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The Year Book was compiled by:

Jüri Engelbrecht (editor-in-chief)

Mihkel Veiderma, Galina Varlamova, Ants Pihlak (translator)

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FOREWORD

This Year Book holds in perspective the year 2003, which like all other years in their interminable succession was interspersed with events of different hue and colour. The highlight of the Estonian scientific life, in that year was the selection and formation of centres of excellence in science, for the years 2003-2006. That means attachment of value to solid research results, in all aspects conforming to the ideas of the European Research Area. As it is, the European Union has consistently drawn attention to high-level scientific research, in particular to fundamental research. There are ever more instruments to give impetus to scientific activities. A question suggests itself: are we ready to join in?

The lean purse of Estonia notwithstanding, things are developing in this country. Creating exacerbated dissonance to the positive trends in the past year was certain rashness in decisions relating to the funding of scientific research and perfunctory evaluation of the funding system. However, we will certainly overcome those problems, by making due recourse to our scientific potential, not taking advantage of opportunities and dismissing mediocrity.

The Academy has never ceased to emphasise the value of knowledge. Numerous meetings and seminars, activity of Members of Academy and opinions of the Academy or declarations have been threaded with that dominant idea. The Declaration of the Academy of 17 December 2003 is a condensed statement of those thoughts. The Academy has become stronger, replenished by three dedicated and hard-working new Members of Academy. The representation of Members of Academy in national decision making forums increased, which will consolidate our determination to achieve the goals laid down in the document "Knowledge based Estonia". Formation of value estimates and seeking wider acknowledgement and recognition for them has been, as ever the mission of the Academy. At the same time, the Academy must always stay in the centrepiece of scholarship. Those covers here contain the account of our attainments in the past year.

Hence, the step into 2003 has been taken. The next step will carry us into the European space. We had trodden its paths for centuries, however being for a period forcibly weaned from its ideas and ways we have now involuntarily landed into a novel situation. The balance in our activities both in the name of development of Estonia and European Research Area (i.e. development of global knowledge) calls for clarity of goals. Those are all nicely formulated in the Statute of the Academy, but it would be rewarding to go those goals over now and again, and to widen the steps, if needed. There is no concerted effort too ambitious to achieve that end!

Jüri Engelbrecht

MEMBERSHIP OF THE ACADEMY

At the beginning 2003, the Estonian Academy of Sciences numbered 57 Members of Academy and 17 Foreign Members of Academy.

On 17 December General Assembly of the Academy elected to the earlier announced vacancies three new Members of Academy:

in materials technology (from among 3 registered candidates) – Enn Mellikov,

in medical science (from among 2 registered candidates) - Raivo Uiibo,

in the humanities (from among 10 registered candidates) – Jaan Ross.

As of 31 December 2003, the Estonian Academy of Sciences numbered 60 Members of Academy and 17 Foreign Members of Academy, who are distributed between four divisions as follows:

DIVISION OF ASTRONOMY AND PHYSICS

(15 Members of Academy, 4 Foreign Members of Academy)

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 of Academy: Richard R. Ernst, Charles Gabriel Kurland, Jaan Laane, Indrek Martinson.

DIVISION OF INFORMATICS AND ENGINEERING

(13 Members of Academy, 4 Foreign Members of Academy)

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

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

DIVISION OF BIOLOGY, GEOLOGY AND CHEMISTRY

(19 Members of Academy, 5 Foreign Members of Academy)

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

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

Enn Mellikov



Raivo Uibo



Jaan Ross



DIVISION OF THE HUMANITIES AND SOCIAL SCIENCES
(13 Members of Academy, 4 Foreign Members of Academy)

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

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

In 2003, 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:

Riigikogu (Parliament) – Olav Aarna (Chairman of Culture Commission of Riigikogu), Ene Ergma (Speaker of Riigikogu), Peeter Tulviste;

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 – until October *incl*: Jüri Engelbrecht (Chairman of the Council), Leo Mõtus and Loit Reintam; starting from November: Enn Mellikov;

Council of Estonian Science Foundation – until July *incl*: Ene Ergma (Chairman of the Council), Ilmar Koppel, Rein Küttner and Mihkel Veiderma; starting from July: 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.

Members of Academy Endel Lippmaa, Rein Küttner and Jaan Ross are members of Higher Education Evaluation Council.

Member of Academy Ülo Jaaksoo represents Estonia in NATO Research Committee and in Council of NATO Research and Technology Organisation.

Member of Academy Richard Villems is Counsellor of the Commissionaire Ph. Busquin, as regards the EU R&D Framework Programme.

Member of Academy Mihkel Veiderma is member of UNESCO Estonian National Committee and member of Estonian National Committee of World Energy Council (WEC).

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

Members of Academy Olav Aarna, Jaak Järv, Rein Küttner and Endel Lipmaa sit on the Ministry of Education and Research 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 Ülo Jaaksoo is member of Informatics Council attached to Ministry of Economic Affairs and Communications.

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

Member of Academy Jaak Järv is member of Estonian-Russian inter-governmental co-operation commission.

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 Genome Project.

Member of Academy Haldur Õim is member of the Estonian Language Council.

Members of Academy Jaak Järv and Rein Küttner represent Estonia in committees of the sixth 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 Analytic Spectrometry.

Members of Academy Enn Mellikov, Raivo Uibo and Richard Villems are the heads of 5th EU Framework Programme Centres of Excellence in Research.

In the reporting year, many Members of Academy were awarded marks of honour, both Academic and national (cf. pp. 61).

Member of Academy Erast Parmasto became honorary citizen of the town of Tartu.

Member of Academy Jüri Engelbrecht was awarded the knighthood Order of Republic of France *Palmes Academiques*.

Member of Academy Mart Saarna was awarded the science prize of Society of Medical Scientists of Finland *Finska Läkaresällskapet* and he was elected member of Academies of Technology of Finland.

Member of Academy Olav Aarna was elected foreign member of Swedish Engineering Academy.

Member of Academy Jaak Aaviksoo was elected honorary doctor of Turku University.

Member of Academy Peeter Saari was elected member of Association of American Scientists.

Member of Academy Anto Raukas was nominated honorary member of the World Innovation Foundation.

Member of Academy Loit Reintam was granted the jubilee medal of *Accademia dei Georgofili*.

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

3 January – the special session of the Board of the Academy discussed the procedure of election of Research Professors and the results. It named Member of Academy Ilmar Koppel as the representative of Estonia in the standing committee of physical and engineering sciences of European Science Foundation. To fill the vacancies in membership of the Academy, the Board decided to open three seats of Member of Academy to fill, in 2003.

9 January – the Academy was visited by Ambassador of Ukraine Mykola Makarevych and President of Academy of Agricultural Sciences of Ukraine M.V.Zubetš. Both guests met with President Jüri Engelbrecht and Secretary General Mihkel Veiderma.

17 January – Division of Astronomy and Physics held in the Academy Hall a meeting with papers about new trends in particles physics and vacuum physics (cf. p. 31).

23 January – the general meeting of Division of Biology, Geology and Chemistry recommended announcing a vacancy of Member of Academy in medicine, it discussed the issue of the named prizes of the Academy and other issues (cf. p. 35).

28 January – the session of the Board of the Academy approved the calendar plan of the events of the Academy for 2003. The session took cognisance of information about the activity of Academic Foundation for International Exchange in 2003. The session approved the budget estimate of the Academy for 2003. Basing on proposals of Divisions, the session discussed the scientific areas, to announce vacancies of Member of Academy. The session prolonged the powers of Professor of University of Tartu Olev Kull as the representative of Estonia in standing committee of bio- and environmental sciences of European Science Foundation.

28 January – there was signed the association agreement between the Estonian Academy of Sciences and Institute of International and Social Studies at Tallinn Pedagogical University.

30 January – President Jüri Engelbrecht signed a renewed co-operation agreement between Estonian Academy of Sciences and Austrian Academy of Sciences.

31 January – the Academy was visited by Director of College of Advanced Studies of Helsinki University Raimo Väyrynen and Ambassador of Finland Jaakko Blomberg. R. Väyrynen presented the above institution set up to

further the work of post-doctors, and its plan of development. Review of the Academy and the Estonian-Finnish co-operation was provided by President Jüri Engelbrecht and Foreign Secretary Member of Academy Dimitri Kaljo.

3 February – President of the Estonian Academy of Sciences Jüri Engelbrecht and President of the Academy of Finland Reijo Vihko signed the new co-operation agreement between the Academies for 2003–2004. The conference preceding the signing was attended by members of leadership of the Academy and Estonian scientists participating in joint projects: Leeni Hansson (Institute of International and Social Studies at Tallinn Pedagogical University), Tiina and Peeter Nõges (Institute of Zoology and Botany of the Estonian Agricultural University), Sirje Olesk (Estonian Literary Museum).

12 February – President Jüri Engelbrecht met with members of delegation of Ministry of Foreign Affairs of Holland Hans Peter van der Woude and Cas van der Horst, and Ambassador of Holland Joanna M. van Vliet, who were on a visit to the Academy. J. Engelbrecht presented the Academy to the guests and provided an overview of Estonian R&D strategy “Knowledge based Estonia”.

13 February – the Academy held a Science Day in Võrumaa (cf. p. 54).

20 February – the Academy was visited by project leader Eberhard Schierschke of Hertie-Stiftung, based on private capital, who also met with Foreign Secretary of the Academy Dimitri Kaljo. The guest presented the grant programmes launched by the said Foundation, which are directed at the continuing education of the EU candidate countries and at furthering research in co-operation with the German counterparts.

21 February – President Jüri Engelbrecht participated at inauguration ceremony of Rector of Estonian Agricultural University Alar Karis.

14 March – Foreign Secretary of the Academy Dimitri Kaljo participated at annual conference of representatives of Nordic member organisations in European Science Foundation in Helsinki. The Estonian member organisations were proposed to hold a similar conference in Tallinn in March 2004.

18 March – the Academy held the meeting “Activity of International Scientific Unions and their Estonian Contact Organisations” (cf. p. 50).

26–28 March – President Jüri Engelbrecht participated at international conference held by World Bank in Helsinki “Knowledge Economy Forum II”.

28 March – the Academy held the ninth seminar in the series of seminars “From Science to Society” – “Large lakes of Estonia” (cf. p. 52).

28 March – Secretary General Mihkel Veiderma spoke at annual meeting of the Society of Estonian Regional Studies, delivering the paper “Scientific societies and Estonian Academy of Sciences”.

31 March – there was held in the Academy, upon initiative of Estonian marine scientists and limnologists, co-organised by Foundation Archimedes and the Academy, a seminar on the topic ERA-NET and national topical research programmes. Seminar was opened by President Jüri Engelbrecht; the mechanism ERA-NET created for support and co-ordination of national and regional research and development programmes within European Research Area (ERA) was presented by Marco Weydert, the Finnish experience was elaborated on by Mai Tolonen (TEKES) and Kaisa Kononen (The Academy of Finland), the need for national programme in marine research and limnology in Estonia was focused on by Director of Estonian Marine Institute at Tallinn Technical University Jüri Elken.

1 April – the session of the Board of Academy heard out the overviews of the work of the Divisions, approved the financial statements of the Academy for 2002 and the consolidated budget for 2003. It approved the regulations of grants for 2003 of the Academy and set up the respective commission (Chairman Member of Academy Ülo Lumiste). The Board approved the statute of the named prize of the Academy. The Board formed the composition of the Academy delegation to participate at joint conference of the Academies of the Baltic States and at the 9th Conference of the Baltic intellectual co-operation. Named as the representative of Estonia in the standing committee of medical science of European Science Foundation was Eero Vasar, Professor of University of Tartu. Approved was the composition of Estonian National Committee in UNESCO International Hydrology Programme (Chairman – Dean of Marine Science Department of Marine Academy Urmas Lips). It was decided to open the vacancies of membership in the Academy in the following selected areas: materials technology, medicine, and the humanities. Medal of the Estonian Academy of Sciences was awarded to Director of the Academy Publishers Ülo Niine.

2 April – the Academy was visited by Deputy Director of the Council of American Overseas Research Centres Heidi Massaro. The guest presented to those participating (representatives of the Academy, Institute of the Estonian Language, and Under and Tuglas Literature Centre) the plan to extend the Andrew W. Mellon East-Central European Fellowship Program to the Baltic States in 2004-005.

2 April – there was held the extended general meeting of Division of Biology, Geology and Chemistry, to present the centres of excellence operating in research areas of the Division (cf. p. 35).

3-4 April – President Jüri Engelbrecht represented the Estonian member organisations at regular session of the steering committee of European Science Foundation (ESF) in Barcelona, organised by Spanish Council for Scientific Research (CSIC). Under discussion was the establishment of European Research Council (ERC) meant for supporting trans-European fundamental research; putting the European research and engineering co-operation network (COST) under administration of ESF; results of evaluation of two standing committees of ESF (the humanities and social sciences) and organisational issues.

4 April – Assistant Secretary General for International Relations Anne Pöitel participated in Tartu at a conference considering the reorganisation European research and engineering co-operation network COST, organised by Foundation Archimedes. The conference was called to formulate the Estonian positions in anticipation of the forthcoming conference of ministers of the states belonging to COST.

10-17 April – President Jüri Engelbrecht participated, as expert in Bulgaria, at evaluation of science policy of Bulgaria, organised by OECD. He held negotiations at Bulgarian Academy of Sciences about scientific co-operation carried out under an agreement between the Academies and signed a new activities programme for the years 2004-2006.

23 April – at the annual General Assembly of the Academy, Diploma of Foreign Member of Academy was handed over to Gérard Maugin, who delivered the paper “From Mathematical Physics to Engineering”. President Jüri Engelbrecht presented an overview of the activity of the Academy. The Assembly approved the activities report of the Academy for 2002 and the 2003 budget.

24-25 April – the standing committee of social sciences of the European Science Foundation held its session in Tallinn. The members of Committee (20 scientists from 17 states) were welcomed by Vice President of the Academy Peeter Tulviste. Under discussion was the evaluation of structures of the ESF by the European Federation of National Academies of Sciences and Humanities (ALLEA), the development of social sciences in compliance with the 6th framework programme in European Research Area and the new programmes and other initiatives contemplated by European Science Foundation.

24-30 April – Secretary General Mihkel Veiderma visited, in Federal Republic of Germany the Berlin-Brandenburg Academy of Sciences and participated at international energy forum in Leipzig.

28 April – the Academy was visited by Ambassador of Czech Republic Vladislav Labudek, who also met with President Jüri Engelbrecht.

29 April – there was held in the Academy a festive meeting “St. Petersburg and Estonian literati”, relating to 300th anniversary of St. Petersburg (cf. p. 51).

6 May – there was held a joint general meeting of leadership of the Division of Informatics and Engineering and Tallinn Technical University “Doctoral education in informatics and engineering” (cf. p. 32).

13 May – President Jüri Engelbrecht participated in Brussels at discussion of R&D programme “Complexity and Complex Systems”.

13-15 May – the Academy hosted the 7th international scientific conference considering the problems of physiology of fish, toxicology and water quality, moderated by Montana University and Võrtsjärve Limnological Station of Institute of Zoology and Botany at Estonian Agricultural University. In the name of the Academy, the participants were welcomed by Vice-President Peeter Tulviste.

13-17 May – 100th anniversary of Member of Academy Karl Orviku was commemorated by an international conference “Geological monuments and human impact”, greeted in the name of the Academy by Secretary General Mihkel Veiderma.

16 May – a topical meeting was held, jointly with Estonian Science Foundation “Participation of Estonia in European Science Foundation” (cf. p. 51).

20 May – the session of the Board of the Academy decided to organise, on 11 June an energy related conference. The Board assigned grants of the Estonian Academy of Sciences for completing scientific monographs and popular science books (cf. p. 56). The Board announced the students research prizes for 2003 and established a respective competition commission (Chairman Member of Academy Georg Liidja). The Board called a competition for Bernhard Schmidt prize in 2003 and established a respective commission (Chairman Member of Academy Hillar Aben). The Board accepted the proposal of Ministry of Economic Affairs and Communications to set up the National Committee of World Energy Council (WEC) and authorised Member of Academy Mihkel Veiderma to represent the Academy at the founding meeting of the Estonian National Committee of WEC.

21 May – there was held the joint conference of scientific societies associated with Estonian Academy of Sciences “Role of scientific societies in formation and preservation of Estonian ethnic identity” (cf. p. 49).

22-23 May – the Academy hosted the conference and seminar “Women in Science” of expert group ENWISE co-ordinated by European Commission, attended by women from scientific and business circles and Riigikogu. The expert group is headed by Vice-President Ene Ergma.

26 May - 1 June – President Jüri Engelbrecht sojourned in Turin Technical University doing research, within the framework of programme NATEMIS of European Science Foundation.

28 May – Member of Academy Valdur Saks delivered a public academic lecture “Energy exchange and metabolism in living cells: main problems of biomedicine”.

30 May – the Academy was visited by Director General of UNESCO Koichiro Matsuura. The guest was accompanied by Head of European and North-America Section of International Relations Department of UNESCO Mercedes Ruiz Molero, Ambassador of Estonia in France Andres Talvik and other dignitaries. The guests were received by Secretary General Mihkel Veiderma and Member of Board Richard Villems. Attending at the meeting were Minister of Education and Research Toivo Maimets and Deputy Permanent Secretary for education and science of Ministry of Education and Research Kristjan Haller.

1-3 June – Head of Division of Informatics and Engineering Rein Küttner represented the Academy at the international seminar considering the options of improving the quality of doctoral studies held by Academy of Finland in Helsinki “International Forum for Promoting Excellence in European Doctoral Education”.

6.-7 June – the delegation of the Academy (President Jüri Engelbrecht, Vice-President Peeter Tulviste, and Assistant Secretary General Galina Varlamova) participated at 9th Baltic conference on intellectual co-operation and the joint conference of the Academies of Sciences of the Baltic States in Vilnius, organised by Lithuanian Academy of Sciences. Giving papers from the Estonian delegation were Jüri Engelbrecht, Jussi Jauhiainen (University of Tartu/Oulu University) and Mihhail Lotman (University of Tartu).

11 June – the Academy hosted a topical conference “Energy” (cf. p. 49).

11 June – Assistant Secretary General for International Relations Anne Pöitel participated at another conference on COST, organised by Foundation Archimedes. Under discussion was representation of Estonia in technical committees of COST, the process of transfer of Secretariat of COST under administration of European Science Foundation, the estimate of the situation at conference of ministers held in Dubrovnik.

17 June – Kunda hosted the meetings of Members of Academy and local managers of business and manufacturing (cf. p. 55).

20 June – there was presentation in the Academy of the book “National Science Prizes 2003”.

5-6 July – the Academy hosted, under moderation of President Jüri Engelbrecht, the regular meetings of steering committee and congress committee of International Union of Theoretical and Applied Mechanics (IUTAM).

15 July – the Academy was visited by Professor Hans-Robert Metelmann, Minister of Education, Science and Culture of Mecklenburg-Vorpommern, Federal Republic of Germany, who met with President Jüri Engelbrecht. Jüri Engelbrecht provided to the guest an overview of the general situation in Estonian science and activities of the Estonian Academy of Sciences against that background; there was exchange of opinions about potential directions of co-operation.

19-21 August – Secretary General Mihkel Veiderma participated, as Foreign Member of Finnish Academies of Technology, in the out-of-office session of the said Academies in Oulu and visited Helsinki Technical University.

12 September – the Academy hosted the historical conference of Dome Days. Paper about Estonian-Finnish scientific contacts was delivered by Secretary General Mihkel Veiderma.

16 September – the session of the Board of the Academy discussed topical issues of R&D activities, highlighting the accents in the nearest future. The Board decided to register as candidates for vacancies of membership of Academy 15 scientists and cultural figures and to present them to General Assembly of the Academy for election. The Board approved the reports for the 1st working year of Research Professors Agu Laisk and Asko Uri, their plans for the 2nd working year and the respective budget estimates and decided to open funding for their 2nd working year. It was decided to award Member of Academy Georg Liidja with Medal of the Academy, and to authorise President, or in his absence Vice-President, given the parties reach the consensus, to sign on behalf of the Estonian Academy of Sciences the National Agreement. The National Agreement was signed by Vice-President Peeter Tulviste.

16 September – the extended session of the Board of the Academy discussed the strategy “Sustainable Estonia 21”. Paper was delivered by Professor Mati Heidmets, Members of Academy taking the floor commented on strategy and and forwarded proposals for supplementing it.

20-22 September – Assistant Secretary General for International Relations Anne Pöitel attended the annual conference of science organisations, participating in European scientists exchange programme ESEP, in Warsaw. The conference focused on the role and perspectives of bilateral co-operation agreements and the actual co-operation carried out on their basis in the conditions of common European Research Area.

24 September – Member of Academy Enn Tõugu delivered a public academic lecture “Birth of super-brain in Internet”.

25-26 September – President Jüri Engelbrecht participated at the session of steering committee of European Science Foundation in Strasbourg.

4-7 October – Estonia hosted the five member joint delegation of Max Planck Society and Deutsche Forschungsgemeinschaft headed by Professor Klaus Hahlbrock. The goal of the visit was to familiarise themselves with the Estonian science and to establish direct contacts for developing the scientific co-operation. The visit was co-ordinated by Estonian Academy of Sciences, the discussion summarising it, was held with members of the Board of the Academy.

6 October – Division of Informatics and Engineering held a meeting, jointly with representatives of departments of Tallinn Technical University “Engineering and realisation of proposals of international evaluation of management and funding system of Estonian R&D” (cf. p. 33).

9 October – Tartu witnessed a ceremonial celebration of 150th anniversary of Estonian Naturalists’ Society. The greetings on behalf of the Academy were delivered by Secretary General Mihkel Veiderma.

9 October – the Academy was visited by delegation of international relations department of Academy of Finland. Member of Estonian Science Foundation Meelis Sirendi presented the activity of Foundation Archimedes, the organisational system of Estonian science and the system of its funding and the place of Estonian Science Foundation in that. Assistant Secretary General for International Relations Anne Põitel provided an overview of current situation with international co-operation of the Academy.

13 October – the Academy was visited by Deputy Director of International Institute of Applied Systems Analysis (IIASA) Professor Sten Nilsson, who met with Vice-President Peeter Tulviste, Foreign Secretary of the Academy Dimitri Kaljo and Rector of Eurouniversity Member of Academy Jüri Martin. Peeter Tulviste presented the Estonian Academy of Sciences and its place in the organisational structure of Estonian science. The guest provided an overview of goals and activities of IIASA.

13-15 October – Secretary General Mihkel Veiderma and Assistant Secretary General Galina Varlamova delivered papers at 21st conference of Baltic history of science in Riga.

17 October – the Academy hosted the 35th youth national conference of regional studies. On behalf of the Academy, the students were greeted by Member of Academy Dimitri Kaljo.

17 October – University of Tartu hosted historic-scientific seminar dedicated to 150th anniversary of Wilhelm Ostwald, greeted on behalf of the Academy by Secretary General Mihkel Veiderma. Papers were delivered by Members of Academy Ilmar Koppel, Karl Siilivask and Foreign Member of Academy Jānis Stradiņš.

23 October – there was held in the Academy Hall the fourth seminar in the series “New trends in science” – “Materials science” (cf. p. 53).

24 October – at the development conference of University of Tartu, Member of Academy Endel Lippmaa delivered a paper from the Academy “International research university – now what?”

24 October – the Board of the Academy (by way of electronic polling) took cognisance of the information and decided to notify the General Assembly to the effect that on 25 September, Head of Division of Biology, Geology and Chemistry Jaak Järv gave notice to President of the Academy about his intention to stand down from the post of Head of Division and Member of Board of the Academy, and that the general meeting of the Division decided, on 7 October to satisfy the application of Member of Academy Jaak Järv, vesting the obligations of Head of Division in Deputy Head of Division Dimitri Kaljo. The Board nominated Kristiina Ross, Head of Department of Institute of the Estonian Language as the representative of Estonian member organisations in the committee of the humanities of European Science Foundation.

28 October – Secretary General Mihkel Veiderma participated, as representative of the Academy, in the inauguration ceremony of the new President of Lithuanian Academy of Sciences Zenonas Rokus Rudzikas.

6 November – the Academy hosted a conference “Formation of new generation of scientists in Estonia– institution of post-doctors” (cf. p. 50).

12 November – general meeting of the Division of Biology, Geology and Chemistry decided to recommend Professor Raivo Uibo as candidate of Member of Academy (cf. p. 35).

7-12 November – President Jüri Engelbrecht participated on 8-10 November at world science forum in Budapest, organised by Hungarian Academy of Sciences by support from European Commission, UNESCO and ICSU, as a follow-up to world science conference held in 1999. The forum, held under the motto “Dialogue of knowledge and society”, emphasised the project specific use of structural funds in building up the European Research Area; the vital importance of attracting young people in knowledge based society and the need of quality of research as well as the need for continual dialogue between groups of society. During his stay in Budapest, J. Engelbrecht (together with President of the Hungarian Academy of Sciences S. Vizi) signed the

renovated co-operation protocol, specifying the conditions of scientists' exchange, and accepting the projects of joint research for 2004-2006.

14 November – the general meeting of Division of Informatics and Engineering formed the opinion of the Division about candidates for Member of Academy and exchanged opinions on evaluation (cf. p. 34).

17 November – Assistant Secretary General for International Relations Anne Pöitel participated at regular meeting in Brussels of the committee of the 6th framework programme “Structuring of the European Research Area: human resources and mobility”.

