricate theory: Homi Bhabha and the jittery reader”), Tiina Kirss (“Gaytari Spivak between feminism and post-colonialism”) and Liina Lukas (“Observations of Estonian literary criticism through Bourdieu’s eye”).

Berk Vaher presented the 2nd issue of the quarterly “Vihik”.

The series of theatrical seminars of the Society was initiated. There were held 6 seminars with the following papers: Jaan Undusk’s play “Goodbye, Vienna” –

Madis Kolk and Tõnu Lensment), Urmas Lennuk's play "The trains no longer ..." – Andres Keil and Urmas Lennuk, Eva Koff's play "Our Father" – Ott Karulin and Eva Koff, competition of children's and youth plays of the Estonian Shows Agency – Monika Läänesaar, the Tuglas' related play "Scales of joy" – Tiit Palu and Valle-Sten Maiste, and Jaak Tomberg's and Andreas W's play "Aurora temporalis" – Andreas W, Jaak Tomberg and Berk Vaher.

There was a festive gathering by the Estonian Literary Society and the Tartu Branch of the Estonian Writers' Union to celebrate their 95th and 80th anniversaries, respectively.

On 11 December there was the opening lecture of the series of seminars "Childhood and literature", with Aare Pilv speaking of books, leaving an indelible imprint in his memory as a boy.

The Society published the following editions:

- The Estonian Literary Society Year Book XXVIII (1998–2001) (117 pp.);
- Quarterly "Vihik" no. 1 (68 pp.), no. 2 (82 pp.), no. 3 (82 pp.).

## **ESTONIAN LEARNED SOCIETY**

Associated with Estonian Academy of Sciences  
23.01.2001



Founded 1838

Membership: 90 active members, 11 honorary members

Domicile: Lossi 3, Tartu, ESTONIA

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The Estonian Learned Society is a society for research in the humanities operating at the University of Tartu bringing together representatives of scientific subjects related to Estonia, with the aim to present the newest results of research and also to provide corresponding opportunities for the future scientists – MA and PhD students.

In 2002, there were 3 conferences and 15 meetings with papers, attracting 533 participants and hearing the total of 46 presentations. By topics, the papers were delivered in the following areas: history (incl. history of law) – 32, history of journalism – 4, genetics/ethics – 1, literary criticism – 2, study of Old Testament – 1, geography – 2, ethnology and folklore – 2. The presentations at one meeting were attended on the average by a total of 31 people (last

year 24), suggesting significant growth of interest of the public to the activities of the Society.

The conference held in the Historical Museum of the University of Tartu “200 years from the birth of Professor Friedrich Georg von Bunge” was dedicated to life and activities of Bunge working in the University of Tartu in 1831-1842.

The conference “The more learning there is, the better educated the people are”, held in the Estonian Literary Museum, celebrated the 145<sup>th</sup> anniversary of the newspaper *Perno Postimees*.

Pärnu Museum, Pärnu College of University of Tartu and Estonian Learned Society organised, as common project in the framework of *Academia Pernaviensis*, the commemoration conference of Carl Gustav Jochmann, a lawyer and essayist born in Pärnu.

Upon commission by Ministry of Education, a three-volume compendium “History of Estonia 1700-2000” is being compiled. The manuscript of its fourth volume “History of Estonia from the Great Northern War until abolition of serfdom” was handed to the publishers in April and it will appear in print in 2003. Jointly with Library of the University of Tartu, there is being compiled bibliography of history of Estonia 1918–1940.

2002 evidenced advancing co-operation of the Society with local museums – jointly with the Viljandi Museum, archaeological excavations were carried out in the Viljandi Castle Ruins and Castle Park; together with the Pärnu Museum the commemoration conferences of C. G. Jochmann and Leo Leesment were organised.

After the passage of several years the Society has managed, mainly thanks to the governmental funding through the Estonian Academy of Sciences, to prepare for publication its year books for 1994-1999 and 2000-2001 (the gap since 1993 had happened because the Society’s assets were frozen in the ERA Bank gone bankrupt).

The Society was more active in the past year than ever, starting from the restoration of its activities in 1988. Its work is drawing on well established traditions, which have helped to preserve continuity and stability.



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## CODE OF ETHICS OF ESTONIAN SCIENTISTS

### FOREWORD

The objective of the Code of Ethics of Estonian Scientists is to formulate and make scientists aware of the general ethical principles, which every scientist must adhere to in his/her activities. This Code, presenting essential guidelines, does not bear upon specific ethical issues that exist in some specialised fields of science. The Code is expected to regulate the relations amongst scientists and with the society. It will set benchmarks to help scientists to pass moral judgement over their own activity and that of their fellow scientists. The principles fixed here should lie in the foundation of the ethical training of young scientists. The task of the Code of Ethics is to highlight the moral dimensions of science and the social responsibility of scientists. The problem of individual responsibility of a scientist has gained in significance lately, in view of the occasional inability of societal institutions to keep pace with the dramatic progress of science and technology.

Having adopted this Code, Estonia follows the pattern of many scientific institutions in Europe and the U.S.A. Codes of ethics in the whole world base on the understanding that good practice nurtures trust within the scientific community and between science and society, both of which are necessary for scientific advance. Scientists should be able to have confidence in the outcome of research of other scientists. Society should be able to have confidence in the integrity of scientists and truthfulness and veracity of research results. Unfortunately, that trust has recently been eroded, because many countries have evidenced serious ethical transgressions in scientific research, putting at peril the authority of science and the trust the society places in scientists. In order to prevent such a development in Estonia and to reinforce public trust in science, all scientists should be aware of the importance of highly ethical conduct and their personal responsibility for forming the societal stance on science.