18 November – Ambassador of France Chantal de Bourmant handed over to President Jüri Engelbrecht the knighthood Order of Republic of France *Palmes Academiques*. Jüri Engelbrecht was awarded the Order for fruitful development of scientific contacts between Estonia and France.

19 November – there was a meeting in the Academy Hall “Evaluation of funding of science, and research and development activity” (cf. p. 52).

24-25 November – President Jüri Engelbrecht participated as observer representing the Estonian, Latvian and Lithuanian Academies of Sciences at the session of European Academies' Science Advisory Council, EASAC in Dublin, where the Academies of the candidate countries were invited for the first time, in connection with expansion of the EU.

26 November – Tartu hosted the general meeting of Division of Astronomy and Physics dedicated to materials science (cf. p. 32).

26-27 November – President Jüri Engelbrecht participated at the session of General Assembly of European Science Foundation in Strasbourg.

27 November – at the Academy, the 12th volume of Estonian Encyclopaedia was presented. On behalf of the Academy the authors and audience were greeted by Secretary General Mihkel Veiderma.

28 November – the Academy Hall witnessed the festive meeting organised by Division of the Humanities and Social Sciences and Under and Tuglas Literature Centre “Fr. R. Kreutzwald – 200”, also commemorating the 120th anniversary of Member of Academy Gustav Suits (cf. p. 52).

28 November – the general meeting of the Division of the Humanities and Social Sciences formed an opinion about the candidates of Member of Academy and the preference was accorded to Professor Jaan Ross (cf. p. 36).

2 December – the session of the Board approved the report for the 1st working year of Research Professor Raimund-Johannes Ubar, the plan of the 2nd working year and budget and opened the funding of the 2nd working year. The Board approved the exemplary text of the named medals of the Academy and

approved, as proposed by Divisions: statute of Nikolai Alumäe medal in the area of informatics and engineering, statute of Karl Schlossmann medal in medicine and related areas and statute of Paul Ariste medal in the area of social sciences and the humanities. The Board approved the proposal to organise on 17 March 2004 in Tallinn, in the Academy premises the meeting of Nordic member organisations of European Science Foundation and to establish, in co-ordination with Estonian Science Foundation a respective commission (Chairman Foreign Secretary of the Academy Dimitri Kaljo). Member of Academy Anto Raukas was approved Editor in Chief of the journal “Oil Shale”, also approved was the new composition of editorial board. The Board decided to authorise President Jüri Engelbrecht to sign, on behalf of Estonian Academy of Sciences the Berlin declaration “Open Access to Knowledge in the Sciences and Humanities”. The Board took cognisance of the results of awarding the students’ research papers.

2 December – there was held the conference of winners of competition of the student research papers of the Estonian Academy of Sciences (cf. p. 59).

3 December – the Academy was visited by new ambassador of Sweden Dag Hartelius. The guest was received by President Jüri Engelbrecht and Secretary General Mihkel Veiderma. The parties discussed the scientific co-operation of Estonia and Sweden.

15 December – University of Tartu transferred to the Academy the archives of the Estonian Academy of Sciences from 1938-1940.

16 December – Foreign Member of Estonian Academy of Sciences Helmut Schwarz delivered a public academic lecture “Elementary processes in catalysis – theory and experiment”.

17 December – General Assembly of the Academy was held, with Prime Minister Juhan Parts speaking. The General Assembly adopted the declaration of the Estonian Academy of Sciences, emphasising the development of Estonia towards knowledge based society. Foreign Member of the Academy Endel Tulving delivered a lecture “Episodic and Other Varieties of Memory”. Helmut Schwarz and Endel Tulving were handed over the Diplomas of Foreign Member of Academy. Elected Members of Estonian Academy of Sciences were Enn Mellikov, Jaan Ross and Raivo Uibo (cf. p. 25).

GENERAL ASSEMBLY. BOARD. DIVISIONS

GENERAL ASSEMBLY

In 2003, the General Assembly of the Academy was convoked to a regular session two times:

- 23 April – annual meeting
scientific paper by G. Maugin “From Mathematical
Physics to Engineering”
- 18 December – scientific paper by E. Tulving “Episodic and Other
Varieties of Memory”;
Declaration by Estonian Academy of Sciences;
election of members of the Academy

The first session of the General Assembly was held as an annual meeting of the Academy, being the 57th 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 2002 and the 2003 budget estimate. Detailed data on activities of the Academy in 2002 were made available in the newly published Estonian Academy of Sciences Year Book VIII (35), in good time mailed to all Members of Academy.

After the opening speech by President of the Academy Jüri Engelbrecht the Secretary General Mihkel Veiderma presented the new foreign members elected at the previous session of the General Assembly Richard Ernst, Helmut Schwarz, Endel Tulving and Gérard Maugin. President Jüri Engelbrecht handed over Diploma of Foreign Member of Academy to Gérard Maugin, attending the session. Thereafter Gérard Maugin delivered a scientific paper “From Mathematical Physics to Engineering”. The speaker was asked questions by Members of Academy Peeter Saari, Jüri Engelbrecht and Arved-Ervin Sapar.

The keynote paper of the annual meeting was delivered by President of the Academy Jüri Engelbrecht. In the first part of his report the President focused on the activity of the Academy, which was related to the trends prevalent in the scientific life, in abidance by principles of the Development Plan. The seminars, meetings and conferences held by the Academy had considered several important scientific issues and their applied aspects, in the interests of the society. President pointed out, as a positive factor that the ruling coalition had expressed, as one of their priorities, the education and the research and development activity. He also pointed out the commendable work of Mem-

bers of Academy in decision-making bodies, and election to Riigikogu of 3 Members of Academy.

While reviewing the activities of the Academy the President referred to a novel aspect. Namely, the Year Book contains, for the first time an overview of international scientific unions and their Estonian contact organisations – societies and national committees. The President viewed those contacts as worthy of praise, because they bring the topical outcomes of every domain of science to the attention of wider scientific community and keep the public in the picture of developments elsewhere in the world.

Among the issues of primary interest the President named the election of three first research professors; hopefully the procedure of their election would be specified in the future. Furthermore, Ministry of Education and Research had been recommended to increase the number of research professors, as an option to add value to science and to create better conditions to outstanding scientists. The President also noted the adoption of Code of Ethics of Estonian Scientists and the publication of the Academy issue “Scientific Thinking in Estonia. Engineering sciences”, which provides an excellent overview of the ideas and applications of scientists in engineering.

Among more general topics of scientific life the President highlighted the highly concentrated activity of centres of excellence in research. Those embrace several areas: medicine, computer engineering, history of culture of Estonia and folkloristic, chemical physics, quantum chemistry, behavioural science, materials science, mechanics, molecular and cell biology, solid state physics and ecology.

The development plan of the Academy emphasises the need to concentrate the knowledge of attainments in science, holding in view both the development of science in the world and the import of results of research for the development of Estonia. This however is only possible in co-operation with universities and the whole scientific community. The ultimate goal is adding value to knowledge, which is inherently related to the adding value to science. The President underlined the vital importance of continuity in science and the coming of youth to science, noting that regarding the defence of doctoral papers the situation was improving. The statistics shows that those born in 1970 and later constitute 36% of those participating in target financed topics, which is heartening.

President touched on relations between science and society, which have been accorded great attention in the working programme “Science and Society” of the European Research Area and also in the declaration of the European Science Foundation. Upon recommendation of European Science Foundation, 1% of research moneys should be channelled to bringing the results of research to the knowledge of society and for educating the society. The President

acknowledged the importance of popularising the research work and taking the outcome of research to the society, in particular to the decision makers. He acclaimed, as an excellent example to the effect, the nature and science yearbook 2003 “Leaves and stars” compiled by science journalist Indrek Rohtmets and “Estonian yearbook 2002-2003” compiled by Juhan Kivi, with major accent to universities and scientific activity.

From the standpoint of development of the state, the President held its international renommée as a major factor, promoting development of economy, attracting investments, elevating the public wealth and also funding of the science. Estonia should set the goal of winning the renown of a “science state”. President completed his report with a call to “hold in one’s heart” the adding value to science and knowledge as part of the culture, relying on a strong commitment to that end by all Members of Academy.

Upon move by President, the General Assembly approved the report of 2002 of the Academy, basing on the paper by President and materials presented in Year Book 2002.

Attending the session was Minister of Education and Research Toivo Maimets, deliberating about his impression of the open house days of Riigikogu and about the need to pay more attention to science and education, when composing the state budget.

Speaker of Riigikogu Member of Academy Ene Ergma explained, in her speech, the motives for her moving to politics and her further aims in co-operation between Riigikogu and the Academy.

Having heard the commentaries of Secretary General Mihkel Veiderma, the General Assembly discussed and approved the budget estimate 2003 of the Academy, presented on p. 96. Opinions and propositions regarding the budget estimate were voiced by Members of Academy Peeter Saari, Anto Raukas and Jüri Engelbrecht.

During discussion, speaking were Members of Academy Endel Lippmaa, Richard Villems and Karl Siilivask.

The second regular session of the General Assembly was held on 17 December. Attending at the session and speaking was Prime Minister Juhan Parts. In his speech Prime Minister spoke about the obligation to critically appreciate one’s activity and about the capacity to set and realise large-scale targets in this rapidly changing world. Prime Minister considered it natural that Members of the Academy of Sciences as flagship of spirituality should give the finest and the largest contribution to attain the common goal – knowledge based society and economy. The Government expected business-like and competent co-operation on part of Members of Academy for launching of several programmes. Prime Minister considered, as the primary task, the set-

ting of priorities, of which actual co-operation between science and manufacturing ranks among the highest. Prime Minister expressed his hope for active dialogue of scientists with leaders of society, shaping public opinion, in the process of forceful engagement of the Research and Development Council.

Prime Minister was asked questions by Members of Academy Valdek Kulbach, Karl Rebane, Dimitri Kaljo, Enn Tõugu and Anto Raukas.

The General Assembly adopted an Declaration, in which the Academy calls on scientists, educationalists, entrepreneurs and political figures to gather to the round table, with the aim to clarify in a dialogue the common interest in ideas, goals and undertakings on the path to knowledge based Estonia. The declaration is published in Year Book p. 144.

A scientific paper “Episodic and Other Varieties of Memory” was presented by Foreign Member of Academy Endel Tulving, who was also handed over Diploma of Foreign Member of Academy.

Secretary General Mihkel Veiderma announced to the General Assembly the decision of the meeting of Division of Biology, Geology and Chemistry on 7 October to satisfy the application of Member of Academy Jaak Järv to stand down from the position of Head of Division, and about vesting the obligations of Head of Division in Member of Academy Dimitri Kaljo until the election of the Head. The General Assembly of the Academy took cognisance of the decision of the meeting of the Division.

In the second half of the session, the election of new Members of Academy was held, to fill three vacancies announced: in the area of materials technology, medicine and the humanities. Out of three candidates in the specialty materials technology, proposed by Members of Academy, higher schools and research institutions (Urve Kallavus, Priit Kulu, Enn Mellikov) elected as Member of Academy was Enn Mellikov, of two candidates in the area of medicine (Raivo Uibo, Eero Vasar) elected as Member of Academy was Raivo Uibo, and of ten candidates in the area of the humanities (Mati Hint, Jaak Kangilaski, Valter Lang, Tiit Pääsuke, Rein Raud, Jaan Ross, Urmas Sutrop, Jüri Talvet, Peeter Torop, Jaan Undusk) elected as Member of Academy was Jaan Ross.

BOARD

Board of the Estonian Academy of Sciences worked in 2003, until 24 October 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> (until 7.10.2003);
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 7 working meetings. Once, the decisions were passed by electronically polling the opinions.

In 2003, in connection with elections of Members of Academy, planned for the end of the year, the related issues were under scrutiny, at sessions of the Board several times. At the first session of the year Board decided to open for filling three vacancies of Member of Academy and to hold elections of Members of Academy at the session of the General Assembly on 17 December; on 28 January the Board heard out the propositions of Heads of Divisions for vacant areas of science and approved the schedule of procedures related to elections; on 1 April the Board decided to announce the elections of Members of Academy to fill vacancies in the area of materials technology, medicine and the humanities; on 16 September 15 scientists and cultural figures Registered themselves as candidates; on 2 December the Board heard out synopses of Heads of Divisions about the discussions of candidates for Member of Academy in their Divisions.

In the focus of meetings of the Board were trends of research and development activities, start-up and support of new initiatives. On 16 September Board heard out and exchanged opinions about the situation of target financing of the science and in evaluation of funding of scientific activity and deemed it necessary for the Academy to persist in its effort to emphasise the need for preferential development of key areas in science, in the first place by creating respective state programmes, for analysis of results of evaluation of science, for support of centres of excellence, and with funding of the science, to strictly proceed from quality of fundamental and applied research.

In connection with creation of positions of “research professor” in the Academy and filling them by competition in 2002, on 16 September the Board heard out and approved the reports for the 1st year in office by research professors Agu Laisk and Asko Uri and the plans for the 2nd year in office and decided to open financing of their 2nd year in office. The Board approved the report for the 1st year in office by research professor Raimund-Johannes Ubar and the plan for the 2nd year in office on 2 December and decided to open financing of his 2nd year in office. At a special meeting of the Board held on 3 January, on agenda was the situation, arising in connection with proposition by Member of Academy Jaak Aaviksoo to reconsider the procedure of election of research professors adopted by decision of Board on 03.12.2002. It was found that change of the decision of Board and opening within the same competition of another vacancy of research professor was unsubstantiated; it was deemed necessary to reconsider the requirements and conditions specified in base documents for election of research professor and to appeal to Ministry of Education and Research with the request to increase the number of research professors to six, within the following two years.

Head of Division of Biology, Geology and Chemistry Jaak Järv submitted on 25 September 2003 notice to President of the Academy about standing down from the post of Head of Division and member of Board. The General Assembly decided, on 7 October to dismiss Member of Academy Jaak Järv and charged Dimitri Kaljo, Deputy Head of Division with the obligations of Head of Division. On 24 October the Board took cognisance of that fact, deciding to inform the General Assembly respectively.

On 16 September the extended meeting of the Board was held, with discussion of the strategy “Sustainable Estonia 21” on agenda. Among participants were representatives of research institutions and ministries. The keynote report was delivered by Professor Mati Heidmets, opinions were voiced by Members of Academy Raimund Hagelberg, Ain-Elmar Kaasik, Loit Reintam, Richard Villems, Karl Rebane, Dimitri Kaljo, Mihkel Veiderma and Ago Laisk, as well as Urmas Sutrop, additional explanations were provided by Erik Terk, Jaan-Mati Punning and Sulev Vare. As a result of the discussion, it was recommended, in the process of further handling of the strategy to take into consideration of the observations and proposals made at the meeting and to establish its relation to other strategic documents: “Knowledge Based Estonia”, approved by Riigikogu, draft idea of the Government of Estonia “Estonia’s Success 2014”, the National Agreement, initiated by President of the Republic. Board heard out the overview of formation of the project of National Agreement and authorised President of the Academy or Vice-President, in his absence, to sign, if consensus is reached, the said National Agreement on behalf of the Estonian Academy of Sciences.

Board deemed it expedient to start granting, as the highest token of acknowledgement of the Academy, for outstanding performance in research and development, the named medal of Academy. As a result of discussions and with reference to proposals of Divisions of the Academy, by the end of year the exemplary text of the statute of named medals and the statutes of three named medals were approved: Nikolai Alumäe medal on informatics and engineering, Karl Schlossmann medal on medicine and related areas and Paul Ariste medal social sciences and the humanities. Division of Biology, Geology and Chemistry were assigned the task to reform the K.E.v.Baer prize into K.E.v.Baer medal on biology, geography, geology and ecology.

On 28 January the Board approved the previously discussed calendar plan of events of the Academy for 2003, having taking into account the proposals of the Divisions, which was fulfilled by the end of year, by and large.

At the meeting on 2 December the Board heard out the information by Member of Academy Georg Liidja about the outcome of competition of student research papers. At conference after the meeting, the winners of the competition delivered five papers, and were handed over the diplomas. The Board decided, at its meetings to grant fellowships, by way of competition for completing the monographic scientific works and popular science books and for their finalising. A respective commission was set up, to study the applications (Chairman Member of Academy Ülo Lumiste), to also recommend the grantees of the fellowship. The Board announced a public competition for Bernhard Schmidt prize and appointed a commission for study of the applications (Chairman Member of Academy Hillar Aben). For the lack of applications the prize was not granted.

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 2002, and the budget estimate for 2003. It also fixed the salaries of the Academy leadership and director of the Academy Publishers. The last session of the outgoing year approved the amendments to the budget. The session heard out the reviews of heads of Divisions on work in 2002. The session heard also out and took cognisance of the information of Member of Academy Dimitri Kaljo on activities of the Estonian Academic Foundation for International Exchange in 2002 and acknowledged that both by number of partners and size of the annual quotas the volume of exchange of scientists is at full stretch of the current pecuniary capacity of the Academy, therefore making of new agreements and increasing of quotas may be considered as justified only given there is a solid scientific motivation. Board approved the editorial board of the journal "Oil Shale" for the following five-year period and appointed Member of Academy Anto Raukas Editor in Chief. Board approved the com-

position of delegation of the Academy at joint conference of Academies of Sciences of the Baltic States and at the 9th Baltic conference on intellectual co-operation. The Board discussed and approved the agendas of General Assemblies. The discussion on energy originally planned as a topical session of the General Assembly was decided to be held as a conference (organiser Member of Academy Endel Lippmaa). Board twice adopted the decisions on awarding with the Medal of the Estonian Academy of Sciences.

Several times, the Board considered at its session the issues related to international scientific unions and nomination of representatives of Estonia in the composition of commissions. Nominated as the representative of Estonia in the standing committee of physics and engineering of European Science Foundation was Member of Academy Ilmar Koppel, in the standing committee of medicine pro-dean of Department of Medicine of University of Tartu, head of Institute of Physiology Professor Eero Vasar, in the standing committee of the humanities, Head of Department of Institute of the Estonian Language Candidate in Philology Kristiina Ross; prolonged were the powers of Professor of University of Tartu Olevi Kull as the representative of Estonia in the standing committee of bio- and environmental sciences. Board approved the composition of Estonian National Committee of the UNESCO International Programme of Hydrology (Chairman dean of Marine Department of Estonian Marine Academy Urmas Lips). Board approved the proposal to organise in Tallinn the meeting of Nordic member organisations of European Science Foundation and to set up a commission for its preparation and holding (Chairman Member of Academy Dimitri Kaljo). Board authorised Chairman of the Energy Council of the Academy Member of Academy Mihkel Veiderma to represent the Academy at the founding meeting of the Estonian National Committee of the World Energy Council (WEC). President Jüri Engelbrecht was authorised to sign, on behalf of the Estonian Academy of Sciences the Berlin declaration “Open Access to Knowledge in the Sciences and Humanities”.

DIVISIONS*

DIVISION OF ASTRONOMY AND PHYSICS

In the past working period (01.2003 until 12.2003) the Division handled a number of scientific, technical and organisational issues, previously discussed at the meeting of the Division on 15 November 2002. That meeting of the Division deemed it necessary, to deal with in 2003, besides the local topics, the

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

trends in science regarded as crucial at 24th General Assembly of International Union of Pure and Applied Physics IUPAP in Berlin. Under scrutiny in the reporting year were, in the first place:

- The newest issues and new opportunities of the high energy physics;
- Energy from Kyoto protocol to the structure of vacuum and self-energy;
- New vistas of materials science and nanotechnology:
- The place in Estonian science and engineering of the centres of excellence in research and the centres of development of technology;
- The Estonian GRID, and the involvement of the Estonian Academy of Sciences therein.

At the beginning of the reporting year on 17.01.2003, the Division organised, in the Academy premises a meeting with papers, with Martti Raidal speaking about new trends in particle physics and vacuum physics, and Professor John Ellis of CERN considering the development of particle physics in international cooperation.

With respect to high energy physics the Division considered the steps to make ready for further development of that trend in Estonia, in co-operation with Organisation Européenne pour la Recherche Nucléaire (originally Conseil Européenne pour la Recherche Nucléaire) CERN in Geneva, in the first place by prolongation of the respective state agreement and by financing the works performed from state budget.

Regarding the issues of energy and power engineering, which merited the keenest attention in Berlin, the Division organised on 11.06.2003 in the Academy premises the topical conference of the Estonian Academy of Sciences “Energy” (cf. p. 49). Better understanding of all mutual links of energy problems was the direct outcome of the conference and the following discussion.

In constant focus were the problems of creation and use of Estonian GRID, the distributed computing system operating as a unified supercomputer. Estonian GRID is a system of supercomputers interconnected fibre optically, designed for processing mega-large volumes of data in parallel work also in case of anharmonic and non-linear mutual dependencies. The contemplated tasks cover a wide area ranging from high energy and condensed phases physics, quantum chemistry and bioinformatics to computational mathematics, IT, mechanics, astrophysics, meteorology and medicine.

The Division also secured funding of that work from state budget. By the end 2003, the Institute of Chemical and Biological Physics completed the first Estonian local Linux-cluster with distributed memory, having 16 Xeon-processor and enabling parallel work.

In respect of centres of excellence in research, at the meeting held on 05.02.2003 in Tartu the Division established the Organisation of Estonian Centres of excellence in research with the aim to bolster up the role of Estonian science and make it visible in the world science. Within framework of that work, the Division started compilation of an omnibus volume describing all centres of excellence. In December it submitted to the Government of the Republic a memorandum about the role of science as a guaranty of rapid and competitive economic growth.

The meeting of the Division held on 26.11.2003 in Tartu was dedicated to the materials science. Professor Enn Mellikov delivered an extensive paper “Materials science of solar energy”, with a constructive discussion on the same topic to follow. The meeting also heard out the report of the Head of Division about the Estonian GRID project and decided to support that initiative, in every aspect, while referring to the Government of the Republic with a request for additional financing.

With respect to the follow-up of earlier decisions, the Division acknowledged the fact that the idea to return journals ordered by Institutes of the Estonian Academy of Sciences and no longer accepted by the present Academic Library of Tallinn Pedagogical University for replenishment of stocks, to the research institutions who ordered them and who needed them, apparently had failed. The new owners of the Library have declined to return the journals. As seen from the angle of view of the Division, the Library is coming to an end and it must be replaced with something more modern.

DIVISION OF INFORMATICS AND ENGINEERING

Division worked in 2003 in close co-operation with Tallinn Technical University. There were three general meetings held.

At the joint general meeting of the Division with leadership of the Tallinn Technical University on 6 May “Doctoral studies in informatics and engineering sciences” estimate was given to the situation in doctoral studies in informatics and engineering sciences, recommendations were suggested for further activities and proposals were forwarded to Ministry of Education and Research. The participants at the meeting acknowledged that the small order by the state for training in respect of doctoral studies in engineering does not meet the interests of development of Estonia: the share of engineering sciences as seen against other areas of science is continually decreasing, deplorably lacking is the adequate reproduction of scientists. The number of scientists in engineering has dropped significantly, more than in other areas of science. In evidence is a significant disproportion to the disadvantage of engineering sciences both in the number of scientists and funding. The relative volume of funding of engineering sciences is the lowest in Estonia, among the states

accessing to the EU. It is by far not the matter of low efficiency of doctoral programmes in Tallinn Technical University.

The meeting noted that the development work and applied research in business sector are weak in Estonia. The foreign moneys are not likely to be injected into a cheap labour country and foreign investors will not contribute to the development of engineering and applied science. Large companies, being affiliates of international concerns commission their development work from their own development centres. The competitive edge of Estonian technology and engineering among the EU countries is blunted, and inhibited by scantiness of scientists-experts of required qualification. The meeting emphasised that in the nearest future, doctoral studies must become the order of the day, engineering must be made attractive, modern environment for study and research must be provided for, actual topics must be offered to the students of science. To locate able scientific supervisors, the potential of research institutions must be used more effectively. This aim should be reached by creating professorships or by using foreign supervisors. The competence of supervisors must be held in esteem and duly remunerated.

On 6 October, there was the general meeting of the Division jointly with representatives of the departments of Tallinn Technical University "Engineering sciences and realisation of proposals of international evaluation of management and funding system of Estonian research and development". The main positions, which were approved, were the following:

- To draw the attention of the Government of the Republic to the need to substantially increase the resources allocated by the state to funding R&D, in order to abide by trends of development in the EU of R&D and to do away with the backwardness of the R&D infrastructure.
- To draw the attention of Research and Development Council to the need to analyse the coherence of Estonian R&D topics with the development of Estonian economy and the needs of development of the whole society and to make periodically proposals, in order to specify the proportions of funding among areas of science from the state budget – the share of engineering science evolved by the end 2003 is inordinately low (target financing 18%, Estonian Science Foundation 17%).
- To make a proposal to Ministry of Education and Research to consider the option to restore the base financing of public-law based universities and R&D institutions and to make a respective proposal to amend the Organisation of Research Act.
- As condition precedent of funding the scientific research, to take into consideration the output into education, economy and development of the society, by launching national programmes of key areas.

- To link the state order for training in doctoral studies with the needs of science and economy.

The general meeting of the Division held on 14 November formed the opinion of the Division about candidates for Members of Academy and exchanged opinions about evaluation. Out of three candidates presented (Professors Enn Mellikov, Priit Kulu and Urve Kallavus) the general meeting preferred, in the specialty of materials technology, Professor of Tallinn Technical University Enn Mellikov, in the area of the humanities it favoured Professor Jaan Ross and in the area of medicine decided to support the preference of Division of Biology, Geology and Chemistry.

Division also made proposals relating to planning the new evaluation:

- Principles need be established, which would remain valid for the whole period and would be known to all, from the beginning.
- Evaluation of science should be better administered. For that purpose, an institution must be established, which would monitor the process of evaluation and draft the decisions for Ministry of Education and Research (like accrediting the curricula of higher schools), guarantee the continuity of grading and uniform grading scale.
- The goal of evaluation must be set in a more transparent way; on that basis, general and specialist (internationally accepted) evaluation criteria must be composed.
- Scientific activity and its evaluation are by far too fragmented. The groups are too small. In order to improve the situation, it would be expedient to decrease the number of evaluating teams engaged in evaluation, to increase the number of experts in teams and merge overlapping specialties.
- It would be expedient to include into the evaluation team one representative of Estonian scientists (a representative of institution organising the evaluation, maybe as an observer) and one representative of the economy / community (as member of commission).

Member of Academy Rein Küttner presented the summary of evaluation of engineering sciences at a respective meeting of the Academy on 19 November (cf. p. 52).

Members of the Division, together with other scientists in engineering from Tallinn Technical University participated at composing the Development Plan of Estonian Energy. Members of Academy R. Küttner, L. Krumm and A. Ots participated at work of Energy Council of the Academy. The meeting of Energy Council of the Academy on 31 January, with long-term national development plan of fuel and energy economy on agenda was held as a joint meeting with the Division.

DIVISION OF BIOLOGY, GEOLOGY AND CHEMISTRY

In 2003, four general meetings were held.

General meeting at its session on 23 January recommended the Board to announce a vacancy in medicine for membership of Academy. The Division supported the granting of named prizes of the Academy. It proposed to create in medicine the Karl Schlossmann prize and to consider the institution of chemistry related prize of the Academy. General meeting considered improper the order of Minister of Education and Research on target financing in 2003, to the effect that all topics, even those estimated as developing successfully, would be financed in 2003 by 4% less than in 2002. Such decision of the Minister was viewed as not being in conformity with the regulations of organisation of target financing, allowing to cut the financing of a successfully operating topic only in case the fulfilment of the topic has been acknowledged as falling short of the target. The Division adopted a respective memorandum, which was forwarded to Ministry of Education and Research.

On 2 April, there was an extended meeting of the Council of the Division, to look at the activity of centres of excellence, working in the scientific areas of the Division. Professors Toivo Maimets, Jaanus Harro, Raivo Uibo and Member of Academy Ilmar Koppel presented the structure and activity of centres of excellence they direct. The meeting held that relations of the centres of excellence with scientists of the Academy should be closer and that heads of centres of excellence should be invited to important events of the Division. It was suggested that activity of centres of excellence should be reflected in the series of volumes "Scientific thinking in Estonia".

By electronic voting, the general meeting decided on 2-6 October to relieve Member of Academy Jaak Järv, upon his notice, from office of the Head of the Division and imposed the obligations of the Head, until new Head is elected, on Deputy Head Member of Academy Dimitri Kaljo.

At its session of 12 November the general meeting decided to give its recommendation, for membership in the Academy to Raivo Uibo, with a very slight advantage over Professor Eero Vasar. The session presented the statute of Karl Schlossmann medal to the Board of the Academy for approval.

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

NATURE PROTECTION COMMISSION (chaired by Urmas Tartes) organised on 22 May 2003 in the Botanical Gardens of the University of Tartu, in cooperation with the Ministry of the Environment the 42nd Day with Papers on the topic "Study and protection of inanimate natural monuments". The Day with Papers was also designed to celebrate the completing of manuscript version of the years-long work of geologists, Book of Estonian Primeval Na-

ture. 6500 pages of the manuscript describe, by counties and parishes, 2500 natural monuments. The papers will before long appear in print as a collection, the overview of the process of making the book will be presented by an exposition in Tartu, in Baer's House.

The general meetings of the Commission (17 June, 30 October, 9 December) discussed the draft version of the new Nature Protection Act and the issues of the present and future of the nature reserves, as well as the issues relating to biosphere reserve. The Minister of the Environment and other stakeholders were submitted the position of the general meeting of the Commission of 17 June that the Commission deemed it necessary to develop the Biosphere Reserve of the Western-Estonian Archipelago and keeping it on the UNESCO list. There was a proposition to concretely specify the role of the state and its interest in the development of the said biosphere reserve.

Members of the COMMISSION OF METEORITICS (chaired by Anto Raukas) continued to study the pulverised matter of meteorite craters. Sten Suuroja is completing the doctoral paper on comparison of Kärđla and Neugrund craters and on modelling the details of causes of age-old craters in seabed. The activity of researchers of meteorites have been presented in many scientific and popular science articles, problems have been discussed at scientific seminars dedicated to meteorite craters, there have been held lectures-excursions. Much work has been performed for ground maintenance round the meteorite craters (Kaali, Simuna, Ilumetsa, Tsõõrikmäe) and dissemination of information material. In co-operation of Estonian and Latvian film companies, the documentary "Mystery of Kaali" was completed, which was awarded a Letter of Commendation at Szolnok International Popular Science Film Festival. Completed was the manuscript "Catalogues of Estonian Meteorite Collection" (R.Tiirmaa, M.Isakar).

DIVISION OF THE HUMANITIES AND SOCIAL SCIENCES

The general meeting of 28 November formed the opinion of the Division about the candidates for membership in Academy. Besides working out the preferences of the Division, information of the respective work of other Divisions and the potential support to the candidate of the Division was heard out. Among the candidates presented: Mati Hint, Jaak Kangilaski, Valter Lang, Tiit Pääsuke, Rein Raud, Jaan Ross, Urmas Sutrop, Jüri Talvet, Peeter Torop and Jaan Undusk, the Division gave its strong preference to Jaan Ross.

The same meeting discussed the issue of belonging to the membership of the Academy of representatives of culture and fine arts. Upon opinion of the Division, that issue called for cardinal decisions in the nearest future.

There was also the discussion about scanty dissemination in Europe of the Estonian news, including cultural and scientific news. The original news released in the Estonian media issues should be condensed in short English media periodical collections and an optimum way of their propagation should be found.

On 14 February Member of Academy Peeter Tulviste organised in Võru the Science Day of the Estonian Academy of Sciences (cf. p. 54).

On 28 November, the Division jointly with Under and Tuglas Literature Centre organised a festive meeting commemorated to Fr. R. Kreutzwald 200th anniversary in the Academy premises, simultaneously celebrating the 120th anniversary of Member of Academy Gustav Suits. Member of Academy Peeter Tulviste introduced the meeting with a speech (cf. p. 52). Elected Patron of the Fr. R. Kreutzwald Year was Member of Academy Juhan Peegel.

INTERNATIONAL SCIENTIFIC RELATIONS

Promotion of scientific international relations belongs among statutory tasks of Estonian Academy of Sciences. In this activity, representation of Estonian science in international organisations ranks as a high priority task. So does the furthering of bi- and multilateral scientific co-operation between scientists and research teams. Aiming at intensification of international activities the Academy collaborated with a number of Estonian research organisations and universities.

In 2003, the Academy continually represented the Estonian science community in the following world and European scientific organisations:

- International Council for Science (ICSU) – international non-governmental organisation, embracing under its umbrella international scientific unions and Academies of Sciences, with a professed mission to harness the scientific community to address vital issues of the science and society all over the world;
- Union Académique Internationale (UAI) – brings together the Academies concerned with the humanities and social science);
- European Federation of National Academies of Sciences and Humanities (ALLEA);
- European Science Foundation (ESF).

In 2003, the Academy endorsed the declarations “Science and media”, “Availability of scientific information” a.o. of InterAcademy Panel (IAP).

As an extension to the activity of ALLEA WG, researching the science strategies of small countries, President Jüri Engelbrecht now heads the ALLEA WG on Research Co-operation.

The Academy participates in European Science Foundation together with Estonian Science Foundation (the funding of participation in ESF programmes is effected through EstSF). In the ESF Governing Council, Estonia is represented by President of Academy Jüri Engelbrecht, who attended in 2003 two sessions of the said Council (in April in Barcelona, in September in Paris), as well as the ESF General Assembly, held in November in Strasbourg. Joint representatives of the Academy and EstSF work in all standing committees of ESF. Prominence in the work of European Science Foundation is accorded to quality and efficiency of research, the programmes and networks co-ordinated by it uniting top scientists all over Europe. In 2003 Estonian scientists participated in five ESF *à la carte* programmes (NATEMIS, GENOMICS, IMPACT, NATRIBO, NHIST) and in one EUROCORES programme (OMLL). In May the Academy and EstSF jointly held a meeting on the ESF issues with the aim to hear out the reports of Estonian representatives about

their activity within the three year nomination period, and on the other hand, to present to the invited audience the basic working principles of the ESF, its structure and tools (paper presented by ESF Senior Scientific Secretary Henk Stronkhorst; speaking of their experience were the ESF co-ordinators from Academy of Finland, with participants in science programmes of ESF delivering papers, cf. p. 51).

Pending, due to Estonia's accession to the EU, is the joining of the Academy with the European Academies' Science Advisory Council (EASAC), established by the Academies of EU member states, to advise the EU political institutions about the scientific aspects of public policy issues. J.Engelbrecht (empowered also to represent the Latvian and Lithuanian Academies of Sciences) participated, as observer at EASAC meeting in Dublin. The present candidate countries were extended the invitation to the following meetings, fully-fledged members then.

The Academy continually supported the connections of Estonian scientific community with international scientific unions, organising centralised payment of membership fees of those organisations and reporting to Ministry of Education and Research about the activity of respective national committees (cf. Table 1). Contacts with ICSU member organisations are held in high priority by the Academy. In order to disseminate information about the national committees and their activity, respective reports of 2002 were published in the Estonian Academy of Sciences Year Book released in April 2003. In March the Academy held a meeting to survey that area of activities (cf. p. 50). July witnessed meetings in Tallinn of Bureau and Congress Committee of International Union of Theoretical and Applied Mechanics (IUTAM) organised by J.Engelbrecht. Organisation in Estonia of similar conferences (cf. the session of ESF Standing Committee for Social Sciences held in Tallinn in April, supported by the Academy and EstSF, with 20 scientists from 17 countries participating) enables to present to audience the Estonian science, while the Estonian scientists can make direct contact with "prime of the flock, and choicest of the stall" (Alexander Pope) in the world scientific community.

The Academy continually co-operated with Academies of the neighbouring countries. Highlight of the regional co-operation was the 9th Baltic Conference on Intellectual Co-operation "Globalisation, Europe and regional identity" held in June in Vilnius under auspices of the Lithuanian Academy of Sciences, attended also by the Academy delegation headed by President Jüri Engelbrecht. Within the framework of the Conference, there was held a traditional joint meeting of Academies of Sciences of the Baltic States. As regards the regional co-operation, Estonia belongs to the group of Nordic member organisations in European Science Foundation (in March 2004, the annual meeting of the said group will be held in Tallinn).

A field of work where the Academy can offer help to the Estonian scientific community is to promote initial contacts, "to jump on the bandwagon". 2003

Table 1

Estonian contacts points of international science organisations whose membership fees were covered in 2003 by Estonian Academy of Sciences, at the expense of specific allocation of Ministry of Education and Research.

Estonian contact organisation	International scientific union
Estonian Physical Society (Chairman: Raivo Jaaniso, jaaniso@fi.tartu.ee)	European Physical Society, EPS
Estonian Geophysical Committee (Chairman: Rein Rõõm, rein.room@ut.ee)	International Union of Geodesy and Geophysics, IUGG
Estonian National Committee for IGU (Chairman: Jaan-Mati Punning, kotli@solo.ee)	International Geographical Union, IGU
Estonian National Committee for Geology (Chairman: Dimitri Kaljo, kaljo@gi.ee)	International Union of Geological Sciences, IUG
Estonian Association of Engineers /Estonian Systems Engineering Society (Contact: Leo Mõtus, leo.motus@dcc.ttu.ee)	International Federation of Automatic Control, IFAC
Estonian Chemical Society (Contact: Tõnis Pehk, pehk@kbfi.ee)	International Union of Pure and Applied Chemistry, IUPAC
Estonian National Committee for Mathematics (Chairman: Mati Abel, abel@ut.ee)	International Mathematical Union, IMU
Estonian National Committee on Astronomy (Chairman: Tõnu Viik, viik@jupiter.aai.ee)	International Astronomical Union, IAU
Estonian National Committee for Mechanics (Chairman: Jüri Engelbrecht, je@ioc.ee)	International Union of Theoretical and Applied Mechanics, IUTAM
Estonian National Committee of IAG (President: Anto Raukas, raukas@gi.ee)	International Association of Geomorphologists, IAG
Estonian Sociological Association (Chairman: Leif Kalev, leif@ut.ee)	International Sociological Association, ISA
Estonian Academy of Sciences (President: Jüri Engelbrecht, je@ioc.ee)	International Council for Science, ICSU
Estonian Academy of Sciences (Vice-President: Peeter Tulviste, ysirk@haldjas.folklore.ee)	Union Académique Internationale, UAI
Estonian Academy of Sciences (Contact: Dimitri Kaljo, foreign@akadeemia.ee) and Estonian Science Foundation (Contact: Meelis Sirendi, meelis@etf.ee)	European Science Foundation

witnessed several meetings with speakers of the foundations having research grants on offer (Mellon Fellowship, Hertie-Stiftung etc). The Academy coordinated the visit to Estonia of a joint delegation of Max Planck Society and Deutsche Forschungsgemeinschaft – the main agency in Germany funding research – at the beginning of October. In the process of visit, the Estonian side found out about options of research career in Germany and the delegation made new contacts on the level of captains of science. Exchange of mutually beneficial information has been made easier by meetings with the Academy leadership of Ambassadors residing in Tallinn, as well as other dignitaries (among others the UNESCO Director General Koichiro Matsuura). In detail cf. Chronicles p. 44-47.

As regards the development of bi- and multilateral co-operation with the Academies and science organisations in other countries, we have pleasure in ascertaining that Estonia has made a reliable partner. As of 01.01.2004, there are 23 bilateral co-operation agreements in progress, of which prolonged in 2003 were those with the following partners: Austrian Academy of Sciences in January, Academy of Finland in February (President of the partner Academy Reijo Vihko visited Tallinn for the purpose), Bulgarian Academy of Sciences in April (President Jüri Engelbrecht visited Sofia, participating as expert at Bulgarian science policy evaluation organised by OECD), in November with Hungarian Academy of Sciences (J.Engelbrecht participated in Budapest at a world science forum organised by the Hungarian Academy of Sciences). The further extension of the circle of partners would mean additional expense, the funding of which we should beware of, in the present situation. Whereas it is outspokenly clear that accession to the EU in 2004 would open new vistas for participation in various forms of co-operation (including 6th Framework Programme), meaning both access to extra funds and driven demands, also calling for capacity to make well balanced choices in the conditions of multiple co-operation mechanisms.

Exchange of scientists based on bilateral co-operation agreements, for reception of visiting scientists funded from the Academy budget continued in 2003 as ever, but there are some trends worth emphasising (regarding the data in detail cf. Table 2).

Reception of foreign scientists was relatively moderate (805 days, 43% of aggregate quota specified by agreements), falling short of the year 2002 by 22%. Traditionally, the bulk of visits were from countries of the highest quota: from Finland 135, from Hungary 116, from Sweden 107 days. The Finnish side only used the quota to 23%, wholly in keeping with the declining trend for the past years. The Royal Swedish Academy of Sciences came as a surprise, using 127% of its quota (in 2002 – 8%). That ratio somehow challenges the decision of Royal Swedish Academy of Sciences to wind down the exchange programmes with partner Academies. It was the most deplorable piece of news of the past year, which we had to take due cognisance of, for mapping new forms

of co-operation. Distribution of visitors per institutions and branches of science was traditional and as expected: the lion's share (47%) of visiting scientists was received by University of Tartu; almost half of the visiting scientists were from the area of natural and exact sciences, one third – from the area of social sciences and the humanities. The number of visits by researchers in medicine, usually quite low, was appreciable (9% of inbound trips).

Table 2

Exchange of scientists, as effected in 2003 under co-operation agreements of the Estonian Academy of Sciences.

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	18
National Ac.Sci. of Belarus	30	1	7	-	-
Berlin-Brandenburg Ac.Sci.	42	1	3	1	3
British Academy	90	-	-	3	72
Bulgarian Ac.Sci.	50	2	22	3	25
Chinese Ac.Sci.		-	-	-	-
Czech Ac.Sci.	70	6	59	4	42
Academy of Finland	600	25	135	115	715
French Ac.Sci.		1	18	1	12
Hungarian Ac.Sci.	175	13	116	14	171
Israel Ac.Sci.	28	1	16	-	-
Latvian Ac.Sci.	75	3	15	18	76
Lithuanian Ac.Sci.	75	7	72	9	35
Royal Society of London		-	-	-	-
Norwegian Ac.Sci.	84	-	-	2	26
Polish Ac.Sci.	100	9	100	11	85
Russian Ac.Sci.	50	3	25	6	52
Slovak Ac.Sci.	35	5	44	1	13
Slovenian Ac.Sci.		1	5	-	-
Spanish Council for Sci. Research (CSIC)	84	3	54	8	78
Royal Swedish Ac.Lett.Hist.&Ant.	28	-	-	4	31
Royal Swedish Ac.Sci.	84	4	107	10	83
Swiss Ac.Sci.	60	1	7	3	62
National Ac.Sci. of the Ukraine	50	-	-	1	11
TOTAL	1866	86	805	215	1610

The volume of outbound trips of scientists (1610 days, 86% of aggregate quota) exceeded the volume of inbound ones, as usual, more specifically twice. Here, too excelling all others are the traditional countries of destination like Finland, Hungary, Poland, Sweden, now to be followed by Spain, with quota used 93-99%, in case of some partners even somewhat exceeded (e.g. Royal Swedish Academy of Letters, History and Antiquities, the Russian, Swiss and Latvian Academies). Due to rejections, there were no visits through Royal Society of London. Noteworthy is the alacrity of social scientists and those engaged in the humanities – 60% of all outbound trips, in particular those heading to Finland (79% of visits to that country). Besides co-operation with partner scientists, there has been individual research done in archives and libraries. We do run joint project programmes (with partner organisations in Bulgaria, Spain, Poland, Hungary). The number should be larger, however, which would tilt the situation, where currently the direction of researcher mobility is out of balance.

Exchange of scientists is becoming project specific, as a general trend. The Council of Estonian Academic Foundation for International Exchange (comprised of representatives of the Academy and the universities) directing the process views the implementation of that principle for development of bi- and multilateral relations as a pre-eminent task. Relying on bottom-up initiative and serving the needs of scientists and research teams, the scientific exchange programmes between the Academies are a flexible cost-sharing mechanism in enhancing international co-operation to benefit of all parties.

COUNCILS

ENERGY COUNCIL

The Energy Council of the Estonian Academy of Sciences (Chairman Member of Academy Mihkel Veiderma) held two meetings in 2003.

On 31 January (jointly with Division of Informatics and Engineering of the Academy) the Energy Council gathered to discuss the draft national development plan in fuel and energy sector (up to 2015, with a vision of 2030), composed by a team of scientists and experts, as commissioned by Ministry of Economic Affairs.

The Council pointed out that the development plan differed considerably, as regards the strategic goals and tasks, in particular regarding electric energy, from the National Development Plan of Fuel and Energy Economy adopted by Riigikogu in 1998. The latter based on multiplicity of energy sources and implementation of an open energy market. The development plan on hand, however has been adjusted to Electricity Market Act adopted in Riigikogu in 2003, which prescribes a special status to oil shale energy and significantly restricts putting into practice of free market principles.

The Council holds that the development plan will, in the longer perspective depend on several economic-political factors (statutes, environmental norms, tax policy and price formation, investments and their sources, opening of the market, integration in the Baltic Sea Rim, the EU directives etc.), regarding the electrical energy. In the first place it will depend on results of implementation of two new energy blocks in AS Eesti Elektriijaamad (Estonian Power Plants). The assessment of those impact factors has been defective in the development plan, even as regards the tentative estimates. Therefore the development plan may be taken as a basis only for a shorter period – no longer than until 2010, reviewing it in 2005.

The Council found that the development plan called for additional elaboration, in several aspects.

In the first place, the Council deemed it necessary to specify the development plan of electrical energy, with respect to mutually related energy sources, capacities, emissions and investments until 2010. While acknowledging the dominant role of oil shale energy in power engineering, the Council recommended to work out, in a detailed manner how to establish power plants suitable to cater to the needs of top load, to look at optimum solutions for energy-related (electrical energy, natural gas) issues in co-operation with existent and

prospective neighbouring systems within the EU framework, as well as the perspectives for co-generation of power and heat. All this must be done in a larger scope than presented in the development plan, and also with a view of involvement of renewable energy sources.

The Council pointed out the fact that the authors of the development plan had dismissed the transition, to the extent of 35%, to free market of electrical energy by the end 2008, co-ordinated with the EU. The Council deemed it necessary to work out the solutions and mechanisms necessary for achievement of that objective, both for new energy companies to enter the market, and for streamlining of the system. Upon opinion of the Council, to achieve that end, a national separate main grid company, as an independent and impartial system operator, must be established. Conservation of the present Eesti Energia AS (Estonian Energy LTD), as a monopolist concern uniting the whole energy chain does not meet the respective requirements (incl. transparency).

The Council noted that the development plan lacks estimates, even tentative ones about how much and in what manner the contemplated developments would improve effectiveness of the energy sector (currently *ca* 50%, in electrical energy beneath 25%) and its economic efficiency, and affect the price of electricity and thermal energy, as a sensitive factor to businesses and small consumers. In view of large investments, for setting up new production capacities and renovation of power grids, and for the purpose to decrease the pressure on price of electricity, there is an imperative need to work for implementation of attractive funding mechanisms, including underwriting trade and joint applications, specified by Kyoto protocol, combined with attraction of moneys from EU structural and cohesion funds, and bank loans. It is not feasible to shift the burden of meeting large investments (including repayment of loans) on the consumers' shoulders. Energy must be accommodated in the unified economic-social environment of the state with the aim to provide for sustainable development and well being of the residents.

The Council marked that the development plan pays scant regard to the training of specialists in the energy sector, to research and development activity; the Council considered it necessary to launch a respective national programme. The Council drew attention to the fact that the development plan did not embrace the thermal-chemical processing of oil shale for production of shale oil and chemical products, by linking it optimally with the oil shale energy complex.

The second meeting of the Energy Council was held on 26 September in Haapsalu. The meeting was dedicated to the survey of work and trends of development of the privatised electricity grid companies (Fortum Elekter AS –

Fortum Electricity LTD and AS Narva Elektrivõrk – Narva Electricity Grid LTD).

The Council considers the work of the said enterprises successful. It holds that the higher selling price of the electricity in the Läänemaa power grid (as compared with AS Eesti Energia) is caused by discriminatory conditions on electricity market. The Council found that the privatised distribution and retail electricity companies diversify the national electrical energy system and give experience for transition to free market of electricity. The Council made the following proposition to Ministry of Economic Affairs and Communications and Energy Market Inspectorate:

- To analyse and apply measures to achieve that the price of electricity sold from all distribution grids should reflect all necessary expenses within the grid and that there should be no cross subvention of activities between individual entities in a multi-entity corporation;
- To give consideration to the establishment of unified norms and criteria of performance of invested assets in different branches of power engineering;
- To take into due account the experience of post-privatisation development of Läänemaa and Narva power grids, when supplementing the draft Long-Term National Development Plan of Fuel and Energy Economy.

Decisions of Energy Council were forwarded to Ministry of Economic Affairs and Communications, Economic Commission of Riigikogu, to all stakeholders. The Government of the Republic decided to postpone submitting to Riigikogu the National Development Plan of Fuel and Energy Economy, in order to specify it.

COUNCIL OF POPULATION AND PUBLIC HEALTH

The Council of Population and Public Health of the Academy of Sciences (Chairman Member of Academy Ain-Elmar Kaasik) discussed the Personal Data Protection Act, adopted by Riigikogu on 12.02.2003 and found that the law ignores public interests and impedes several types of scientific research. The demand of consent of the data subject specified in law ignores also the European Parliament and EU Council Directive 95/46EC, emphasising that dissemination of personal data to third parties without consent of the data subject is allowed in the first place for aims related with statistics or for aims related with history or scientific research. Art. 8 of the said Directive, specifies the respective areas, including preventive medicine, medical diagnosis, medical aid, treatment and management of health care services. Unfortunately

the legislators did not pay heed to the Council's opinion, in this matter. Among other areas, meriting attention are statements of the Council about advertising concerning medical aid and in particular pharmacotherapy, and regarding "promotional texts" (issues *Lege Artis* and *Modern Medicine*), as well as the so-called experiential researches practiced by some drug companies (one goal of which is to influence the doctors to recommend to patients the preparations of the given company).

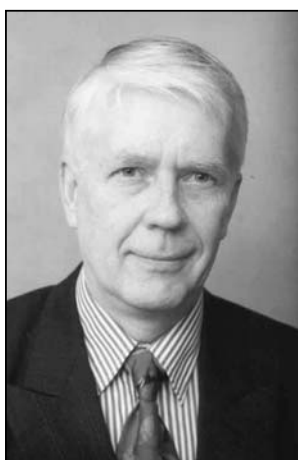
In the course of current work, the Council also analysed the performance audits of the health care sector, initiated by State Audit of the Republic of Estonia and contemplated for the future.