### 1. GENERAL PRINCIPLES

- 1.1. The ethics in science is based on fundamental values, norms and principles, determining the moral conduct of scientists, their responsibilities to the society and the environment.
- 1.2. In his/her research work a scientist shall be guided by accepted standards of best practice, the general concepts of which this code defines.
- 1.3. Scientists will hold it to their heart that the society should attach value to science.

- 1.4. Scientists will undertake to further implementation of research knowledge for the welfare of humankind, for preservation and consolidation of the ecosystem and for economical and sustainable use of the natural resources.
- 1.5. Scientists will undertake to uphold the freedom of scientific thought, to condemn the censorship of scientific creativity and attempts to monopolise research directions. Scientists will permit the restrictions to be imposed on dissemination in some specific case of scientific advances.
- 1.6. By retaining critical mind and sound scepticism scientists will act to promote knowledge-based decisions and to stand up against the use of unproven results and unscientific claims, when the decisions crucial to society are being taken.
- 1.7. All those in science will undertake to train and develop young scientists. These activities should not be limited to providing the technical skills necessary to enable them to conduct their research. Training must also inculcate the core ethical standards and norms of science, hence the mentor must pose as a moral epitome to the young scientists, as regards the science and community.
- 1.8. Scientists will be morally liable for any such activity which may have a material impact on the development of the whole humanity, environment, country or a social institution.

## 2. SCIENTIFIC RESEARCH

- 2.1. Scientists will adhere to the highest professional standards while mapping and practising research.
- 2.2. In every single phase of scientific research scientists must preserve integrity.  
Scientists will avoid any scientific misconduct or fraud, such as fabricating or falsifying data or records, piracy or plagiarism, sabotaging the work, records or protocols of other scientists, breach of confidence as a reviewer or supervisor.
- 2.3. Scientists will remember that the scientific research is an ongoing process. They must take critically the findings and be willing to reassess their earlier achievements, in the face of new facts come to light.
- 2.4. Scientists have a duty to ensure that intellectual property arising from their work is properly safeguarded.
- 2.5. Scientists will undertake, whenever possible, to ensure that the outcome of their study is used to the best interests of the society and environment.
- 2.6. Scientific research involving interactions with people must not trespass on human dignity and basic human rights. In case of such research, the individuals will be informed about all aspects of the proposed research.

Their voluntary agreement to participate will be secured – the principle of ‘informed consent’. Personal information obtained will be handled and kept under conditions of the highest possible confidentiality, and information obtained will be used exclusively for the purposes of the research.

### 3. SELF-REGULATION IN SCIENTIFIC COMMUNITY

- 3.1. Scientists will make every effort to build a creative atmosphere with the team, displaying tolerance towards colleagues, wholeheartedly acclaiming their success.
- 3.2. A scientist will value highly the competence and professionalism in conducting scientific research. He/she will be frank and fair, when there is a need to give an opinion on the lack of ability or proficiency of a colleague, in particular if that impedes or damages the advancement of science and society. However, the competency of a fellow scientist may be queried only provided there is a well supported proof.
- 3.3. In critique, discussion and debate scientists will proceed from the equity principle and the confidence in facts and research outcome. Scientists will not interpret the facts arbitrarily or in pursuance of their personal interests.
- 3.4. Scientist will not require of his/her collaborators that they shoulder his/her own assignments.
- 3.5. When in a superior position, scientists will apply democratic style of leadership.
- 3.6. When publishing research outcome of a team project all participants involved in work will be referred to as authors; if needs be, their individual contribution will be indicated. The practice of honorary, or “ghost” authorships is inconsistent with these principles and with good scientific practice.

### 4. SCIENTIST AS A MENTOR AND AS A STUDENT

- 4.1. Scientists will hold in respect both their mentors and students.
- 4.2. Scientists will encourage independent work of students, their unfettered and critical thinking. Scientists will respect free expression of their opinions.
- 4.3. Scientists will not hinder the communication of their students with other scientists and scientific institutions.
- 4.4. Scientists will view their students objectively, withholding from deprecating and criticizing them.

## 5. SCIENTIST AS AN EXPERT

- 5.1. Scientists will act as experts only within their sphere of competence, referring to their knowledge and experience.
- 5.2. Scientists will agree to act as experts only provided they can remain impartial.
- 5.3. Scientists will perform expert examinations honestly, impartially and with responsibility.
- 5.4. Scientists will adhere to the principle of equality, when performing expert examinations. Any discrimination on grounds of sex, race, political opinions or cultural backgrounds will be inconsistent with these principles.
- 5.5. While performing expert examinations, scientists will abide by the confidentiality principle.
- 5.6. In the course of expert examinations scientists will retain their independence and defy coercion, when drawing and presenting conclusions.
- 5.7. When electing to fill research vacancies or other academic positions, scientists as experts will objectively appraise the candidates. They shall not give preference their students, representatives of the same school or other attendants and associates of theirs.
- 5.8. When acting as opponents of a thesis scientists will be impartial. To preclude any bias, the opponent must not have joint publications with the author of thesis.

## 6. SCIENTIST AND SOCIETY

- 6.1. Scientists will commit themselves to pursuit of new knowledge and its application for the welfare of society and environment. The information delivered to community must be reliable, scientists will discourage presentation of unverified data as hard facts.
- 6.2. Scientists will promote the spread of scientific knowledge and repulse dissemination of pseudo-scientific theories, misconceptions and misrepresentations.
- 6.3. Scientists will consider it their obligation to publish research results also in the popular science form.

Approved by the General Assembly of the Estonian Academy of Sciences.

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