There was carried out an analysis of the strategy "Sustainable Estonia 21" inasmuch it regards the competence of the Council, submitted at the extended meeting of Board of the Estonian Academy of Sciences on 16 September, and also an analysis of the text of the National Agreement in Academic Council of the President of the Republic on 5th September (Member of Academy Ain-Elmar Kaasik).

PUBLIC ACADEMIC LECTURES

In 2003, there were three more discourses given to an audience in the series “Public academic lectures of the Estonian Academy of Sciences” initiated in 1996:

28 May
Member of Academy *Valdur Saks*
“Energy exchange and metabolism
of living cells: fundamental issues
of biomedicine”



24 September
Member of Academy *Enn Tõugu*
“Birth of super-brain in Internet”

16 December
Foreign Member of Academy
Helmut Schwarz
“Elementary processes in catalysis –
theory and experiment”



Altogether, 28 Member of Academy have delivered papers in that series.

CONFERENCES. MEETINGS. SEMINARS

In 2003, the Estonian Academy of Sciences organised 10 larger events.

CONFERENCES

21 May – a joint conference of scientific societies associated with Estonian Academy of Sciences was held in the Library of University of Tartu (co-moderated by Member of Academy Mihkel Veiderma) “Role of scientific societies in formation and preservation of Estonian ethnic identity”. Delivered were the following papers:

Tiit Rosenberg “Role of scientific societies in ethnic culture and the Estonian Learned Society”,

Tõnu Möls “Estonian Naturalists’ Society in the renewing Estonia”,

Mati Erelt “Past, present and future of the Estonian Mother Tongue Society”,

Toomas Liivamägi “Years of the Estonian Literary Society”,

Jaan-Mati Punning “Estonian Geographical Society and the study of homeland”,

Jaan Eilart “Anthology “Estonia” – reference model of knowing one’s homeland”,

Karl Siilivask “Activity of the Estonian Union of the History and Philosophy of Science in compilation of Biographical Lexicon of Estonian Scientists”.

Dedicated to conference was an exposition, presenting the activity of scientific societies.

11 June – there was a topical conference “Energy” (moderator Member of Academy Endel Lippmaa). Delivered were the papers by:

Olev Liik “Plan of development of Estonian power engineering”,

Arvi Hamburg “Development and regulation of Estonian power engineering”,

Martti Raidal “Fusion power engineering and new physics”,

Juhan Subbi “Heating elements and hydrogen power engineering”,

Jaan-Mati Punning “Carbon circle and regulations”,

Uuve Kirso “Residues of fluidised-bed boilers and coal burners”

Endel Lippmaa “Global processes”,

Mihkel Veiderma “Activity of Energy Council of the Estonian Academy of Sciences”.

Conference ended with a lively discussion, led by Member of Academy Endel Lippmaa.

6 November – a conference was held (moderated by Member of Academy Ene Ergma) “Formation of young generation of scientists in Estonia – the institution of post-doctors”, considering crucial issues of after-growth and quality of Estonian science. The papers were delivered by:

Toivo Maimets “Institution of post-doctors in Estonia”,

Jüri Engelbrecht “European Research Area”,

Anu Realo “Post-doctoral program through the eye of a former post-doctor”,

Allen Kaasik “Support system of young scientists in Estonia: cases to the point and beside the point and the actual life”,

Mart Saarma “Post-doctors and the European Union”,

Raivo Stern “Estonian post-doctors and America (in the development of a researcher in modern sciences)”,

Alvar Soesoo “Post-doctors in research and development space: status of post-doctors with us, and elsewhere”.

In the course of discussion (lead by Member of Academy Jüri Engelbrecht) special emphasis was made on quality in science. The proceedings of the conference were published as a brochure (ISSN 1406-9148) and were distributed to institutions, persons and libraries concerned with the named problem range; they are also available on website of the Academy as pdf-file.

MEETINGS

18 March – a meeting was held (organised by Member of Academy Ene Ergma) “Activity of national committees of international science unions”, with papers delivered by:

Jüri Engelbrecht “International Council for Science (ICSU) as association of science unions and academies”,

Peeter Tulviste “Participation of the Academy in the association of the academies in the humanities *Union Académique Internationale*”;

while representatives of national committees and the scientific societies performing a similar role: *Leo Mõtus* (Estonian National Committee of IFAC), *Raivo Jaaniso* (Estonian Physical Society), *Ülo Lumiste* (Estonian National Committee for Mathematics), *Tõnu Viik* (Estonian National Committee on Astronomy), *Kalju Eerme* (Estonian National Geophysical Committee), *Jaan-Mati Punning* (Estonian National Committee for International Geographical Union), *Dimitri Kaljo* (Estonian National Committee for Geology), *Anto Raukas* (Estonian National Committee of International Association of Geomorphologists), *Jüri Engelbrecht* (Estonian National Committee for Mechanics) and *Mikko Lagerspetz* (Estonian Association of Sociologists) reported about their participation in a respective international science union, its outcome and financial expediency.

Participants at the meeting deemed it right to continue centralised payment of membership fees through Estonian Academy of Sciences.

29 April – a festive meeting related to St. Petersburg’s 300th anniversary was held “St. Petersburg and Estonian literati” (co-moderated by Tallinn Pedagogical University and Estonian Academy of Music). Presenting papers were:

Raimo Pullat “Importance of St. Petersburg in the formation of Estonian literati”,

Alo Põldmäe “St. Petersburg and Estonian music”,

Tiina Abel “Estonian artists in St. Petersburg”.

Following the papers were short interventions – reminiscences of respective study periods in St. Petersburg and also the musical part by Estonian Academy of Music selected from work of Estonian composers educated in St. Petersburg.

16 May – jointly with Estonian Science foundation a topical meeting was held “Estonia’s participation in European Science Foundation”. Heard out were the following papers:

Representative of European Science Foundation *Henk Stronkhorst* “European Science Foundation as catalyst of development of science: structures, programmes, initiatives”;

Representatives of Academy of Finland: *Lea Ryyänen-Karjalainen, Eeva Laurila* “European Science Foundation: Finnish experience”;

Estonian representatives in structures of European Science Foundation:

Jüri Engelbrecht, member of European Science Foundation Steering Committee,

Peeter Saari, member of Standing Committee in Exact and Engineering Sciences,

Valter Lang, member of Standing Committee of the Humanities,

Dagmar Kutsar, member of Standing Committee of Sociological Sciences;

Representative of Estonian Science Foundation *Meelis Sirendi* “Funding mechanism in Estonia for participation in European Science Foundation *à la carte* programmes”;

Participants in European Science Foundation *à la carte* programmes:

Arvi Ravasoo, Programme “Nonlinear Acoustic Techniques for Micro-scale Damage Diagnostics (NATEMIS)”;

Ants Lõhmus, Programme “Nanotribology (NATRIBO)”;

Väino Puura, Programme “Response of the Earth System to Impact Processes (IMPACT)”;

Dimitri Kaljo, Foreign Secretary of Estonian Academy of Sciences “Differences in the essence of EUROCORES programmes and *à la carte* programmes”.

The meeting was finalised with a discussion led by Member of Academy Jüri Engelbrecht.

19 November – a topical meeting was held “Evaluation of funding of science, and research and development activity” (organised by Members of Academy Jüri Engelbrecht and Mihkel Veiderma). Speaking were:

Rein Vaikmäe “Review on evaluation of Estonian funding system of science and research and development activity”,

Tiit Laasberg “Science evaluation in Estonia 2000-2003”,

Peeter Saari “Evaluation in exact sciences”,

Rein Küttner “Outcome of evaluation in engineering sciences”,

Jaak Järv “Evaluation from viewpoint of Division of Biology, Geology and Chemistry of Estonian Academy of Sciences”,

Jüri Allik “Evaluation of social sciences”.

Followed discussion led by Member of Academy Jüri Engelbrecht. Proceedings of the meeting have been edited and will be published at the beginning 2004.

28 November – a ceremonial meeting was held “Fr. R. Kreutzwald – 200” (co-organised by Under and Tuglas Literature Centre of Estonian Academy of Sciences). Heard out were the following papers:

Jaan Undusk “Existential Kreutzwald”,

Arvo Krikmann “Alliteration in Kalevipoeg and folk poems”,

Ain-Elmar Kaasik “Dr. Kreutzwald – his epoch and his medical practice”.

The papers were followed by extracts from Fr. R. Kreutzwald’s play “Lighthouse” performed by students of Higher Scenic Art School at Estonian Academy of Music Tanel Jonas and Mirtel Pohl and presentation of book E. C. Houwald, Fr. R. Kreutzwald “Plays”.

SEMINARS

In 2003, Estonian Academy of Sciences continued holding seminars of the series, by now already traditional: “FROM SCIENCE TO SOCIETY” and “NEW TRENDS IN SCIENCE”

In the series “FROM SCIENCE TO SOCIETY”

28 March – the seminar “Estonian large lakes” co-moderated by Member of Academy Anto Raukas, with papers from:

Anto Raukas “Formation and development of the lake Peipsi”,

Ago Jaani “Lake Peipsi as an international area of water handling and as an indicator of instabilities in nature”,

Küllli Kangur, Tõnu Möls, Marina Haldna, Andu Kangur, Peeter Kangur, Reet Laugaste, Anu Milius, Risto Tanner “What determines the state of the lake Peipsi and the risk of eco-catastrophe?”

Arvo Järvet “Impact of man on reservoirs of the Võrtsjärve catchment area”,

Ain Järvalt, Väino Vaino “Fish stock of Estonian large lakes and their exploitation”.

Seminar was concluded with a discussion moderated by Member of Academy Anto Raukas. The proceedings of the conference were published as a brochure (ISSN 1406-9148) and were distributed to institutions, persons and libraries concerned with the named problem range; they are also available on website of the Academy as pdf-file.

In the framework of the series “NEW TRENDS IN SCIENCE”
23 October – seminar “Materials science” was held (co-moderator Professor Enn Mellikov). Delivered were the following papers:

Endel Lippmaa “New vistas for the materials science”,

Mihhail Danilkin, “Luminophores as storage elements of energy”,

Enn Mellikov, Andres Öpik “Materials of the solar power engineering”,

Jaan Aarik “Technology of electronics materials at University of Tartu”,

Priit Kulu, Jakob Kübarsepp, Jaanus Harro “Powder composite materials and coatings”

The seminar ended with a panel discussion led by Member of Academy Endel Lippmaa.

MEETINGS-DISCUSSIONS

Estonian Academy of Sciences regularly organises meetings-discussions in scientific institutions and societies associated with the Academy, and in enterprises and regions.

On 13 February, Estonian Academy of Sciences held Day of Science in the Võru County (such Days have been held since 1999). Speaking were

Jüri Engelbrecht, “Of Estonian Academy of Sciences and science generally”,

Raivo Vetik, “Human Development and regional development”,

Ain-Elmar Kaasik, “Dr Fr. R. Kreutzwald – his era and activity as a physician”.

Attending at the Day of Science were Members of Academy: Jüri Engelbrecht, Agu Laisk, Ülo Lumiste, Ain-Elmar Kaasik, Erast Parmasto, Huno Rätsep, Peeter Tulviste, Mihkel Veiderma; County Governor Mait Klaassen, representatives of local self-governments, headmasters of schools and teachers, and those interested. The participants visited Fr. R. Kreutzwald Museum, the Võru Institute and the Vocational Education Centre of Võrumaa.



Member of Academy Ene Ergma at the Fair “Intellektika”, 15 February 2003

Participating at meetings with Members of Academy, within the framework of the Science and Education Fair “Intellektika” 2003 (Tartu) were Members of Academy Ene Ergma, Jaak Järv, Arvo Krikmann and Haldur Õim.

On 17 June Members of Academy Jüri Engelbrecht, Ain-Elmar Kaasik, Agu Laisk, Ülo Lepik, Ülo Lumiste, Udo Margna, Arvo Ots, Erast Parmasto, Loit Reintam, Huno Rätsep, Arved-Ervin Sapar and Mihkel Veiderma participated at meetings with captains of industry and management of Kunda and in discussions over development plans and problems of logistics and industrial production of Kunda. Members of Academy visited the building materials company AEROC (Chairman of Council Jozep Poplavskis) and cement factory Kunda Nordic Cement (CEO Jan Owren), Port of Kunda, spoke to corporate heads and representatives of the town administration.

On 16 September, there was the extended meeting of the Board of Estonian Academy of Sciences. On the agenda were deliberations on strategy “Sustainable Estonia 21”. Professor Mati Heidmets, speaker of the SE 21 monitoring team delivered a paper. Opponents, speaking on behalf of the Academy were Members of Academy Raimund Hagelberg, Ain-Elmar Kaasik and Loit Reintam.

On 19 September the Board of the Estonian Academy of Sciences familiarised themselves with the work and lines of development of Institute of Ecology at Tallinn Pedagogical University (associated with the Academy in 1998). Attending at the meeting was Peeter Normak, Research and Development Pro-Rector of TPU.

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

ACADEMY RESEARCH GRANTS

In 2003, the Estonian Academy of Sciences assigned 4 grants, by public competition, for completion of monographic research works and popular science books. The Academy received 17 applications for the purpose. The Assessment Commission, comprising Member of Academy Ülo Lumiste (Chair), Members of Academy Hillar Aben, Ülo Lille 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 20 May 2003, Minutes no. 4 § 20):

Tiina Randlane and *Andres Saag* (Institute of Botany and Ecology of University of Tartu) – 15 000 kroon, for editing, illuminating and getting ready for publication of the monograph “Estonian minilichens”; the manuscript is edited and ready for the printers’, there is some work in progress with compilation of the list of names of lichens in Latin and Estonian and with designing the black-and-white drawings and colour plates. The manuscript will be deposited with the University of Tartu Publishers in April 2004.

Ain Raitviir (Institute of Zoology and Botany of Estonian Agricultural University) – 15 000 kroon, for completion of the monograph “The Hyaloscyphaceae”; layout of the text is ready; the book needs proofreading and final inclusion of illustrations. The publication is planned for spring 2004.

Maarja Lõhmus (Department of journalism and communication of University of Tartu) – 15 000 kroon, for publishing of the monograph “Media and public”; the work has been translated in Estonian and is edited. The drawings and other graphics have been edited. The book will be released in University of Tartu Publishers in autumn 2004.

Heldur Nestor (Institute of Geology at Tallinn Technical University) – 15 000 kroon. The grant is for preparation of illustrations and for getting license for reproductions of the popular science book “Past, present and future of the Earth”. Illustrations have been prepared and handed over on a CD disc to Reves Grupp OÜ Publishers. The book “Earth in the Universe: past, present and future” will appear in April 2004.

STUDENT RESEARCH PRIZES

On 20 May 2003 the Board of the Estonian Academy of Sciences called a competition of student research prizes. By the established deadline 42 papers were deposited with the Academy, of which 26 Master's papers and 16 Bachelor, Diploma or graduation works. Majority of works came from the University of Tartu (21), 5 from Tallinn Pedagogical University, 4 from Estonian Agricultural University and 10 from Tallinn Technical University. The remaining 2 works were from New York University, John Jay Criminal Law College and from Cambridge 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 Enn Tõugu. There were outside experts involved in the assessment. At its session on 10 November the Commission decided to award six first prizes EEK 4000 (net) and twelve second prizes EEK 2500 (net).

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

Lauri Ilison (Tallinn Technical University) Master's thesis "Soliton-type waves in granular materials" (in English; supervisor Professor Andrus Salupere);

Ilona Oja (Tallinn Technical University) Master's thesis "TiO₂ thin films by sol-gel process" (in English; supervisors Malle Krunk PhD and Professor M. Es-Souni);

Katrin Oja (University of Tartu) Bachelor's thesis "Brain drain from Estonia and taking roots in a new country, by the example of the USA" (supervisor Professor Dagmar Kutsar);

Artur Sepp (University of Tartu) Master's thesis "Analytical pricing of double-barrier options under a double-exponential jump diffusion process: applications of Laplace transform" (in English; supervisor Professor Raul Kangro);

Tambet Tõnissoo (University of Tartu) Master's thesis "Nucleotide exchange factor Ric-8 in the nervous system of the developing and adult mouse" (supervisor Professor Alar Karis);

Annika Velthut (Tallinn Pedagogical University) Master's thesis "Patterns of participation in drafting secondary legislation in Estonia: an application of Wilson's policy typology" (in English; supervisors Professor Georg Sootla and Professor Christopher C. Hood).

The second prize was awarded to the following student papers:

Tiia Anmann (Tallinn Technical University) Master's thesis "Channeling of endogenous ADP in cardiac muscle ghost fibers" (in English; supervisors Professor Raivo Vilu and Toomas Tiivel PhD);

Jaan Aps (University of Tartu) Bachelor's thesis "Taking into account of environmental expenditures, by the example of Estonian oil shale power engineering" (supervisor Andres Võrk MSc);

Rein Drenkhan (Estonian Agricultural University) Master's thesis "Comparative research of features characterising the needle density of Scotch pine (*Pinus sylvestris*) and the accretion of trees by needle-print method, in the forest stand (arboretum) established on primeval woodland and on former agricultural land"(supervisor Associate Professor Märt Hanso);

Jaanika Erne (University of Tartu) Master's thesis "Development of the requirement for link of jurisdiction in article 62 intervention proceedings before the international court of justice" (in English; supervisor Professor Jan Klabbers);

Regino Kask (Estonian Agricultural University) Master's thesis "Mechanical and physical properties of the wood of Scotch pine (*Pinus sylvestris*) in the type of forest growth area abounding in lingonberry and blueberry" (supervisor Associate Professor Jaak Pikk);

Hele Kiimann (Tallinn Pedagogical University) Master's thesis "Landscapes of Naissaare and the changes manifested in them starting from 17th C" (supervisor Candidate in Geography Urve Ratas);

Kersti Kivisoo (University of Tartu) Master's thesis "Generalisation of the Simons' inequality" (supervisor Professor Eve Oja);

Ergo Metsla (Tallinn Technical University) Master's thesis "Study of theories of life cycle of organisation and elaboration of a general model of life cycle of organisation" (supervisor Associate Professor Kostel Gerndorf);

Pilvi Nigumann (Tallinn Technical University) Bachelor's thesis "The post-transcription interference of genes induced by promotor of man's L 1 retro-transposon" (supervisor Mart Speek PhD);

Katrin Saaremäel-Stoilov (University of Tartu) Master's thesis "A comparative study of commercial free speech and limiting advertising in North America and continental Europe" (in English; supervisors Professor Raul Narits and Professor A. Sajo);

Evelin Schapel (University of Tartu) Bachelor's thesis "On the Shift of Paradigm in the Teaching of English (with Special Reference to Some Gymnasiums of Tartu)" (in English; supervisor Lecturer Leili Kostabi);

Jelena Žovnikova (Tallinn Technical University) Master's thesis "Public Sector Financial Reporting and Budgeting in Estonia: Accrual vs Cash Account-

ting” (in English; supervisors Professor Alari Purju and Professor Rita Ilisson).

Research prizes together with diplomas were handed over on 2 December, at the conference of winners of competition of student papers. The conference heard the reports by five prize winners *Tambet Tõnissoo, Ilona Oja, Artur Sepp, Katrin Oja* and *Jaan Aps* on topic of their respective competition papers.

PUBLICATIONS OF THE ACADEMY

Published in 2003 were

books:

- “Estonian Academy of Sciences Year Book VIII (35)” in Estonian and English *;
- the seventh book in the series “National Science Prizes”, providing an overview of the award-winning scientists of 2003 and their research papers;

brochures:

- of the series “NEW TRENDS IN SCIENCE”*
“Large lakes of Estonia”(proceedings of a seminar on 28 March, ISBN 14906-9148);
- of the series “PROCEEDINGS OF CONFERENCES”*
“Formation of the young generation of scientists in Estonia – the institution of post-doctors” (proceedings of a conference on 6 November, ISBN 14906-9148).

Scientific journals cf. p. 87.

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

AWARDS

NATIONAL SCIENCE PRIZES TO THE MEMBERS OF ACADEMY

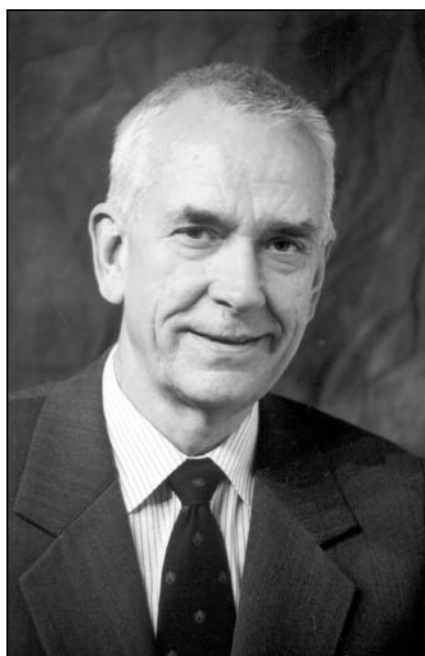
Awarded by the Ordinance of the Government of the Republic of Estonia, upon proposition by Commission for National Science Prizes no 147-k, 18th February 2003.

FOR LONG AND PRODUCTIVE RESEARCH AND DEVELOPMENT WORK



Jaan Einasto

“...I developed interest in astronomy in schooldays, when father gave me as a present the book by Roopi Halimägi “Astronomical observations”...In University I studied astronomy after a special programme...”
(*Membership of Estonian Academy of Sciences, 1998, p. 32*).



Ain-Elmar Kaasik

“...Instrumental for my decision to take up the career of a neurologist and later engagement in problems of treatment of cases of neuropathology was my active participation in treatment of cases of poliomyelitis during the 1958 epidemic ...”(*Membership of Estonian Academy of Sciences, 1998, p. 46*).

NATIONAL PRIZE FOR EXACT SCIENCES

Member of Academy *Vladimir Hizhnyakov*
for cycle of works “Non-perturbation theory of multi-quantum processes”

NATIONAL PRIZE FOR GEO- AND BIOSCIENCES

Member of Academy *Anto Raukas* (together with Juta Haberman, Aavo Miidel, Tiina Nõges and Ervin Paju)
for monographs handling the research of Lake Peipsi

**NATIONAL DECORATIONS
TO THE MEMBERS OF ACADEMY**

Awarded by the Decree of President of the Republic no. 332, of 3 February 2003

Order of the White Star 4th Class

Member of Academy *Rein Küttner*

**MEDAL
OF THE ESTONIAN ACADEMY OF SCIENCES**

In 2003, decorated with the Medal of the Estonian Academy of Sciences for merits to the Academy was

Member of Academy *Georg Liidja* and
Director of Estonian Academy Publishers *Ülo Niine*

LETTER OF THANKS OF THE ACADEMY

In 2003, Letter of Thanks of the Estonian Academy of Sciences was conferred to

Anne Valmas for long productive work as Director of Academic Library,
and
Estonian Naturalists' Society in connection with its 150th anniversary for prolific activity in generation and dissemination of knowledge and in bringing together scientists and laymen in science.

ANNIVERSARIES

80

Member of Academy
Mihhail Bronshtein

Mihhail Bronshtein was born on 23 January 1923 in St. Petersburg. In 1940 he completed the secondary school and enrolled in Leningrad Institute of Chemical Technology. War put an end to his studentship. After demobilising from the Soviet Army Mihhail Bronshtein studied at Economics Department of Leningrad University and in 1949 graduated from it with a diploma in Political Economy.

After graduation from university Mihhail Bronshtein joined Department of Political Economy of University of Tartu, where he worked over 40 years, from 1961 as Department Head. In 1954 he defended his Candidate's dissertation, in 1965 his Doctoral dissertation. In 1966 he was awarded the degree of Professor. In 1975 Mihhail Bronshtein was elected Member of Estonian Academy of Sciences.

Mihhail Bronshtein is Professor Emeritus of University of Tartu. He is also member of International Union of Economists and International Association of Agrarian Economists.

Main areas of interest to Mihhail Bronshtein have been macroeconomics, strategy of economy and international economic relations. On those topics he has released over 300 scientific works, including (as author or editor) 12 monographs. Mihhail Bronshtein has provided great services for preparing and carrying out first economic reforms in the newly independent Estonia.

Besides fruitful research Mihhail Bronshtein has been a prolific publicist and has released in press scores of analytical articles in economy. His long activity as pedagogue deserves the highest merit. He has been supervisor or consultant of over 30 Candidate's and Doctoral dissertations.



Dimitri Kaljo

Dimitri Kaljo was born on 12 October 1928 in Haapsalu. In 1948 he completed the Tallinn 1st Secondary School. In 1953 he graduated from Department of Geology of University of Tartu. In 1957 Dimitri Kaljo was awarded the Candidate's degree. In 1978 he was awarded the degree of Doctor in Geology and Mineralogy, for ecostratigraphic analysis of the Baltic Silurian Period. In 1983 Dimitri Kaljo was elected Member of Estonian Academy of Sciences. He was awarded the degree of Professor in 1986. London Geological Society elected him its honorary member in 1987.



As an expert palaeontologist and talented organiser of science Dimitri Kaljo has worked, since 1956 at Institute of Geology of Academy of Sciences as Head of Department, Research Director and 1969-1989 as Director. Starting from 1990 he has been Head of Department of Bedrock Geology at the same Institute. In the years 1990-1999, Dimitri Kaljo was Head of Division of Biology, Geology and Chemistry of the Academy. Currently he holds the position of Member of Board and Foreign Secretary of the Academy.

As a scientist of international stature Dimitri Kaljo has been sitting on many expert commissions. Since 1981 he has been Chairman of the Estonian Stratigraphic Commission and member of a homologue Baltic Commission, since 1976 member of the Silurian Sub-commission of the International Stratigraphic Commission (in 1984-1992 Chairman), since 1992 Chairman of Estonian National Committee for Geology. Many years Dimitri Kaljo was member of the USSR Stratigraphic Committee and member of its Ordovician-Silurian Commission (in 1983-1991 Chairman). In 1983-1988 he was Vice-President of International Association for Research of Fossil Corals, in 1989-1996 Vice-President of International Union of Palaeontology. Since 1990 Dimitri Kaljo has been Chairman of Estonian Mineral Resources Commission.

Dimitri Kaljo's main scientific concern has been research in palaeontology, stratigraphy, facies, bio-events and isotope geology. He has released, in those areas *ca.* 270 scientific publications, as leader of a research body was awarded national prizes in 1972 and in 2001 for isotope research, casting light on Palaeozoic developments.

In 2002 Dimitri Kaljo was awarded Order of the White Star 4th Class.

Lembit Krumm

Lembit Krumm was born on 20 July 1928 at Kuressaare. In 1947 he completed the Saaremaa Secondary School, in 1952 Tallinn Technical University. In 1953-1955 he took a post-graduate programme with Tomsk Polytechnic Institute, in 1956 he defended his Candidate's dissertation. In 1979 Lembit Krumm was awarded the degree of Doctor in Engineering, in 1980 the degree of Professor. In 1987 he was elected Member of Estonian Academy of Sciences.

After completing the post-graduate programme Lembit Krumm worked at Institute of Electrical Engineering with ESSR Council of National Economy, being promoted to the position of Head of Laboratory. In 1959 he moved to research work in institutions of Siberian Division of USSR Academy of Sciences, working as Head of Department in Novosibirsk, thereafter in 1962-1990 as Head of Department of Regulation of Large Energy Systems of the Siberian Power Engineering Institute in Irkutsk. At the same time he was scientific supervisor of Electrical Systems Department of Irkutsk Polytechnic Institute and in 1981 Head of Department of Estonian Energy Research Institute.

The main concern of Lembit Krumm has been with issues of regulation of large energy systems and international co-operation. He has laid the foundation to comprehensive optimal management theory and methods of connected energy systems; he has directed the respective line of research in the embrace of the former USSR and countries of socialist camp. After the Baltic States regained their independence Lembit Krumm has furthered the said theory in the novel conditions of market economy – in particular on the level of co-operation between countries. Since 1996 he has been President of Baltic Association for Research of Energy Systems.

Lembit Krumm has released over 200 scientific publications, including (as sole author or co-author) 15 monographs. Under his supervision over 20 Candidate's dissertations have been defended.

In 1966 Lembit Krumm was awarded the G. M. Kržižanovski prize of the USSR Academy of Sciences, in 1986 the national prize of the USSR.



Cheslav Lushchik was born on 15 February 1928 in St. Petersburg. In 1946 he completed the secondary school and enrolled at Department of Physics of the University. A fourth year student, he got involved in research of luminescence of crystals at the F.Klement laboratory adhering to the school of A.N.Terenin. In 1951 he graduated from the University. In 1954 he was awarded, by his alma mater the Candidate's degree and was invited by his scientific supervisor, Member of the Estonian Academy of Sciences Feodor Klement to work as senior researcher at Institute of Physics and Astronomy of the Academy of Sciences (1973-



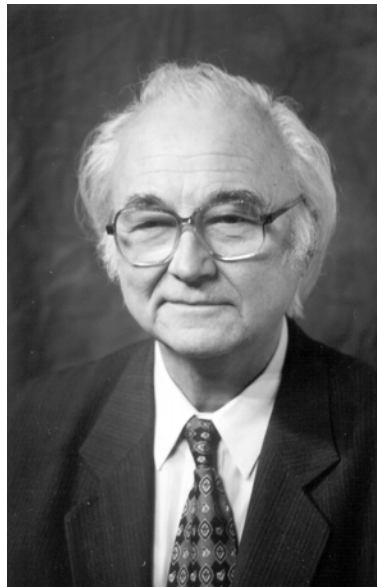
1995 Institute of Physics of the Academy of Sciences, currently Institute of Physics of University of Tartu), holding in 1960-1993 the position of Head of Laboratory of ion crystals. Cheslav Lushchik was awarded the degree of Doctor of Physical and Mathematical Sciences in 1964 and the degree of Professor in 1968. He was elected Member of Estonian Academy of Sciences in 1964. From the past decade, after withdrawal from management chores, Cheslav Lushchik has dedicated all his efforts to scientific research.

His main areas of research have been solid-state physics, optics and spectroscopy of wide forbidden band materials and radiation physics of dielectrics and high temperature superconductors. He has worked out and developed, with his co-workers the methods of thermo-activation spectroscopy and vacuum UV-spectroscopy, he has discovered and thoroughly studied the phenomena of propagation of photons and decay into pairs of electron-excitation structure defects, finding for them practical solutions. Cheslav Lushchik has established the Tartu school of physics of insulator crystals having won international renown and he has stimulated the establishment of research centres of the same area in Latvia, Kazakhstan, Russia and Kyrgyzstan.

In fifty years devoted to the Institute, Member of Academy Cheslav Lushchik has released *ca.* 350 scientific publications, including 3 monographs. Starting from 1957, under his supervision, 50 Candidate's dissertations have been defended.

Uno Mereste

Uno Mereste was born on 27 May 1928 in Tallinn. In 1946 he completed the Tallinn Boys' School of Trade and Commerce. In 1950 he graduated from Tallinn Technical University majoring in finances. Teacher at Tallinn Polytechnic of Finance, he enrolled for distant study (1951-1954) in University of Tartu, majoring in physical geography. In 1954-1964 Uno Mereste worked as senior instructor and associate professor at University of Tartu, Department of Trade Economy. In 1964 he was appointed Head of Department of Accounting and Statistics (later Statistics) of Tallinn Technical University. He held that post for 28 years, after which he had Professorship at the same Department, while being Member of Parliament, until he became Emeritus in 1997.



In 1960 Uno Mereste defended his Candidate's dissertation, in 1971 Doctoral dissertation, in 1972 he was awarded the degree of Professor. In 1994 Uno Mereste was elected Member of Estonian Academy of Sciences.

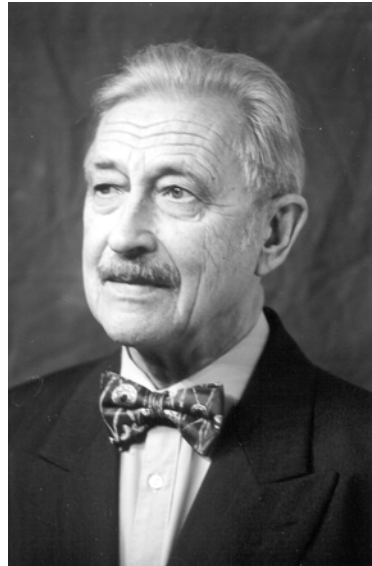
A leading scholar in economics, Uno Mereste has mainly studied the methods of economical analysis, attempting to link it to mathematical methods. In that area he has worked out several original conceptions of economical theory. Uno Mereste has published scholarly studies also in the area of demography, theoretical and mathematical geography and theory of terminology. He has released over 300 scientific and popular science works, among them ca. 60 books and brochures as separate issues. In 1984 Uno Mereste, as leader of a research group was awarded a national prize of ESSR. In 2003 he authored the "Economics Lexicon" (in two parts, 1047 p.).

In the period of preparation and launching of the economic reforms Uno Mereste was acting counsellor of Planning Committee and Economics Ministry. He took part in restoration of Estonian monetary system and formation of monetary policy, as well as drafting the Bank of Estonia Act. In 1992-1997 Uno Mereste was Chairman of Council of the Bank of Estonia, in 1992-2003 he belonged to the Riigikogu (Parliament).

In 1997 Uno Mereste was awarded the Order of White Star 3rd Class.

Erast Parmasto

Erast Parmasto was born on 23 October 1928 in Tallinn, borough of Nõmme. In 1947 he completed the Nõmme Gymnasium and in 1952 University of Tartu. Followed the post-graduate programme with Institute of Zoology and Botany of Academy of Sciences and award of the degree of Candidate in Biology (Mycology) in 1955. In 1969 Erast Parmasto was awarded the degree of Doctor in Biology, in 1980 the degree of Professor in Botany. In 1972 he was elected Member of Estonian Academy of Sciences.



The whole activity of Erast Parmasto as scientist has been inextricably linked to Institute of Zoology and Botany of the Academy of Sciences (presently at Estonian Agricultural University), where he did his first steps in research, as a student, and where he still holds the post of senior researcher. In 1985-1990 he was Director of the Institute.

Besides his full time work at the Institute Erast Parmasto belonged, almost 15 years to the leadership of Estonian Academy of Sciences: in 1973-1987 the Member of the Presidium of the Academy, in 1973-1982 Academician-Secretary of the Division of Biology, Geology and Chemistry. In 1987-1995 he worked as Professor of University of Tartu. Under his supervision, 16 dissertations have been completed.

Erast Parmasto is a leading specialist of Estonia in mycology. He has mainly been concerned with phylogeny and systematics of higher Basidiomycetes, the problems of species and family, general rules of morphological variation of sporogenous layer fungi. He has published over 150 scientific works, incl. several monographs. Since 1990 Erast Parmasto has been member of Committee of Fungi of International Plant Systematics Association, since 1993 Honorary Member of American Mycological Society, since 1995 honorary member of Botanical Society of Poland. Erast Parmasto has authored over 110 popular science articles and over 200 publicist pieces of writing. He was also editor of the magazine "Estonian Nature".

In 1998 Erast Parmasto was awarded Order of White Star 3rd Class. In 2002 he was awarded the national science prize for long and productive research and development work. Since 2003, Erast Parmasto has been honorary citizen of the town of Tartu.

Hans-Voldemar Trass

Hans-Voldemar Trass was born on 2 May 1928 in Tallinn. In 1947 he completed the Nõmme Gymnasium. In 1952 he graduated from University of Tartu, majoring in biology. Followed the post-graduate programme in the alma mater and in 1955 the defence of Candidate's dissertation. In 1969 H.-V. Trass defended his Doctoral dissertation, in 1971 he was awarded the degree of Professor. In 1975 Hans-Voldemar Trass was elected Member of Estonian Academy of Sciences.



The whole scientific and pedagogic activity of H.-V. Trass has been linked to the Department of Plant Systematics and Geobotany of University of Tartu (presently Institute of Zoology and Botany). Upon completion of post-graduate programme, he joined the faculty as senior instructor in 1955. Already in the following year he was promoted to the position of head of the same department, which he held for 35 years, till 1991. Until becoming Emeritus in 1994, H.-V. Trass was Professor Extraordinary in the same Department.

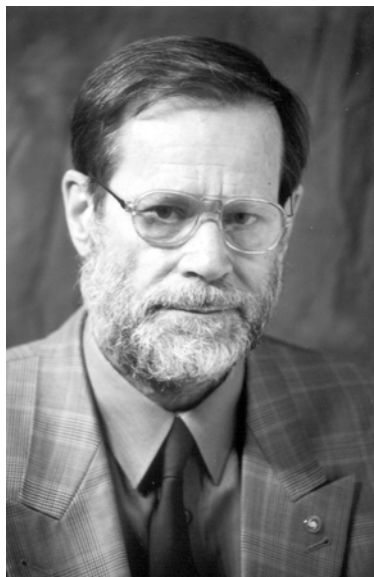
Main scientific concern of Hans-Voldemar Trass has been geobotany, plant ecology and lichenology. On the basis of his research for which he collected source material at many botanical expeditions in various parts of the globe, H.-V. Trass has published 7 scientific monographs and nearly 200 scientific articles. Besides that he has authored ca. four hundred popular science articles and publicist essays. In 1996 Hans-Voldemar Trass was awarded the national science prize for long and productive work in the area of lichenology. In 1997 he was elected Foreign Member of Russian Natural Sciences Academy.

H.-V. Trass has rendered great service in highlighting and solving nature conservation and environmental protection issues in Estonia. He has proved the necessity to establish several new nature reserves in various districts of Estonia. In 1964-1973 and in 1985-1991 he was President of Estonian Naturalists' Society, since 1991 President Honoris Causa.

In 1998 Hans-Voldemar Trass was awarded Order of White Star 3rd Class.

Georg Liidja

Georg Liidja was born on 4 August 1933 in Tallinn. In 1952 he completed the Tallinn 1st Working Youth Secondary School. A student of physics at the University, he majored in optics and found himself in the luminescence school of Feodor Klement of Leningrad University, with branch in Tartu. In 1957 Georg Liidja graduated from University of Tartu. In 1962 he became Candidate in Physics and Mathematics, in 1968 Doctor in Physics and Mathematics. In 1987 Georg Liidja was elected Member of Estonian Academy of Sciences.



After graduation from University, Georg Liidja joined, for a quarter of century the Institute of Physics of Estonian Academy of Sciences. He started from the bottom rung of the ladder as mechanic, to gradually tackle a series of jobs: senior mechanic, junior researcher, senior researcher and head of department. In 1966-1982 he headed the Department of Low Temperatures. In 1982 Georg Liidja was invited to work at the Institute of Chemical and Biological Physics, where he still holds the position of senior researcher.

Georg Liidja's research effort refers, in the first place to solid-state physics, to move on to the borderline between solid-state physics and cryogenics. In solid-state physics he has elucidated the impact of radiation in crystals, its micro-processes and mechanisms, focusing on mutual transitions of exciton states and eximers. First, the objects of his research were alkalide halides and lead salts, to be followed by oxides and hydroxyapatite of biogenic origin, as component of tooth enamel. Georg Liidja was party to the discovery of the phenomenon of propagation of photons in photoluminescence of crystal phosphors. He has developed the vacuum UV-spectroscopy at temperatures of liquid helium and has pioneered research in luminescence with crystals cooled to very low temperatures.

Georg Liidja has for years been Chairman of the Assessment Commission of the Academy for students' research theses. He is member of British Institute of Physics.

In 1975, Georg Liidja was awarded the national science prize, in 1994 the annual prize of Estonian Physical Society. In 2001 he was awarded the Order of White Star 5th Class.



Arved Sapar was born on 7 February 1933 in the Rakvere parish, village of Paatna. In 1952 he completed the Rakvere 1st Secondary School. In 1957 he graduated from Department of Physics of University of Tartu. In 1965 Arved Sapar defended at University of Tartu his Candidate's dissertation on cosmology, in 1989 he was awarded, in Leningrad University the degree of Doctor in Physics and Mathematics for results in generalisation of kinetics equations and research in extra-atmospheric spectra of hot stars. A.Sapar was awarded the degree of Professor in 1990. At the same year he was elected Member of Estonian Academy of Sciences.

After graduation from University in 1957, Arved Sapar joined the Institute of Physics and Astronomy of the Estonian Academy of Sciences (later Institute of Astrophysics and Atmospheric Physics, currently Tartu Observatory), where he held several positions: junior researcher, senior researcher, head of Department (1968-1986) and Laboratory (1986-1990) of Theoretical Astrophysics, head researcher, starting from 1993 ten years Head of Department of Astrophysics and in 2003 senior researcher.

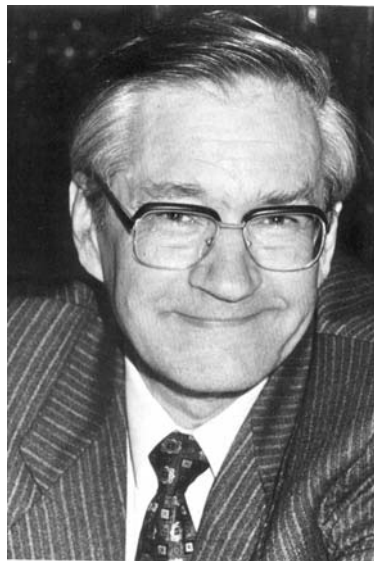
As freshman in science, Arved Sapar studied cosmology, he then researched the structure of extra atmospheric stellar spectra and stellar atmospheres and processes evidenced therein, and the movement of lunoids. However, he took a real fancy to research in generalisation of equations underlying astrophysics. Arved Sapar has also considered the problems in physics of elementary particles and semiconductors, the photometric polychromatic systems of stars, universal constants of physics as those holding together the micro-world of the Universe, atmospheric physics of rotating and twin stars.

Since 1967 Arved Sapar has been member of International Astronomical Union (IAU), founding member of European Astronomical Union (1990). In 1976-91 he was head of All-Union Working Group "Physics of Stellar Atmospheres". In 1989-1993 Arved Sapar was one of the three co-chairmen of the USSR Astronomical Union, and member of the bureau and board of the Eurasian Astronomical Union, formed on its basis. He has authored *ca.* 170 scientific articles. He is author of co-author of five monographs. Under Arved Sapar's supervision ten Candidate's degrees have been defended.

70 Foreign Member of Academy

Richard R. Ernst

Richard R. Ernst was born on 14 August 1933 in Switzerland, in the small town of Winterthur near Zurich to an architect's family. In 1956 he graduated from Zurich Technical University and defended there, in 1962 his degree of Doctor in Engineering on apparatus building. In 1962-1968 Richard R. Ernst worked in Palo Alto, at the apparatus building company Varian Associates, specialising in automation of spectroscopic experiments. In 1968 he returned to Zurich to stay. A Private Docent first, he became Professor in 1976, and is currently Professor Emeritus. Scientific performance of Richard R. Ernst in chemical physics is fundamental, in particular in the area of



stochastic resonance methods Fourier' and multidimensional spectrometry and Fourier-tomography. In all those areas he developed, with tremendous success, the novel physical theories and methods, perfecting them with modern experimental and computer technology. During the past decade his physics-focused theoretical and applied research efforts have been complemented by numerous applications in molecular biology and in research of solid state.

Notable is the activity of Richard R. Ernst as President of Research Council of Zurich Technical University. The quintessence of his works is monograph on physical foundations of multidimensional spectrometry published in 1987. His achievements described there won him the Nobel Prize in 1991. Richard R. Ernst's work has had a significant impact of science – in 1981-1997 he held the 9th place among 2000 most cited physicists and chemists.

Richard R. Ernst is member of London Royal Society, USA Academy of Sciences, Swiss Academy of Technology, German Academy Leopoldina, Russian Academy of Sciences, Indian Academy of Sciences, American Physical Union etc.

In 2003 Richard R. Ernst was elected Foreign Member of Estonian Academy of Sciences in physical chemistry.

Jānis Stradiņš

Jānis Stradiņš was born on 10 December 1933 in Riga. In 1956 he graduated from Department of Chemistry of University of Latvia. In 1960 he defended, at Moscow University the degree of Candidate in Chemistry, in 1968 at Latvian Academy of Sciences the degree of Doctor in Chemistry. In 1989 Jānis Stradiņš was awarded the degree of Honorary Doctor of University of Latvia and in 1992 the degree of Honorary Doctor in History of Latvian Academy of Sciences.



Since 1961 Jānis Stradiņš has been Head of Laboratory of Physical-Organic Chemistry of Institute of Organic Synthesis of Latvian Academy of Sciences, since 1990 Professor of History of Science of Institute of History of University of Latvia and since 1992 Professor of Institute of Medical History of Medical Academy of Latvia. In 1992-1998 he was Vice-President of Latvian Academy of Sciences and since 1998 President.

Jānis Stradiņš is one of the most merited Latvian scientists, enjoying international stature as a prolific scientist in chemistry and as historian of science. He has studied Estonian-Latvian scientific relations, has promoted scientific co-operation of the Baltic States and Nordic countries, and has helped restore the tradition of holding Baltic Conferences on Intellectual Co-operation.

Jānis Stradiņš has authored over 300 scientific articles and 7 monographs on electrochemistry and over 180 scientific articles and 10 monographs on history of science.

Jānis Stradiņš was elected Member of Latvian Academy of Sciences in 1973. He is also member of European Academy of Sciences and Arts, member of German Academy of Natural Sciences *Leopoldina*, Corresponding Member of Academy of Sciences of Saxony, Foreign Member of Lithuanian Academy of Sciences.

In 1998 Jānis Stradiņš was elected Foreign Member of Estonian Academy of Sciences in physical chemistry and history of science. On the occasion of the 86th anniversary of the Republic of Estonia Jānis Stradiņš was awarded Order of Merit Terra Mariana Cross 3rd Class.

More anniversaries in 2003:

65th anniversary

3 May	Member of Academy Agu Laisk (elected Member of Academy 1994)
28 May	Member of Academy Vladimir Hiznyakov (1977)
31 May	Member of Academy Gennadi Vainikko (1986)

60th anniversary

6 August	Foreign Member Helmut Schwarz (2002)
3 September	Member of Academy Valdur Saks (1993)

55th anniversary

5 November	Member of Academy Jaak Järv (1997)
21 December	Member of Academy Raivo Uibo (2003)

MEMBERS OF THE ACADEMY

As of February, 2004

Olav AARNA, born 4.11.1942, elected 1990, informatics. Tallinn Technical University 1965. Riigikogu (Parliament), Chairman of the Cultural Affairs Committee (2003); Lossi plats 1a, 15165 Tallinn ESTONIA, Tel: +372 631 6480, Fax: + 372 631 6485, E-mail olav.aarna@riigikogu.ee. HOME ADDRESS Nooruse 1-45, 76901 Tabasalu, Harku vald, Harju maakond ESTONIA, Tel: +372 603 2060. Widower, three sons and a daughter.

Jaak AAVIKSOO, born 11.01.1954, elected 1994, exact sciences. University of Tartu 1976. Rector, University of Tartu (1998); Ülikooli 18, 50090 Tartu ESTONIA, Tel: +372 737 5600, Fax: +372 737 5640, E-mail: aaviksoo@ut.ee. HOME ADDRESS Täche 91a-7, 50107 Tartu ESTONIA, Tel: +372 734 9000. Married, two sons and a daughter.

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

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 5662 9275. 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: +372 741 0110, Fax: +372 7 410 205, E-mail: einasto@aai.ee. HOME ADDRESS Observatooriumi 6-3, 61602 Tõravere, Tartu maakond ESTONIA, Tel: +372 741 0151. Widower, a son and two daughters.

Jüri ENGELBRECHT, born 1.08.1939, elected 1990, mechanics. Tallinn 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.

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); Riigikogu (Parliament), Chairman (2003); Lossi palts 1a, 15165 Tallinn ESTONIA, Tel: +372 631 6301, Fax: +372 631 6304, E-mail ene.ergma@riigikogu.ee. HOME ADDRESS Ropka 15A-11, 50111 Tartu ESTONIA, Tel: +372 747 4911. 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); Riia 142, 51014 Tartu ESTONIA, Tel: +372 738 3017, Tel/Fax: +372 737 5570, Fax: +372 738 3033, E-mail: hizh@fi.tartu.ee. HOME ADDRESS Aardla 154-6, 50415 Tartu ESTONIA, Tel: +372 747 5290. Married, a son and two daughters.

Ülo JAAKSOO, born 16.04.1939, elected 1986, informatics. Tallinn 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. Professor of Organic Chemistry, University of Tartu (1992); Jakobi 2, 51014 Tartu ESTONIA, Tel: +372 737 5246, Fax: +372 737 5247, 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: +372 731 8507, Fax: +372 731 8509, E-mail: ain-elmar.kaasik@kliinikum.ee. HOME ADDRESS Ülase 14, 50412 Tartu ESTONIA, Tel: +372 742 5426. Married, a son.

Dimitri KALJO, born 12.10.1928, elected 1983, geology. University of Tartu 1953. Head of the Department of 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: +372 742 2383. Widower, 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: +372 737 5263, Fax: +372 737 5264, E-mail: ilmars@chem.ut.ee. HOME ADDRESS Kaunase pst 16-10, 50704 Tartu ESTONIA, Tel: +372 748 4351. Married, a son.

Arvo KRIKMANN, born 21.07.1939, elected 1997, the Humanities. University of Tartu 1962. Senior Researcher, Estonian Literary Museum (2000); Vanemuise 42, 51003 Tartu ESTONIA, Tel: +372 734 1077, Fax: +372 742 0426, E-mail: kriku@haldjas.folklore.ee. HOME ADDRESS Kastani 59-2, 50410 Tartu ESTONIA, Tel: +372 742 0079. Married, three sons.

Lembit KRUMM, born 20.07.1928, elected 1987, energetics. Tallinn Technical University 1952. Tallinn Technical University, Institute of Electrical Power Development (2004); Ehitajate tee 5, 19086 Tallinn ESTONIA Tel: +372 670 3602, E-mail: kurrel@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. 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. 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. 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 ESTONIA, Tel: +372 776 6914, Fax: +372 776 6902, E-mail: ylle.tamm@jpbi.ee. HOME ADDRESS Tihase 11, 48309 Jõgeva alevik, Jõgeva maakond ESTONIA, Tel: +372 772 1375. Married, three daughters.

Agü LAISK, born 3.05.1938, elected 1994, natural sciences. University of Tartu 1961. Research Professor (2002); Riia 23, 51010 Tartu ESTONIA, Tel: +372 736 6021, Fax: +372 742 0286, E-mail: alaisk@ut.ee. HOME ADDRESS Haagejärve 2, 61401 Tartu ESTONIA, Tel: +372 749 3228. 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: +372 738 0023. 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: +372 670 3683, 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: + 372 737 6419, E-mail: lumiste@math.ut.ee. HOME ADDRESS 19 Turu 19-28, 51004 Tartu ESTONIA, Tel: +372 734 4280. 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: +372 742 8946, Fax: +372 738 3033, 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: udomargna@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 Raja 7A-19, 12616, Tallinn ESTONIA, Tel: +372672 6544. Married, three sons and a daughter.

Enn MELLIKOV, born 1.04.1945, elected 2003, technology of materials. Tallinn Technical University 1968. Director of Department of Material Science, Tallinn Technical University (2002); Ehitajate tee 5, 19086 Tallinn ESTONIA, Tel: +372 620 2798, E-mail: enn@edu.ttu.ee. HOME ADDRESS Silla 2-5, Saku 75501 Harjumaa ESTONIA, Tel: +372 604 1076. Married, two sons.

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. Professor of real-time systems, Tallinn Technical University (2003); 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, Tel: +372 672 4024. Married, two daughters.

Arvo OTS, born 26.06.1931, elected 1983, power engineering. Tallinn Technical University 1955. Senior researcher, heating technology institute, Tallinn Technical University (2003); 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: +372 748 8584, 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: +372 738 3027, Fax: +372 738 3013, E-mail: e.parmasto@zbi.ee. HOME ADDRESS Uus 3-85, 50603 Tartu ESTONIA, Tel: +372 740 2772. 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: +372 748 6463. 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: +372 742 8159, +372 742 8882, Fax: +372 738 3033, E-mail: rebanek@fi.tartu.ee. HOME ADDRESS Sihi 7, 50411 Tartu ESTONIA, Tel: +372 738 0347. Widower, a son and a daughter.

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: +372 731 3537, Fax: +372 731 3535, E-mail: loit@eau.ee. HOME ADDRESS Tammsaare 2-13, 51006 Tartu ESTONIA, Tel: +372 742 2563. Married.

Jaan ROSS, born 5.04.1957, elected 2003, the Humanities. Estonian Academy of Music 1980. Professor of music, University of Tartu (1996), Professor of music science, Estonian Academy of Music (1995); University of Tartu, Lossi 350090 Tartu ESTONIA, Tel: +372 522 6886, Fax: +372 737 5345, E-mail: jaan.ross@ut.ee. HOME ADDRESS Koidu 122-61, 10139 Tallinn ESTONIA, Tel: +372 648 1544. Married, a daughter.

Huno RÄTSEP, born 28.12.1927, elected 1981, the Estonian language. University of Tartu 1951. Professor emeritus, University of Tartu (1994). HOME ADDRESS Uus 36-74, 50603 Tartu ESTONIA, Tel: +372 742 3974. Married, a son and a daughter.

Peeter SAARI, born 2.06.1945, elected 1986, physics. University of Tartu 1968. Professor of waves optic, University of Tartu (1997); Riia 142, 51014 Tartu ESTONIA, Tel: +372 738 3016, Fax: +372 738 3033, E-mail: psaari@fi.tartu.ee. HOME ADDRESS Fortuuna 1-45, 50603 Tartu ESTONIA, Tel: +372 510 9018. 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 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: +372 741 0465, Fax: +372 741 0205, E-mail: sapar@aai.ee. HOME ADDRESS Observatooriumi 6-6, 61602 Tõravere, Tartu maakond ESTONIA, Tel: +372 741 0335. 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: +372 737 6222, HOME ADDRESS Riia 13-39, 51010 Tartu ESTONIA, Tel: +372 742 0481. 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); Member, Riigikogu (Parliament) (2003); Lossi plats 1a, 15165 Tallinn ESTONIA, Tel: +372 742 0504, +372 503 3659 E-mail: ysirk@haldjas.folklore.ee. HOME ADDRESS Sihi 25, 50411 Tartu ESTONIA, Tel: +372 730 4706. 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 Lossi 18/Soone 3-18, 12616 Tallinn, ESTONIA, Tel: +372 672 6526. Married, a son and two daughters.

Raiund-Johannes UBAR, born 16.12.1941, elected 1993, computer science. Tallinn Technical University 1966. Research Professor (2002), Tallinn Technical University; 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.

Raivo UIBO, born 21.12.1948, elected 2003, medicine. University of Tartu 1973. Professor of immunology, University of Tartu (1992); Ravila 19, 51014 Tartu ESTONIA, Tel: +372 737 4231, Fax: +372 737 4232, E-mail: raivo.uibo@ut.ee. HOME ADDRESS Taara pst 28, 51006 Tartu ESTONIA, Tel: +372 742 1150. Married, a son and two daughters.

Mart USTAV, born 16.07.1949, elected 2001, biomedicine. Professor of microbiology and virology, University of Tartu (1992); Riia 23, 51010 Tartu ESTONIA, Tel: +372 737 5047, Fax: +372 742 0286, E-mail: ustav@ebc.ee. HOME ADDRESS Jaama 58A, 50604 Tartu ESTONIA, Tel: +372 740 3312. Married, a son and three daughters.

Gennadi VAINIKKO, born 31.05.1938, elected 1986, mathematics. University of Tartu 1961. Senior researcher, Department of Mathematics, Tallinn Pedagogical University (2003); Narva mnt 25, 10120 Tallinn ESTONIA Tel: +372 640 9427, E-mail: gen@ut.ee. HOME ADDRESS Vase 10-24, 10125 Tallinn ESTONIA, Tel: +372 648 4409. Divorced, 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.

Richard VILLEMS, born 28.11.1944, elected 1987, biophysics. University of Tartu 1968. Director of the Estonian Biocentre (1986); Riia 23, 51010 Tartu ESTONIA, Tel: +372 737 5064, Fax: +372 742 0194, E-mail: rvillems@ebc.ee. HOME ADDRESS Pallase 126-3, 51013 Tartu ESTONIA. Married, a son and a daughter.

Haldur ÕIM, born 22.01.1942, elected 1994, the Humanities and social sciences. University of Tartu 1965. Head of the Department of Estonian and Finno-Ugric Linguistics, University of Tartu (1992); Ülikooli 18, 50090 Tartu ESTONIA, Tel: +372 737 5941, Tel/Fax: +372 737 5224, E-mail: hoim@psych.ut.ee. HOME ADDRESS Hiie 12, 51006 Tartu ESTONIA, Tel: +372 742 2272. Married, a son and a two daughters.

FOREIGN MEMBERS

Richard R. ERNST (Switzerland), born 14.08.1933, elected 2002, physical chemistry. Professor emeritus, Swiss Federal Institute of Technology, Zürich (1998). Laboratory of Physical Chemistry, ETH-Hönggerberg HCI, CH-8093 Zürich, Switzerland, Tel: +41 1 632 4368, Fax: +41 1 632 1257, E-mail: ernst@nmr.phys.chem.ethz.ch. HOME ADDRESS Kurlistrasse 24, CH-8404 Winterthur, SWITZERLAND, Tel: +41 52 242 7807. Married, a son and two daughters.

Carl-Olof JACOBSON (Sweden), born 24.04.1929, elected 1995, developmental biology. Professor emeritus, Uppsala University (1994). HOME ADDRESS N Rudbecksgatan 13, SE-75236 Uppsala, SWEDEN, Tel: +46 18 501 123, E-mail: carl-olof.jacobson@ebc.uu.se. Married, two sons and a daughter.

Antero JAHKOLA (Finland), born 05.02.1931, elected 1998, energy research. Professor emeritus, Helsinki University of Technology (1994). HOME ADDRESS Välitalontie 61A, FIN-00660 Helsinki, FINLAND, Tel: +358 9 724 9144 and +358 400 102302, Fax: + 358 9 724 9144, E-mail: jahkola@personal.eunet.fi. Married, a son and a daughter.

Charles Gabriel KURLAND (USA/Sweden), born 14.01.1936, elected 1991, biochemistry. Professor emeritus, Uppsala University (2001), E-mail: kurland@telia.com. HOME ADDRESS Munkarpsv. 21, SE-24332 Hoor, SWEDEN, Tel: +46 41 322 856. Married, three daughters.

Jaan LAANE (USA), born 20.06.1942, elected 1995, chemical physics. Professor, Texas A&M University (1976); Department of Chemistry, College Station, TX 77843-3255, USA, Tel: +1 979 845 3352, Fax: +1 979 845 3154, E-mail: laane@mail.chem.tamu.edu. HOME ADDRESS 1906 Comal Circle, College Station, TX 77840, USA, Tel: +1 979 693 5171. Married, two daughters.

Indrek MARTINSON (Sweden) born 26.12.1937, elected 1998, physics. Professor, Lund University (1975). Department of Physics, Lund University, Box 118, SE-22100 Lund, SWEDEN, Tel: +46 46 222 7735, Fax: +46 46 222 4709, E-mail: Indrek.Martinson@fysik.lu.se. HOME ADDRESS Blåmesvägen 40, SE-24735 S Sandby, SWEDEN, Tel: +46 46 57 308. Married, three daughters.

Gérard A. MAUGIN (France), born 02.12.1944, elected 2002, mechanics. Director of Research at French National Centre for Scientific Research (1979), Head of the Laboratory of Modelling in Mechanics, University of Pierre and Marie Curie (1999). Tour 65-55, Case 162, 4 Place Jussieu, F-75252 Paris Cedex 05, FRANCE, Tel: +33 1 4427 5312, Fax: +33 1 4427 5259, E-mail: gam@ccr.jussieu.fr. HOME ADDRESS 6 Allée des Feuill-lantines, F-94800 Villejuif, FRANCE, Tel: +33 1 4958 2049. Married.

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@comcast.net. Married, two sons and a daughter.

Els OKSAAR (Germany), born 1.10.1926, elected 1998, linguistics. Professor, University of Hamburg (1967); Institut für Allgemeine und Angewandte Sprachwissenschaft, Universität Hamburg, Bogenalle 11, D-20144, GERMANY, Tel: +49 40 42838 4761, Fax: +49 40 42838 3595, E-mail: IAAS.PHASI@uni-hamburg.de. HOME ADDRESS Parkberg 20, D-22397 Hamburg, GERMANY, Tel: +49 40 607 0803, Fax: +49 40 607 1795, Married, a son.

Johannes PIPER (Germany), born 11.11.1924, elected 1991, physiology. Professor emeritus, Max Planck Institute of Experimental Medicine (1992); Max-Planck-Institut für Experimentelle Medizin, Hermann-Rein-Strasse 3, D-37075 Göttingen, GERMANY, Tel: +49 551 389 9314, Fax: +49 551 389 9302. HOME ADDRESS Heinz-Hilpert-Str. 4, D-37085 Göttingen, GERMANY, Tel: +49 551 56 786. Married, a son and two daughters.

Michael Godfrey RODD (Great Britain), born 21.06.1946, elected 1995, process control and infotechnology. The British Computer Society, 1 Sanford Street, Swindon SN1 1HJ, UNITED KINGDOM, Tel: +44 1793 417 610, Fax: +44 1793 417 432, Email: mrodd@hq.bcs.org.uk. HOME ADDRESS 16 The Garlings, Aldbourne, Marlborough, Wiltshire, SN8 2DT, UNITED KINGDOM, Tel: +44 1672 541 571, +44 783 186 0199, E-mail: mitime@mitime.co.uk. Married, a son and a daughter.

Helmut SCHWARZ (Germany), born 06.08.1943, elected 2002, chemistry. Professor, Technical University of Berlin (1978). Institut für Chemie, Sekr. C 4, Technische Universität Berlin, Strasse des 17. Juni 135, D-10623 Berlin, GERMANY, Tel: +49 30 3142 3483, Fax: +49 30 3142 1102, E-mail: Helmut.Schwarz@mail.chem.tu-berlin.de. HOME ADDRESS Patschkauer Weg 15, D-14195 Berlin, GERMANY, Tel: +49 30 832 5246. Married, a son.

Janis STRADIŅŠ (Latvia), born 10.12.1933, elected 1998, physical chemistry and history of science. President, Latvian Academy of Sciences (1998); Latvian Academy of Sciences, Akadēmijas laukums 1, LV-1524 Riga, LATVIA, Tel: +371 7 213 663, Fax: +371 7 821 153, E-mail: stradins@lza.lv. HOME ADDRESS K. Valdemara 99-7, Riga, LV-1013 LATVIA. Married, two sons.

Päiviö TOMMILA (Finland), born 4.08.1931, elected 1991, history. Professor emeritus, University of Helsinki (1994). HOME ADDRESS Kylätie 8 A, FIN-02700 Kauniainen, FINLAND, Tel/Fax: +358 9 505 1523, E-mail: ptommila@csc.fi. Married, three sons and two daughters.

Endel TULVING (Canada), born 26.05.1927, elected 2002, psychology. Professor emeritus, University of Toronto (1992), Tanenbaum Chair in Cognitive Neuroscience, Rotman Research Institute of Baycrest Centre (1992). Rotman Research Institute, Baycrest Centre, 3560 Bathurst St., Toronto, Ontario M6A 2E1, CANADA, Tel: +1 416 785 2500, Fax: +1 416 785 2862, E-mail: tulving@psych.utoronto.ca. HOME ADDRESS 45 Baby Point Crescent, Toronto, Ontario M6S 2B7, CANADA, Tel: +1 416 762 3736. Married, two daughters.

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, Churfürstenstr. 2, A-5020 Salzburg, AUSTRIA, Tel: +43 662 8044 3656, Fax: +43 662 8044 135, E-mail: Henn-Jueri.Uibopuu@sbg.ac.at. 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

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



In 2003, the Estonian Academy Publishers continued at their traditional pace issuing ten scientific journals, peer-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 2003, 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	104.5
whereof the series		
Biology. Ecology	4	28.5
Physics. Mathematics	4	27.5
Geology	4	16.5
Chemistry	4	12.0
Engineering	4	20.0
Oil Shale	5	33.5
Linguistica Uralica*	4	20.0
Trames	4	19.0
Acta Historica Tallinnensia	1	8.5
Journal of Estonian Archaeology	2	10.0
Total	36	195.5

* Published as a supplement to the journal was the book "Estonian Language"¹.

¹ Supplementary Series vol. 1 of "Linguistica Uralica" "Estonian Language" is a thorough review of the Estonian language presented in English (edited by Professor of the University of Tartu Mati Ereht)

In 2003 there were more special issues of journals – in “Proceedings of the Estonian Academy of Sciences” the total of 9, in journal “Trames” 1, plus one supplementary special issue in “Oil Shale”:

“Biology. Ecology” no. 2: Special issue on Estonian coastal ecosystems: state, processes, and development. Guest editor Jonne Kotta;

“Biology. Ecology” no. 3: Special issue on the changing state of the Gulf of Finland ecosystem. Guest editors: J. Elken, S. Golubkov, H. Pitkänen, J. Sarkkula;

“Physics. Mathematics” no. 1: Special issue on nonlinear waves in microstructured solids. Guest editors: J. Engelbrecht, M. Kutser, G. A. Maugin;

“Physics. Mathematics” no. 3: Special issue on atomic layer deposition. Guest editor A. Rosental;

“Physics. Mathematics” no. 4: Special issue on proceedings of Nordic and Baltic States workshop on programming theory. Guest editors: J. Vain, T. Uustalu;

“Geology” no. 3: a commemorative special issue – “Karl Orviku 100”;

“Geology” no. 4: a special issue with dedication – “Dimitri Kaljo 75”;

“Engineering” no. 3: Special issue on wave studies in Tallinn Bay. Guest editor T. Soomere;

“Engineering” no. 4: Special issue on engineering materials and tribology (Baltic conference). Guest editor P. Kulu;

“Trames” no. 1: Special issue “Science policy (in Estonia)”;

“Oil Shale” – one supplementary special issue carrying the proceedings of Symposium on oil shale, 18–21 November 2002, Tallinn.

As shown above, the volumes of journals increased, as against those in 2002: “Proceedings of the Estonian Academy of Sciences” by 19 and “Oil shale” by 5 printed sheet. The publishing of additional volumes of special issues and the additional special issue was covered by extra funds.

Seven journals out of 10 appeared upon or prior to schedule, three were slightly behind the schedule.

An agreement was made to publish electronically in EBSCO Publishing two more journals “Linguistica Uralica” and “Oil Shale”. Six journals have been issued by EBSCO since 2002.

An agreement was made and necessary original materials were presented to include the journal “Trames” into CEEOL database. It would be possible to include there other journals, too, however there is a problem: the source materials required by CEEOL are totally different from those submitted to EBSCO, hence the extra work needed to create them. Including other journals to CEEOL however is a question calling for serious consideration in the future.

The subscription to print runs of the journals dropped. There seem to be two causes for that: availability of the journals in electronic format in EBSCO and CEEOL database and smaller order from Academic Library at Tallinn Pedagogical University, due to the financial predicament of the latter and decrease of interest towards stocks exchange. The attempts to sell the journals directly to exchange agents were not very rewarding.

Besides journals, 2003 witnessed the publication of 10 books, either as a result of direct publishing effort of the Publishers, or with a contribution of the Publishers (the total of 2526 pages), all commissioned. Worth of special mention are the following:

- monograph “Fishes of Estonia” (editors E. Ojaveer, E. Pihu and T. Saat, 416 p.);
- monograph “Estonian Naturalists’ Society 150” (L. Kongo, 472 p.);
- Vol. 1 of the Supplementary Series of the journal “Linguistica Uralica” “Estonian Language” (edited by M. Ereht, 414 p.).

The building where the Publishers have their seat, at 7 Estonia Blvd (the former house of the Estonian Academy of Sciences, presently belonging to Tallinn Technical University and Tallinn Pedagogical University), will soon be put on sale. The Publishers are facing the need to move to the building of Estonian Academy of Sciences (Kohtu 6).

UNDER AND TUGLAS LITERATURE CENTRE OF THE ESTONIAN ACADEMY OF SCIENCES

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

Personnel: 15, including 11 researchers

Address: Roosikrantsi 6, 10119 Tallinn ESTONIA

Museum: Väikese Illimari 12, 11623 Tallinn ESTONIA

E-mail: utkk@utkk.ee

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

Director: Jaan Undusk, Tel: +372 644 3147, Fax: +372 644 0177,

jaan@eki.ee, jaan@utkk.ee

Academic Secretary: Piret Kruuspere, Tel: +372 644 3147, piret@utkk.ee

Head of the Museum: Eha Rand, Tel: +372 672 2847, eharand@hot.ee,

tuglas@hot.ee

Under and Tuglas Literature Centre is a research institution of the Estonian Academy of Sciences. Its mission is to study Estonian literature both in historical and theoretical perspective, to analyse Estonian texts within the context of historical Baltic-German literary space and world literature, and to promote literary and cultural thought in line with contemporary world trends. The Centre's development activities focus on the publications of source materials for the Estonian national literature and the humanities. The Museum in Nõmme maintains the estate of Friedebert Tuglas (1886-1971), the Member of Academy and a man of letters. The estate comprises over 41 000 items of cultural value and includes F.Tuglas' 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 1998-2002 the Literature Centre fulfilled its research work into two target financed projects – “Models of cultural discourse” (supervisor Jaan Undusk) and “The semiotic aspect of the Estonian literary history” (supervisors Rein Veidemann, 1998; Ülle Pärli, 1999; Virve Sarapik, 2000-2002). The outcome of that research was judged by an international evaluation team in 2002-2003 as “excellent to good”. Upon reviewing the final reports of the research projects completed in 2002, organised by Science Competence Council, both projects were also rated as “excellent”. In reviews of the final reports, high publishing activity of the Literature Centre was noted, as well as the high level of individual publications, and the researchers' active participation in conferences. Highlighted was the Centre's readiness for dialogue and “crossing the borders”, combined with the interdisciplinarity, characteristic of the modern

science. The noteworthy international co-operation of the Centre was acknowledged as well.

Starting from 2003, the Literature Centre has been granted a new governmental research project, involving the most part of those fulfilling the earlier two projects, with some researchers of the younger generation joining in.

Within the framework of the research project “Estonia’s Identity Narrative: Ideological and Rhetorical Models of Cultural Discourse” (supervisor Jaan Undusk) innovatory conceptual means for describing Estonia’s national, ethnic and cultural identity are provided. The range of texts used as sources vary from the belletristic to the historiographical and dramatic ones.

In addition to the fairly advanced nation-centred arguments, in this project some cultural-geographical factors as well as these pertaining to the history of ideas are emphasised by showing that the specificity of the present day Estonia is not only related to advances of the Estonian people and language, but also to these cultural environments in Estonia and Europe which have hitherto been considered as “alien” to them. With the help of typological research, several philosophical and theological mainstreams of the Ancient Greece and Christian Europe are being modelled as rhetorical and narrative processes (Jaan Undusk, Rein Undusk). The same kind of rhetorico-narratological models have been applied to describe the German-Estonian bilingual Baltic literary space (Jaan Undusk, Liina Lukas, Vahur Aabrams), at the same time attaching much more importance than usual to the Baltic-German factor in Estonia’s historical identity. The Centre continues to organize the international Baltic German literary symposia.

The research of earlier Estonian literature has also been carried on (Hilve Rebane, Head of the Humanities Department of the Rocca al Mare High School, Jaanus Vaiksoo).

In the subdivision “Estonian Culture in the 20th Century” (supervisors Aare Pilv and Professor of Tallinn Pedagogical University, Rein Ruutsoo), the aim is to provide an integral treatment of the rise of modern Estonian culture in the 20th century and its situation at the end of the last century. The view of Estonian culture is provided both per professional fields of activity (“specialty narratives”) and in conceptual crosscuts (Epp Annus, Piret Kruuspere, Jaan Undusk, Deputy editor-in-chief of the literary magazine “Looming” Toomas Haug). The exile literature and theatre have been considered as an important factor in shaping the Estonian culture of the 20th century; these phenomena have been viewed *inter alia* as a tragic “geo-cultural” experiment.

The research of Estonian culture of the 20th century involves a number of individual topics (the role of Estonian theatre and drama in formation of national identity and mentality – Piret Kruuspere, models of intertextuality in Estonian poetry – Anneli Mihkelev, author and literary subject as the basis of

self-identity – Aare Pily, A. H. Tammsaare’s work from the viewpoint of gender studies – Mirjam Hinrikus, translations into Estonian in the 20th century – Hilve Rebane).

The “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 (supervisor 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 2003 the work on Vol. 10 continued (“Criticism VII. Criticism VIII”).

In addition to the governmental research project, in 2003 one research grant of the Estonian Science Foundation was performed (II International Baltic German Symposium “Hier ist woanders: Das baltische Welterlebnis der Keyserlings / Here is Elsewhere: The Baltic World Experience of the Keyserlings”, grantee J. Undusk).

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. The increase of budgetary means allocated for expenses on infrastructure in 2003 was insufficient and could not match the escalating cost of living. Like in the previous year, in 2003 the state budget allocated moneys for investment on repair works in the Museum building (among others for replacement of external windows).

The Centre continues to hold that the collections of the Museum and the dendrologically unique garden are a part of the national heritage which must be protected and maintained as accessible to public on account of allocations from the state budget. This cannot be effected, as dependent on research projects of limited duration.

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.

In 2003 a monograph collection of articles by Hilve Rebane “Bold and Nordic: Essays and studies in Scandinavian literature” was published in the series “Collegium litterarum” (CL 17, Tallinn 2003. 400 p.).

Within the framework of the Year of Kreutzwald, commemorating the 200th anniversary of Fr. R. Kreutzwald, “Plays” by E. Chr. v. Houwald/ Fr. R. Kreutzwald was published (“Lighthouse”, “Curse and Blessing”; compiled and edited by Piret Kruuspere and Lehte Tavel, Tallinn 2003. 162 p.).

The Museum released, in commemoration of Marie Under's 120th anniversary the brochure "Marie Under 1883-1980. Home in Nõmme in 1933-1944" (compiled by Eha Rand, Tallinn 2003. 19 p.).

Besides the above issues the co-authorship by Epp Annus in the gymnasium textbook (Arne Merilai, Anneli Saro, Epp Annus, Poetics. Tartu University Press. Tartu 2003. 208 p.) should be mentioned.

Co-edited by P. Kruuspere, one international collection of articles and one in Estonian were published ("Viron kirjallisuus vuosituuhannen vaihteessa. Post-modernia ja modernia" (The Literature in the Turn-of-the-Century Estonia: Modern and Postmodern). Suomen Kirjallisuuden Seuran Toimituksia 950, edited by L. Saariluoma, T. Pakarinen, P. Kruuspere, Helsinki 2003. 240 p.; "In imaginary worlds of Madis Kõiv". Collection of articles. Edited by M. Balbat, P. Kruuspere, Estonian Union of Theatre Researchers, Tallinn 2003. 232 p.). M. Hinrikus was co-editor of the translated collection of articles ("Passwords" (Translation from Finnish, orig.: "Avainsanoja") edited by M. Hinrikus, E. Ehasalu. Eesti Keele Sihtasutus, Tallinn 2003. 342 p.). V. Abrams compiled and edited a representative collection of works by J.M.R. Lenz ("J. M. R. L." Estonian Goethe Society, Publishing House "Huma". Tallinn 2003. 659 p.), among the translators of which were also L. Lukas and J. Undusk.

In 2003 the researchers of Literature Centre authored altogether 7 scientific publications in foreign languages and 52 in Estonian, where of 28 in peer-reviewed issues. Besides, abstracts of 2 scientific papers were published.

The Centre continued its editorial work on a number of issues: "Estonian Exile Literature in the 20th Century" – edited by P. Kruuspere; collection of articles "The Mythical World of Friedebert Tuglas: Interpretations of Young Estonian Prose", basing on the papers of international conference "Eros and Language. The Rhetorical Patterns of Translatability and Understanding." – edited by R. Undusk; Friedebert Tuglas' "Collected Works" Vol. 10: "Criticism VII. Criticism VIII" – edited by Ü. Kurs. In co-operation with the Institute of Literature, Folklore and Arts of Latvian University and the Institute of Literature and Folklore of Lithuania, the lexicon of Baltic authors "300 Baltic Writers" is in progress (co-ordinator A. Mihkelev), over half of articles handling the Estonian writers have been completed.

In 2003, there were the following academic events.

The academic event of the year 2003 was the 2nd International Baltic-German symposium "Das Hier ist woanders: Das baltische Welterlebnis der Keyserlings / Here is Elsewhere: The Baltic World Experience of the Keyserlings" (September 18-22, Tallinn and Tartu) organized by the Centre in collaboration with the Estonian Goethe Society and University of Frankfurt am Main (32 researchers from Germany, Great Britain, Poland, USA, Belgium,

Japan, India, Portugal, Taiwan, Latvia and Estonia participated in the event, project directors were J. Undusk and L. Lukas who both also delivered papers). The papers will be published as a collection of articles in Heidelberg, Germany.

6 June – a seminar “Tammsaare and modernism” at Nõmme, in the Museum (moderators L. Lukas, P. Kruuspere, R. Undusk, M. Hinrikus; 5 papers delivered, the Literature Centre represented by L. Lukas and M. Hinrikus).

28 November – the Estonian Academy of Sciences held a festive meeting “Fr. R. Kreutzwald 200”, with J. Undusk and P. Kruuspere participating in composing the programme (J. Undusk also delivered a paper, P. Kruuspere presented in her speech the newly issued collection of plays by E. Chr. v. Houwald and Fr. R. Kreutzwald).

P. Kruuspere participated in organizing of a conference on 31 January “A. H. Tammsaare 125” in Writers’ Union, Literature Centre was represented with a paper by R. Undusk.

In 2003 the researchers of the Literature Centre delivered 21 scientific papers and expert lectures. Of those 10 were given at international scientific events. Besides the Keyserling’s-symposium mentioned above, e.g. these conferences include “Writing Aesthetics: Conference of the International Association for Philosophy and Literature” in University of Leeds (Literature Centre was represented E. Annus), “Current Issues in Researching Literature” in Liepāja, A. Mihkelev), 5th Conference of Baltic Scholars of Literature “Literary History: Paradox or Paradigm” in Vilnius (papers were delivered by A. Mihkelev and A. Pilv, J. Undusk was also participating), conference dedicated to the 70th birthday of Latvian poet Ojārs Vāciētis “Human Freedom. Human Voice” in Riga (A. Mihkelev and A. Pilv); also the joint seminar of Finnish and Estonian doctoral students “Intertextuality and Intersemiosis” in Tartu University (A. Mihkelev) and the series of lectures of Friedebert Tuglas Seura “Viron kirjallisuuden klassikoita” in Helsinki (P. Kruuspere).

Researchers took 12 scientific mission trips (including trips to Latvia, Lithuania, Finland, Germany, Hungary, Great Britain). That year, the contacts with Baltic colleagues were particularly tight. J. Undusk worked in March, as a visiting researcher at the Eger Pedagogical University, E. Lindsalu in April and R. Undusk in November in Budapest University and P. Kruuspere in October-November in Helsinki University; L. Lukas sojourned for a lengthy period in Germany.

The affiliated Museum was visited by the total of 949 people (nearly 200 more than in 2002). The Museum organised 19 excursions, 3 theatrical performances, 11 literature and cultural events, and served 102 researchers. 174 sound recordings in danger of loss were re-recorded, 63 volumes of periodicals and worn books were bound. The personnel of the Museum have the

responsibility for the upkeep of stocks, interior premises and the garden of the house. In 2003 like in the previous year they also did the various jobs related to repairs.

Collaborators of the Literature Centre have given 22 popular talks over the radio cultural programmes, at presentations of books etc.

The Literature Centre encourages co-operation with universities, and thus 9 of its collaborators have lectured at University of Tartu, Tallinn Pedagogical University and Estonian Institute of Humanities; besides they have supervised over students' course papers, reviewed and opposed B.A. and M.A. theses, also in co-operation with Budapest University.

The Centre continued co-operation with the Academic Library of Tallinn Pedagogical University, its representatives have participated in the organizing work of A. H. Tammsaare's 125th anniversaries and Fr. R. Kreutzwald's 200th anniversary, in the work of national panel of the article prize of the Literature Foundation of Culture Capital, and of the arts, literature and science prize of Baltic Assembly.

FINANCIAL ACTIVITY

BUDGET OF THE ESTONIAN ACADEMY OF SCIENCES FOR 2003 AND ADMINISTRATION OF BUDGET (thou kroon)

	Budget	Implementation
INCOME		
ALLOCATIONS TO THE ACADEMY OF SCIENCES FROM THE STATE BUDGET	16510.0	16510.0
Incl. for activities of the Academy	10293.0	10293.0
fees of Members of Academy	4717.0	4717.0
fees of research professors	1500.0	1500.0
OTHER RECEIPTS	2596.0	2909.1
Target allocations of Ministry of Education and Research	961.0	1131.0
Incl. to capital repairs of Academy premises	620.0	620.0
for membership fees to international science organisations	341.0	511.0
from letting the premises and guest rooms (Kohtu 6) and receipts from other institutions	650.0	679.1
from sale of printed matter and commis- sioned works (Academy Publishers)	985.0	1049.2
bank interest accrued		49.8
ALLOCATIONS TO UNDER AND TUGLAS LITERATURE CENTRE	1662.3	1700.1
through Ministry of Education and Research	1254.3	1273.9
Incl. target funding of research	650.0	666.0
for infrastructure expenses	352.0	352.0
for fulfilment of state programme	250.0	250.0
for repayment of student loan	2.3	5.9
for capital repairs of the Museum	150.0	150.0
grants of Estonian Science Foundation	55.0	55.0
other allocations	146.0	171.0
earnings	57.0	48.5
bank interest accrued		1.7
TOTAL INCOME	20768.3	21119.2

EXPENDITURES

GENERAL BREAKDOWN

for activities of the Academy (through Academy Office)	6297.9	6076.6
fees of Members of Academy	4717.0	4707.3
fees of research professors	1500.0	1500.0
Estonian Academy Publishers	4415.0	4398.9
Fellowship grants	80.1	80.9
Under and Tuglas Literature Centre	1662.3	1536.7
Membership fees to international science organisations	341.0	592.7
Scientific societies	1135.0	1135.0
Incl. Estonian Naturalists' Society	460.0	460.0
Mother Tongue Society	140.0	140.0
Estonian Geographical Society	120.0	120.0
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	100.0	100.0
Estonian Literary Society	100.0	100.0
Capital repairs of the Academy premises	620.0	620.0
TOTAL EXPENDITURES	20768.3	20648.1
BALANCE BY END 2003		471.1

ASSOCIATED INSTITUTIONS

Subject to “Estonian Academy of Sciences Act” adopted by Riigikogu in 1997, the research, development and cultural institutions and scientific societies, not belonging to the structure of the Academy, whose activity and goals however are in conformity with the activity and goals of the Academy can associate themselves with the Academy. The association of the institutions with the Academy is effected under bilateral agreements, which specify the goals of association, tasks and commitments of both parties.

Since 1989 the Academy has made association agreements with Institute of Zoology and Botany at Estonian Agricultural University, Tartu Observatory, Institute of Ecology at Tallinn Pedagogical University, Estonian Academic Library (now in the composition of Tallinn Pedagogical University), Institute of the Estonian Language and Estonian Literary Museum.

On 28 January 2003, Estonian Academy of Sciences made the association agreement with Institute for International and Social Studies at Tallinn Pedagogical University.

One form of co-operation between the Academy and its associated institutions is mutual exchange of information. Since 1998, the surveys of the activity of institutions associated with the Academy have been published in the Academy Year Book. Those reviews differ as to their structural composition, way of exposition and scope, and have been basically presented as received from the respective institution, modified as suggested by the editorial board (*inter alia*, the editors brought into uniformity some general terms of common use).

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

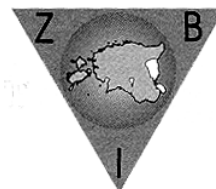
Address: Riia 181, 51014 Tartu ESTONIA

E-mail: zbi@zbi.ee

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

Director: Urmas Tartes, Tel: +372 742 8021, Fax: +372 738 3013,
tartes@zbi.ee

Scientific Secretary: Märt Rahi, Tel: +372 742 8021, mrahi@zbi.ee



There were no significant changes in research topics of the Institute in 2003. Research of the Institute was carried out within the framework of 8 target funded topics and 15 grants from the Estonian Science Foundation. The volume of commissioned research increased and accounted for one third of the total budget. The majority of those were hydrobiological works, the main clients being Ministry of the Environment, local self-governments, the Allergy Union and several foreign organisations. Joining of the Institute in the EU framework programmes proved, however more complicated than was originally thought. The researchers participated in the study of reservoirs (programme “Mantra”), in programme BioCASE merging virtually the European biological collections, in the applied “Life and Environment” programme, and in the “Bioplatform” co-ordinating researches in biological diversity.

Botanists continued fundamental study of a complicated set of species of broome grass, including four morphologically similar species hard to keep apart: *B. arvensis*, *B. intermedius*, *B. japonicus* and *B. squarrosus*. The extent of their morphological variety and boundaries in different parts of area were demonstrated. The statistical methods used in research yielded better result on the basis of qualitative features. All analyses carried out evidenced impressive similarity of species researched and their phenotypical closeness, while corroborating the suggestion that exist specimen characteristic to those four species.

The species of carex of declining population were studied, in particular the success of their vegetative and generative dissemination and the change in their distribution pattern. It was found out that the larger plasticity of features providing for vegetative dissemination also makes for tenacious persistence of carex species in places once occupied.

Works with clonal plant species revealed that the competition becomes more intense alongside with productivity of the community, which brings about the

decline of the variety of species in the community. Because the communities of high variety species are also dominated by clonal plants, great attention was paid to the change in numbers of plant species of different clonal growth in communities of various environmental conditions, with a view to clarify the mechanisms of co-existence of clonal plants and the factors influencing them. It was shown for the first time that the communities differentiate on the basis of clonal growth occurring in them.

Among research of applied orientation, works with rapidly growing willow clones continued. Analysed were light characteristics of canopy, proliferation of contagion with mycoflora, the ecto-mycorrhiza communities of roots and capacity for nitrogen and phosphorus utilization. The results obtained were used for erecting three new vegetation-cover-filter based sewage purification plants.

The Department of Hydrology continued research of the link between eutrophication, toxic substances and toxicity of water in ecosystem of Estonian rivers. Changes in joint index, variety of species, numbers and biomass of phytoplankton were statistically meaningful in river sections of different catchment size. Judging by results of discriminant analysis, 23 types of plant communities differ among themselves, significantly by composition of species and species of dominants, on the basis of water BHT₅, stream velocity and bottom profile. 16 diatoms Bacillariophyceae indices were researched, whereby the trophicity and ecological quality of river water can be assessed. Researched were the relations of periphyton and phytoplankton in Estonian fluvial reservoirs.

New hydrobiological research focused on halotrophic shallow coastal lakes, heretofore less researched among the types of Estonian lakes, displaying fluctuations of chemical balance of water. As dictated by environmental conditions, the functioning of the coastal plane lakes depends on their link with sea, the prevailing type of bottom sediment, age of the reservoir and fluctuation of water level. Together with partners from Danish Environmental Institute and Holland Wageningen Agricultural University, a common database was established, bringing together the data of 1050 lakes. In progress is the research of impact factors of reservoirs as objects of multidimensional statistical structure.

The Institute joined to an internationally topical direction of research, tackling the issue of how the climatic changes impinge on ecosystems. To clarify the impact of climatic changes, researched were the dynamics of ecosystems of lake Võrtsjärv and lake Peipsi as against the changes in index of North Atlantic Oscillation (NAO). It was analysed, in greater detail how the nutrient loads of those lakes have changed and what factors of impact are directly linked to climatic changes. In co-operation with institutes of the University of Tartu,

the model of ecosystem of lake Peipsi was completed. Continued was the modelling of water temperature of lakes, light beam in ice cover and under-water, the satellite-distant monitoring research. Newly tackled was the model of primary production. Subjected to scrutiny were differences in performance of ecosystem in shallow lakes of phytoplankton and macrophyte prevalence, as well as the influence of age pyramids of fish communities on zoo- and phytoplankton in large lakes and its dependence on seasonal and long term dynamics of temperature. Also studied was the stability of ecosystem of large lakes and mutual influence of benthic-pelagial. By using the covariation analysis basing on multidimensional mixed models, the impact on the state of lake Peipsi of periodic changes in water was assessed; there was cast some light on the mechanisms, causing decades-long delay in the recovery of the lake, when the seepage of biogens into the lake diminishes, and on the role of natural processes in formations of critical situations. Assessed was the effect of pyxidium for channelling the organic matter from pelagial to benthic, to the nutrients network.

The mycologists released a research on recurrence of tree roots and their fungus symbionts Basidiomycotina in rotting tree trunks and in soil. The research suggests that the fungus symbionts procure nutrients to roots straight from the rot.

A new fungus family was described, and 20 new species from Greenland and South Korea. A critical list of Estonian species of the family *Dermateaceae* was compiled. Separated and sequenced was the rDNA ITS1-5.8S-ITS2 region of 19 species of *Helotiales* and 9 species of *Pezizales* of the aggregation.

Completed was the review of mycoflora of island Ruhnu (585 species), basing on database collected in 1958-2003. During the monitoring of saproxylic fungi of Estonian natural grown woods, the mycoflora and its changes were observed in eight monitoring areas. A detailed summary was composed, about recurrence in Estonia of 15 species of fungi worth special protection – as a proposition for protection of 33 species offered for inclusion in appendix of Bern Convention. There were compiled for e-project of atlas of dissemination maps of rare fungi of Europe, maps of dissemination of 25 species. In cooperation with Gothenburg University, working group of evolutionary botany, an upgraded version of on-line database “CORTBASE” for *Corticaceae* was published in Internet (8088 names of species, 4405 basionyms).

Entomologists continued analyses, for research of impact of ontogenetic determinants on modification of body size in insects. Another study focused on proximal causes of sexual dimorphism of body size. Subjected to an analysis was the possibility that the importance of large body weight is revealed in depressed selectivity of egg-laying substratum of lepidopteran larvae. Although the experiments failed to prove that supposition, other factors impin-

ging on selectivity were ascertained. In co-operation with entomologists of the University of Tartu, energy and evolutionary aspects of immune functions of insects were analysed.

Ornithologists elucidated the issue of genetic and morphological diversity of great snipe in Europe. There was found proof, in the process of research, to long stability of high numbers of habitat of great snipe, which has not much decreased since the last Ice Age. The subsequent fragmentation of dissemination of great snipe in Europe is related to loss of habitat, which has significantly increased the isolation of colonies and risk of stochastic extinction.

The activity of the Baer Museum was basically directed at completion of scientific biography of A. v. Middendorff and writing of the book "50 Baltic German Natural Scientists". Activity of Middendorff as explorer of inner regions of Russia, agriculturist and politician is being highlighted.

Research in Baltic German polar explorers coming from Estonia (Adam Johann von Krusenstern, Otto von Kotzebue, Fabian Gottlieb von Bellingshausen) made brisk progress. It occurs that the expedition led by Bellingshausen and allegedly having discovered the Antarctic continent, lacked the weight we attribute to it now, in the opinion of the 19th C. scientists.

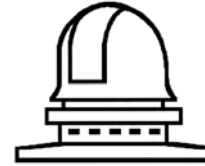
Besides the regular events (the Baer Day, annual conference of the Institute) the hydrobiologists organised in Tallinn the 7th International Symposium on Physiology of Fish, Toxicology and Water Quality. The Baer Museum organised a scientific conference on polar explorer Bellingshausen, and the botanists an excursion of the Nordic Society of Bryologists.

Editing of a series of monographs, concerning lake Peipsi brought the National Research Prize to Ervin Pihu, Jutta-Ellen Haberman and Tiina Nõges.

Of books published, two merit special mention: the third (last) volume of monograph in English "Flora of Baltic Countries", an outcome of long co-operation of botanists of the three Baltic States, providing an overview on dissemination and abundance of plant species to be found on this territory, and a review monograph "Võrtsjärv" meant for wider readership, the compilation and editing of which was largely the responsibility of the Department of Hydrology.

TARTU OBSERVATORY

Associated with the Estonian Academy of Sciences
08.05.1998



Founded 1808

Personnel: 56, of which 34 researchers

Address: 61602 Tõravere, Tartu county ESTONIA

E-mail: aai@aai.ee

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

Director: Laurits Leedjärv, Tel: +372 741 0265, Fax +372 741 0205,
leed@aai.ee

Scientific Secretary (head of information team): Mare Ruusalepp,
Tel: +372 741 0261, mare@aai.ee

Both strengths and weaknesses of Tartu Observatory are inherently linked to our focussing on fundamental studies in astrophysics and atmospheric physics. Our vulnerability stems from the fact that although presently the discussions over the role and status of science in the Estonian society have become livelier, they are pervaded by an undertone that the country needs the science, the outcome of which is tangible and yields immediate profit. However one can only apply things whose fitness for a specific purpose has been ascertained basing on knowledge. As is known, the new knowledge can be derived, in the first place from fundamental research. The preconception that fundamental research is the privilege of large and rich countries is erroneous. Every (successful) small country has both the chance and obligation to participate in creating the jigsaw mosaic of knowledge of the humanity. This was the concern of Tartu Observatory in 2003, as it used to be earlier and as it will be in the future, to the best of our intentions. We see it as the strength of Tartu Observatory.

With the close of 2002, the former target financed research topics of Tartu Observatory ended. For 2003, we sought the opening of three new topics. The authorities ladling out the science moneys are attaching value to the quality of research, hence our new topics were appreciated and we obtained a reasonably good funding. The new topics are:

- Evolution of structures in the Universe from deep past until the present days (supervisor Member of Academy Jaan Einasto);
- Structure, chemical composition and evolution of stars (supervisor Tõnu Kipper);
- Foundations of optical remote sensing of environment in Estonia and Baltic region (supervisor Tiit Nilson).

Estonian Science Foundation subsidised our research within 12 grant projects. Researchers of Department of Atmospheric Physics participated also in seven-

ral contractual works of applied nature, with partners being mainly Estonian Ministry of the Environment and Board of Agricultural Registers and Information. In 2003 ended the EU UV-radiation project EDUCE the member of whose international consortium Tartu Observatory was.

Our main “production” is the scientific articles published. In 2003 there were 51 of them put out, including 21 CC articles. Greater still was the number of popular science pieces of writing – 90, most of them on climate. Viivi Russak and Ain Kallis compiled an awe-inspiring manual “Handbook of Estonian solar radiation climate“, commemorated to Member of Academy Juhan Ross (1925-2002). Published was the 80th annual volume “Calendar of the Observatory”. Our traditional annual report, which has been issued in English for over more than ten years, now also contains the part in Estonian.

The scientific topic on structure of Universe actually embraces an extensive scope of research objects, ranging from large-scale structure formed by superclusters of galaxies to the structure of our own Galaxy. The keynote results in 2003 were attained thanks to the fact that astronomers have an increasing access to large digital deep sky surveys. Jaan and Maret Einasto, for instance studied, basing on preliminary data of Sloan Digital Sky Survey and Las Campanas Redshift Survey, the dependence of luminosity of galaxy clusters on density of their environment. Apparently in denser areas (central parts of superclusters) the clusters are up to 10 times brighter than in low-density environment (voids). Masses of clusters and superclusters also differ in different regions of sky. Those results corroborate the hypothesis of hierarchical build-up of structures in the Universe: cosmological environment has a key role to play in formation and evolution of galaxy groups and clusters. Upon initiative of Enn Saar, the methods of research of the structure of Universe were essentially improved – regarding both statistical methods and computation software of N-body simulations. The most important aspect of research of our Galaxy was related to preparation for the mission of the European Space Agency GAIA, involving both cosmologists and stellar physicists.

Within the topic of stellar physics, the atmospheres of hot stars and spectra of stars formed within them are being modelled, as well as diffusion of chemical elements in anomalous stellar atmospheres, the phenomena of radiation transfer etc.; the team observes several types of non-stationary stars etc. Of later works, especially highlighted must be Tiit Nugis’ works on self-regulation mechanism for outflows of matter from Wolf-Rayet (WR) type stars. WR-stars are hot stars, intensively emanating matter (*ca* $10^{-5} - 10^{-4}$ Solar mass per year). Those stars must possess an efficient regulation mechanism, maintaining the star in the process of evolution in the so-called optically thick-wind operating mode. As revealed by research of T. Nugis (jointly with H. Lamers of Holland), the said mechanism may be the rapid growth of opacity of matter in denser layers of stellar wind, which mostly results in convection. The stel-

lar physicists too held improvement of methods close to their heart: both the original software of computation of stellar spectra SMART (Raivo Poolamäe, Arved Sapar) and statistical analysis package ISDA of time-series (Jaan Pelt) were upgraded with new modules.

The topic of atmospheric physics i.e. the topic of optical remote sensing of the environment has a more applied aspect to it. The narrower areas of research range from solar UV radiation to chlorophyll content of plant leaves. In between fit in the discovery of several correlations between characteristics of Earth atmosphere and total amount of ozone (Kalju Eerme), the determination of mean annual indicators of atmospheric water vapour and aerosol optical thickness in Tartu and Tõravere in 1955-2002 (Viivi Russak), the working out of the new algorithm for calculation of forest's leaf area index basing on results of measurement of angular distribution of gap fraction of woods (Tiit Nilson, Andres Kuusk) etc. The team continued the use of satellite pictures for research of the state and changes in Estonian forest and agricultural lands, as well as research works in energy forest in Tõravere. In 2003, the focus was on biometry of grey alder plantation. The Department of Atmospheric Physics also organised two larger seminars: in March, Tartu hosted the working meeting of the Nordic Ozone Group and on 3 June in Tõravere the Estonian remote sensing seminar.

The number of personnel of Observatory reached the trough at the end 2003, when we had on payroll 54 people, of whom only 31 researchers of senior researchers. At the beginning of 2004 we recruited, thanks to increased target financing, several scientifically minded young persons. It should be pointed out, however that out of ten M.Sc. theses defended in Department of Physics of University of Tartu in 2003, 5 were on astrophysics. All those five now continue in doctoral programme. Two of them – Tõnis Eenmäe ja Taavi Tuvi-kene – were awarded by scientific council of Observatory the Ernst Julius Öpik fellowship 2003. Such heartening facts nurture our belief that our composition is rejuvenating – provided we are able to offer to them a competitive salary and a high standard working environment. This however depends on the science policy of the state, by and large.

INSTITUTE OF ECOLOGY AT TALLINN PEDAGOGICAL UNIVERSITY

Associated with the Estonian Academy of Sciences
16.06.1998

Founded 1992
Personnel: 44, of whom 26 researchers
Address: Kevade 2, 10137 Tallinn ESTONIA
E-mail: eco@eco.edu.ee
Website: <http://www.eco.edu.ee>
Director: Jaan-Mati Punning, Tel: +372 662 1853, Fax +372 662 2283,
mati@eco.edu.ee
Scientific Secretary: Ene Kadastik, Tel: +372 662 1853, ene@eco.edu.ee



In 2003, scientific research was carried out within the framework of 53 topics of different levels and projects, incl. 4 topics target-financed by Ministry of Education and Research, and 8 Estonian Science Foundation grants, 3 international co-operation programmes and 8 Doctoral and 5 Master's works. Implementation in practice of research outcome was effected under 23 co-operation agreements.

The most extensive among international co-operation programmes was the participation in the project of the 5th Framework Programme of European Commission "Abrupt Climate Changes Recorded Over The European Land Mass: multi proxy records of Late-Holocene climate variability in Europe (ACCROTELM) (supervisor on part of Estonia: Edgar Karofeld).

Within the framework of target funded topic "Natural and human induced trends of the lake trophicity development in the Holocene: re-constructions and projections"(supervisor Jaan-Mati Punning), the influence of basin slopes of the lakes and changes in water level on accumulation of sediments was studied. The field studies at Viitna on lake Linajärv, on lake Väike-Juusa and on lake Jussi Pikkjärv were planned to find out about the dependence of composition of surface sediments and changes in structure upon the lake seston pathways and basin slopes; to carry out the comparative analysis of parameters of sediment layers accumulated in last decades, with the use of historical and monitoring data; to build reconstructions of water level and the lake trophicity in Holocene, basing on previously identified links. The researchers continued to improve and verify the methods (in particular application of fluorescence method for identification of organic matter). Research in carbon cycle of small lakes was started.

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

the data of weather stations analysed by the Mann-Kendall test shows the statistically meaningful ($P < 0.05$) growth of storm days in 1950-2000 in West-Estonia (up to 5.2 times). In the coastal sea, the start of ice formation has delayed (by up to 37 days) and the end has receded (by up to 44 days). In the conditions of more frequent and lengthier storm periods, high water level and ice-free coastal sea, many accumulated coasts have witnessed serious damage and deposit abrasion. The up to 1m rise of sea level in western Estonia would result in shoreline retreat up to 6.4km inland. The flooded areas would become reed beds, and the retreat of shore meadows inland would be blocked by current land use. The analysis of the Männikjärve bog massif monitoring data established the impact of atmospheric temperature and rainfall of the vegetation period on acidity and electric conductivity of surface level of the bog water. The correspondence between the reconstructed and measured bog water tables in different methods suggested that the records of the mire surface wetness should be interpreted primarily as a function of summer precipitation.

Within the framework of the topic “Ecophysiology of carbon cycle” (supervisor Olevi Kull) the research was performed in four subsections: 1) Feedback between environmental conditions and spatial heterogeneity of plant communities; 2) Interconnection in canopy of photosynthesis and transpiration levels; 3) Impact of global changes (in particular increasing CO_2 and ozone concentration) on photosynthesis within leaf canopy; 4) Natural waves of CO_2 . It was found that the growth strategy of the peat moss *Sphagnum fuscum* bases on acropetal transport of water necessary for photosynthesis, *S. rubellum* however has adapted to effective binding and conservation of atmospheric humidity. The research of parameters of sprouts and canopy of different species of temperate conifers (*Abies balsamea*, *Picea abies*, *Pinus sylvestris*) revealed that the total foliar area and average leaf age might be more strongly associated with branching frequency than with leaf longevity. The share of different determinants of average leaf longevity is species specific. The team started research of carbon cycle occurring via plant roots, in different forest soils.

The topic “Trends of development of industrial landscapes in North-East Estonian oil shale mining area” (supervisor Valdo Liblik) aims to clarify the nature and extent of impact of mining, quarry water and air pollution on different ecosystems of North East Estonia. The team studied the changes evidenced in the course of succession in the undergrowth and soil of planted coppices (pine, birch, common alder, larch) and of naturally renovated groves in the areas of Narva and former Küttejõu quarry. It was found that the average biomass of undergrowth (30 year old coppices) in common alder woods are 2.1-5 times higher than in remaining coppices, the number of species of understorey however is the largest in groves left to renovate naturally. As the coppice grows older, the biomass of undergrowth in pine groves and natural

coppices diminishes, while the number of tree species and their diversity (The Shannon index) in pine groves increases; on the contrary, in naturally renovated coppices the density of tree front is decreasing. Among the recultivation methods, more beneficial to natural diversity is to leave the quarry areas to renovate naturally, because new developing understorey is more diverse in areas of natural regeneration than that of planted tree stands. It was found that in connection with closing and flooding of a number of mines in 1999–2003 the hydrological balance of the Purtse, Rannapungerja, Pühajõgi and Vasavere rivers changed significantly, while the interconnection between the catchment areas of the said rivers, operating through exhausted excavated fields has substantially increased. A method for retrospective determination (after closing of quarries) of seismic impact of blasting on the environment was elaborated.

In 2003 the personnel of the Institute published 45 scientific articles and monographs: in international scientific issues 27 articles, in Estonian scientific issues 14 articles, plus 2 separate publications and 2 textbooks, plus popular science articles, abstracts etc. The researchers of the Institute delivered at international conferences 43, at national conferences 6, at in-house scientific seminars 22 papers. Another volume in English “Annual Report 2002-2003” was released, presenting the activity of the Institute.

Majority of the applied researches were directed at analysis of the situation of environment and the possibilities to improve it. Acting as a co-ordinating agency, the Institute performs in Estonia an extensive international project – KEKO (National Audit of Application and Joint Development of Environmental Conventions). The Institute carries out environmental impact assessment on the new oil shale underground mine Ojamaa in North East Estonia. The applied research has tended to be directed towards more general environmental policy projects.

In summer 2003, the Institute participated in organisation of three international conferences and seminars. A key event among them was conference-workshop “Ecohydrological Processes in Northern Wetlands”, attended by over 70 researchers from various countries.

Researchers of the Institute contributed to the faculty effort in universities. They were more active in delivering lectures and supervising undergraduate and post-graduate students in Tallinn Pedagogical University, University of Tartu, Tallinn Technical University and Estonian Agricultural University. Altogether 12 researchers of the Institute supervised the Doctoral and Master’s papers. Of the Institute personnel, the Doctor’s degree was awarded to Margus Pensa and Ülle Sillasoo. M.Sc. in geoecology was awarded to Elga Rull.

**ACADEMIC LIBRARY
AT TALLINN PEDAGOGICAL UNIVERSITY**

Associated with the Estonian Academy of Sciences 17.06.1998

Founded 1946

Personnel: 150

Address: Rävåla pst 10, 15042 Tallinn ESTONIA

E-mail: ear@ear.ee

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

Director: up to December 2003 Anne Valmas,

from January 2004 Andres Kollist, Tel: +372 665 9402,

Fax +372 645 5730, Andres.Kollist@ear.ee

Scientific Secretary: Aita Kraut, Tel: +372 665 9404, Aita.Kraut@ear.ee



Under Order of Government of the Republic no. 228-k of 2 April 2003 "Merger of Estonian Academic Library with Tallinn Pedagogical University" Minister of Education Mailis Rand and Rector of Tallinn Pedagogical University Mati Heidmets signed on 8 April the agreement on merger of Tallinn Pedagogical University and Estonian Academic Library. On 12 May the new statute of Academic Library at Tallinn Pedagogical University was approved, and on 26 May the new composition of Council of Library constituted.

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

The replenishment budget was EEK 5.5 million kroon. Expended thereof on acquisition of holdings to the scientific library was 3.8 million and to the study library 1.7 million kroon. The active holdings were replenished by *ca* 18.4 thou units of printed matter, of which 10.4 thou are books, 1.4 thou annual sets of journals. Of each Estonian publication the Library regularly receives one deposit copy. In view of new tasks of the Library as the University Library a draft of a new acquisition plan was drawn and the new composition of the expert commission to help with the development of collections was approved. Due to the altered subordination relations and

directions of acquisition the former co-operation agreements with the science and research institutions were terminated, however the Library, now reporting to the Pedagogical University continues to perform the function of an academic library, supplying public services. It is ready to make new co-operation agreements, taking into due regard the interests and possibilities of both parties. By the end of year, 11 research institutions had declared they were desirous to start co-operation under a new agreement.

Through ELNET Consortium, the Library continued joint commissioning of electronic publications and databases. Renewed were contracts on use of *EBSCO* databases, *ScienceDirect*, *SpringerLINK* and *PsycInfo*. By the end of year, added were 5 databases containing full texts of leading international science journals, 1 abstract database and 3 electronic reference books of Oxford Publishers. All in all, the Library has now access to 10,793 electronic journals. The lists of the ordered foreign language periodicals and on-line data-bases are available on the website of the Library. The foreign exchange relations were maintained with 304 institutions and organisations in 35 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 1,100 thou titles of journals and magazines, whereof 980 in foreign languages.

The entries of the new acquisitions are recorded, as 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 22.4% of active holdings were available in the electronic catalogue, whereas the Estonian language holdings to full extent.

READER SERVICE

By the end of 2003, registered in electronic database of readers were 22,723 readers.

In that year, the Library was visited 75,769 times. The target group of readers – research staff, faculty members, specialists, university students, post-graduate and doctoral students account for over 80% of readers. The share of readers interested in social sciences has increased. Of public law universities, Tallinn Pedagogical University and Tallinn Technical University contributed the largest slice of readership. Of private higher schools it was the Tallinn Pedagogical Seminar.

Reader service is organised, predominantly electronically. 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 from other libraries located in Estonia and elsewhere, to prolong the term of loan,

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

With a view to present the accessions, 39 exhibitions were held and 78 bulletins compiled. Readers can get information about ordered journals and new acquisitions also on the website. There were organised 40 topical and anniversary exhibitions. The Library organised the fourth exposition in the series "New generation scientists of Estonia. Humanitaria: Linguistics" and another exhibition in the series presenting the Nobel Prize winners 1901-2003, currently dedicated to physics and medicine. The Library continued the series of anniversary exhibitions, introducing the activities of Members of the Academy of Sciences, in the reporting year to Uno Mereste.

BIBLIOGRAPHICAL WORK

Continuing was the editing of original databases and their adaptation to the needs of WWW based programme *Biblioserver*. Internet search is possible from databases *Members of Academy* (10,400 entries), *Congress* (4,377 entries), *Finno-Ugric* (4,071 entries), *Geology* (4,448 entries), *Publications of Academic Library at Tallinn Pedagogical University* (2,112 entries) and since 2003 also form the database of articles of expatriate Estonian periodicals *VEART* (4,937 entries).

Continuing was the work for compilation and preparation for publication of the retrospective national bibliography. On the basis of volumes of retrospective national bibliography released, the data are being replenished and corrected in electronic catalogue ESTER. With the aim to add natural sciences articles in the electronic catalogue, 198 titles of foreign and 13 titles of domestic journals have been gone over.

Published was another Bibliography of Finno-Ugric ethnography and folklore for 2002, Estonian geology: Bibliography 1981-1990 and Estonian Academic Library Year Book 2002.

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.

A keynote scientific event was publication of Anne Valmas' doctoral paper "Publishing activities of the Estonians outside Estonia during 1944-2000." This bulky two-volume work contains a review and analysis of publishing activity of expatriate Estonians and the book catalogue, recording the issued

books by publishers. Anne Valmas was awarded the degree of PhD in history of culture.

Articles in domestic and foreign specialist publications appeared from 16 authors (24 articles). The Library's personnel delivered lectures and papers at conferences, information days and seminars (total 23).

2003 witnessed the continuing organisational restructuring of the Library. On 25 April, two commissions were set up, to perform the agreement on merger between Estonian Academic Library and Tallinn Pedagogical University:

- Commission on harmonization of the academic activity; it was assigned the task to prepare the draft statute of the Library and the plan of fulfilment of academic tasks, contemplated in the restructuring plan of the Estonian Academic Library;
- Commission on integration of infrastructure of the Library.

Pursuant to Order of Minister of Education and Science no. 915, of 10 October 2003 on gratuitous alienation of state property, the state property held by the Library was transferred to Tallinn Pedagogical University.

INSTITUTE OF THE ESTONIAN LANGUAGE

Associated with the Estonian Academy of Sciences
11.05.1999

Founded 1947

Personnel: 71, of whom researchers and
senior researchers 26, editors and senior editors 15

Address: Roosikrantsi 6, 10119 Tallinn, ESTONIA

E-mail: eki@eki.ee

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

Director: Urmas Sutrop, Tel: +372 644 9843, Fax: +372 641 1443

Urmassutrop@eki.ee

Scientific Secretary: Hille Pajupuu, Tel: +372 644 3472, Hille.Pajupuu@eki.ee



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 been in the administrative domain of Ministry of Education and Science. In 1999, the Institute associated with the Estonian Academy of Sciences.

Institute of the Estonian Language has three departments:

- Department of the standard written Estonian grammar, in short Grammar Department, Head Peeter Päll, MA.
- Department of standard written Estonian vocabulary, in short Lexicological Department, Head Margit Langemets, MA.
- Department of Estonian dialects and cognate languages, in short Dialectological Department, Head Kristiina Ross, PhD.

Grammar Department and Lexicological Department perform the target funded research “Lexical and grammatical structure of modern Estonian” (2003-2007), supervisor Urmas Sutrop, Dr. Phil. Dialectological Department performs the targeted research “Geographic and diachronic transformation of Estonian” (2003-2007), supervisor Kristiina Ross, PhD.

Of particular note among activities of GRAMMAR DEPARTMENT in 2003 was the speech synthesis research (Meelis Mihkla – National Science Prize 2003, Hille Pajupuu); completed has been a new version of rule-based morphological disambiguator (Tiina Puolakainen), so have the tentative versions of WWW dictionaries: ÕS 1999, Russian-Estonian dictionary, Finnish-Estonian mega-dictionary (Indrek Hein, Ülle Viks), and as appendix to Finnish-Estonian mega-dictionary, the dictionary of morphology of Estonian equivalents (software for compiling plus the actual dictionary; Indrek Hein, Ülle Viks). In progress are two doctoral theses (Heete Sahkai “Solution in linguistics of the categorization problems”, supervisor Professor Martin Ehala; Mee-

lis Mihkla “Estonian text-to-prosody converter”) and one Master’s thesis (Maria-Maren Sepper “Expression of reporting in texts of standard written Estonian during one century”, supervisor Professor Helle Metslang).

Language planning group finalised the manuscript of “Student’s ÕS” (Tiiu Ereht, Tiina Leemets), left with the printers’ was the collection of Henn Saari’s linguistic whiles “Language broadcast” (compiler Sirje Mäearu), reviews of terminology and name regulation (Tiiu Ereht, Peeter Päll). In process is one doctoral thesis (Peeter Päll “Foreign names in Estonian text”, supervisor Professor Tiit-Rein Viitso) and one Master’s thesis (Argo Mund “Principle of tradition and system in standard written Estonian”, supervisor Professor Mati Ereht).

Staff of the department released 5 monographs, 17 publications in peer-reviewed and indexed issues, 12 other scientific publications, 4 publications of applied linguistics. There were 17 papers delivered at scientific events, plus 22 individual papers presented and 11 courses held.

Language consultation service of the Institute continued as popular as ever (Tiiu Ereht, Tiina Leemets, Sirje Mäearu, Peeter Päll, Maire Raadik, as substitutes Argo Mund and Elli Riikoja). In the reporting year, there were 7082 language help seekers putting calls through to consultation service (many had several questions; cf. in 2002 – 6952 calls, in 2001 – 7300 calls, in 1999 – 6850 calls), composed were 37 letters (incl. linguistic expert examinations and letters on name regulation). Answers were given to 130 requests received by e-mail. From November 2003 all cases of language advice have been recorded, on a regular basis in the computer database (author of software Indrek Kiissel).

LEXICOLOGICAL DEPARTMENT continued, in keeping with the schedule, the editing of large base-dictionaries. 3 academic base dictionaries (or parts thereof) appeared:

Eesti-soome suursõnaraamat / Suomi–viro suursanakirja I-II [Estonian Finnish Mega-Dictionary I-II]. Edited by Valdek Pall. Eesti Keele Instituut, Kotimaisten kielten tutkimuskeskus. Tallinn: Eesti Keele Sihtasutus; Helsinki: Kotimaisten kielten tutkimuskeskus. 1290 p. + 1300 p.

Eesti-vene sõnaraamat [Estonian Russian Dictionary] III (M–P). Senior editors: Anne Romet and Nelli Melts. Eesti Keele instituut. Tallinn: Eesti Keele Sihtasutus, 2003. 1290 p.

Eesti kirjakeele seletussõnaraamat [Dictionary of Standard Written Estonian], Volume VI, 3rd fascicle (*tundma – unelus*). Edited by Mai Tiits, Tiia Valdre and Leidi Veskis. Eesti Keele Instituut. Tallinn: Eesti Keele Sihtasutus, 2003. 191 p.

There were defended 2 Master’s theses (Merike Mägedi “Foreignness of lexis. Foreign words in Estonian text”, supervisor Associate Professor Krista Kerge;

Piret Voll “The connotative aspect of meaning and its treatment in a monolingual dictionary”, supervisors Associate Professor Enn Veldi and MA Margit Langemets), in progress are 2 doctoral theses (Ene Vainik “Semantics of vocabulary of emotions in Estonian”, supervisor Urmas Sutrop Dr. Phil.; Margit Langemets “Lexico-semantic relations in hierarchical lexicon: problems of polysemy”, supervisor Professor Helle Metslang) and 2 Master’s theses (Jane Lepasaar, “Homonyms in Estonian”, supervisor Silvi Vare PhD; Külli Kuusk “*Önnis*-stem words as equivalents to the stem *barak* in Hebrew and the stem *eulogeia* in Greek”, supervisors Siret Rutiku PhD and Kristiina Ross PhD).

In the first time in the history of Estonian linguistics, the Institute was commissioned to do a piece of court-of-justice linguistics: composed was a lexicography related expert deed in criminal case no. 00231000138 “FESTART DICTIONARY ENGLISH-ESTONIAN. 70000 ENTRIES. CD-ROM Version 3.10” (May 2003). Chief expert and head of team of experts was Piret Voll.

DIALECTOLOGICAL DEPARTMENT continued editing the Dictionary of the Estonian dialects, the replenishment of etymological card-file of the Estonian language and the compilation of Estonian etymological basic dictionary. Left with the Publishers was the fascicle of the dictionary of dialects: Eesti murrete sõnaraamat [Dictionary of the Estonian Dialects] III, fascicle 14 (*koorbiits – kreen*). Edited by Anu Haak and Helmi Neetar. Eesti Keele Instituut. Tallinn: Eesti Keele Sihtasutus. 203 p. (to appear at the beginning 2004).

Finalised was the editing of Vol. V of Dictionary of the Votic language (to be left with Publishers in January 2004).

In the area of name research, Marja Kallasmaa released a monograph “Läänemurde loodus- ja viljelusnimed [Nature related and cultivation names of the western dialect]”. Edited by Eevi Ross. Tallinn: Eesti Keele Sihtasutus, 2003, 196 p.

In the area of history of standard written Estonian, published was the translation collection of linguistic works by Ed. Ahrens “The missionary linguist of the new era Eduard Ahrens 200” and part of the Bible translation in manuscript dating from 17th C. (“The first book of Moses. The Book of Job. Translated in 1687-1690 by Andreas and Adrian Virginus”). Tackled was the compilation of concordance of translations of Bible in Estonian.

In progress are two doctoral theses (Meeli Sedrik “Vocabulary of dialects of the island of Hiiu”, supervisor Professor Huno Rätsep; Sven-Erik Soosaar “Morphosyntax of Nenets non-finite verb forms against the Siberia background”, supervisors Professor Ago Künnap and Urmas Sutrop Dr. Phil.).

The above results belong, as one part under the project specifically funded topic “Geographic and diachronic transformation of Estonian”. Of particular

value is the new research direction with an innovative angle of approach, which proved its worth during the year – namely, the evolution of grammatical structure of Estonian is analysed in the field of interaction of grammatical features of the Uralic and contact languages. In that topic 4 articles were published.

In 2003 the researchers of the Institute of the Estonian Language published 14 publications viewed as separate books and 32 scientific articles in indexed and peer-reviewed issues, the staff of the Institute delivered 40 papers.

ESTONIAN LITERARY MUSEUM

Associated with the Estonian Academy of Sciences
11.05.1999

Personnel: 97, of whom 65 researchers and assistant researchers,
16 librarians and bibliographers

Address: Vanemuise 42, P.O. 368, 50002 Tartu ESTONIA

E-mail: kirmus@kirmus.ee

Website: www.kirmus.ee

Director: Krista Aru, Tel: +373 7 420 155 Fax +373 7 420 426,
krista@kirmus.ee

26 December 2003 was the 200th anniversary of Friedrich Reinhold Kreutzwald. That keynote date of history of culture was commemorated by the whole of Estonia and in particular by Literary Museum, as keeper and protector of heritage of Kreutzwald in the form of his manuscripts (including the manuscript "Kalevipoeg"), as one of the organisers of the Kreutzwald Year. It was on traditional Kreutzwald Days held by Literary Museum that Member of Academy Juhan Peegel and Minister of Culture proclaimed, on 19 December 2002, the year 2003 the Kreutzwald Year. The year was also summarised on Kreutzwald Days of Literary Museum, on 17 December 2003.

For Literary Museum, it was a labour intensive year, much to our heart's pleasure. It contained academic meetings with papers and conferences, preparation of new issues of Kreutzwald's works and the research effort. The roadshow exhibition of Literary Museum "Kreutzwald's century. Kalevipoeg" (editors researchers Marin Laak and Kristi Metse, designer Peeter Laurits) called at various places of Estonia during the year, recalling the seminal points in time, of Estonian culture and Kreutzwald's work. The Kreutzwald's Year laid bridges between past and future and convincingly proved that every generation must have an opportunity to return to the spring well, to understand its culture.

ACCENTS IN RESEARCH

Research done in Literary Museum has focused on five target funded topics. The research topics have become more interdisciplinary: studies in folklore are intertwined with linguistics, ethnology and anthropology, literary critics uses, ever more frequently the methods of semiotics and sociology. The folklore based scientific topics "Folklore of Estonia and other peoples: tradition, identity and globalisation" (supervisor PhD Mare Kõiva), "Creation, communication and interpretation of folklore: process and institutions" (supervisor PhD Aado Lintrop), "Musical text and context in traditional culture" (supervisor PhD Triinu Ojamaa) are by far not only concerned with collection and assessment of verbal popular tradition. They are in the first place intent on

elucidating the tradition of Estonians and other peoples and their traditional culture, its changes and impact on this globalising world of ours.

The literature centred scientific topics “Estonian history of culture as agent of ethnic culture” (supervisor PhD Sirje Olesk) and “Topology and texture of Estonian literature. Intersemiotic analysis” (supervisor PhD Virve Sarapik) are both complementary, and synergistic. The basis of the first mentioned literary topic are first and foremost the collections of Archive of Estonian History of Culture of Literary Museum, their study and interpretation by new-historical methods in the yonder cultural context. The focal point of the second topic is the environmental ethic and literary ecology and change of social and ontological status of a work of art.

The year of 2003 was successful for all scientific topics, because the researchers managed to link the treatment of the topics, essential to Estonian ethnic culture, to the approach actual in international world of science. The researchers were successful in bringing modern devices to bear on traditional elements and to put accents in compliance with the needs of the society.

In co-operation with the Association Estonian Biographies, completed was the book of biographies, compiled by Rutt Hinrikus “Biographies of the Estonian people. III. Life in the ESSR”. The collection of biographies formed over the years in the Estonian Cultural History Archives is a repository for research both for us, and the succeeding generations of historians, ethnologists and historian of culture.

Estonian Cultural History Archives, which bore the brunt of the events and undertaking of the Kreutzwald Year in Literary Museum, wrote and compiled, basing on archives materials the guide to classics of Estonian literature. The album of autographs of Estonian writers “Käsi kirjutab” (Manu scribit) is introduced with a facsimile from an ode by F. R. Faehlmann “Suur on, Jumal, su ramm...” (Powerful is your hand, oh Lord) and is completed by autograph of Juhan Viiding. Those two authors frame the period encompassing the Estonian authors, whose hand no longer writes (manu scripta est), but whose work has reformed the Estonian history of literature.

Completed in the interactive project “Radar” of Department of Folklore, to become in its final form the basic map of Estonia, enriched with information of history of culture, was the part of Lääne-Virumaa. The historical tradition of Lääne-Virumaa, its history-of-culture related objects and events collected from archives, museums and libraries were verified, before their entry on the map, in all parishes of Lääne-Virumaa.

The so-called pocketbook issues initiated by working group of shorter forms, attached to Department of Folklore in 2002, presenting the very best of old sayings, proverbs, adages, puzzles, conundrums, riddles, maxims, and saws

continued with two issues “Aja või konnale püksid jalga...” (Pulling though pants on the frog) and “Kole mees, aga konna ei söö” (A frightening man, however not eating frogs). Complementing academic volumes of riddles and proverbs those books make an excellent reading to youth and those no longer young.

Opus magnum of Estonian Folklore Archive in 2003, on its merits, is the supplementation and modern publishing of scientific anthology “Estonian folk songs and music” issued in 1970 on vinyl records. In the series “Recordings of the Archive of Estonian Folklore”, a collection “Anthology of Estonian folk music” containing three CD-discs (master CD being prepared by sound engineer of Estonian Folklore Archives Jaan Tamm), texts and music was released. The publication of Anthology was supported by Cultural Endowment of President of the Republic, Gambling Tax Council and Estonian Culture Endowment. Instrumental in furtherance of the anthology was the Estonian Music Collections Union.

Finalised and issued in co-operation between Estonian Folklore Archives and Department of Ethno-Musicology was another volume of the series *Monumenta Estoniae Antiquae* “Old Harp VII-2. The Kihnu folk poems” bringing together the Kihnu songs repertory.

For the Department of Ethno-musicology the year 2003 was, in the first place the year of international conferences and publications. Scientific articles in the journal *The World of Music* and participation in the programme “Citizens and Governance in Knowledge-Based Society. Title: Music, National Identity, Ethnicity and Cultural Diversity in Europe” are just examples of active research done by personnel of the Department.

The academic research of this institution has been impressively propelled by the status of centre of excellence accorded us. Centre of Estonian History of Culture and Folklore (Head of Centre Member of Academy Arvo Krikmann) focused in 2003 on study of text and context of culture of the Soviet society. The selection of work completed was published as collection of articles “Power and Culture” (Tallinn, 2003). Centre of Estonian History of Culture and Folklore also serves an excellent example of productive co-operation of scientists in the humanities: besides top researchers of Literary Museum, the Centre comprises representatives of University of Tartu, Under and Tuglas Literature Centre and Estonian Academy of Music.

Continuing within the framework of research project of Archival Library “History of Estonian Printed Matter 1700-2000” was the study of history of book and compilation of analytical retrospective bibliography of Estonian press.

Published by Literary Museum within the framework of several scientific topics and research projects in 2003 were 26 hard copy issues, 20 electronic issues and 243 scientific and popular science articles.

BASIS OF RESEARCH IS THE ARCHIVES

Three archives of Literary Museum: Archival Library, Estonian Cultural History Archives and Estonian Folklore Archives were essentially enriched in 2003. The Archival Library was replenished by 16 139 units of printed matter, including 8347 books and 5720 annual volumes of newspapers and magazines. The Estonian Cultural History Archives received 7443 new deposit units, among which 3405 manuscripts and 126 works of art. The Estonian Folklore Archives acquired 1010 new archival units. Like it has been over decades, in 2003 too the archives developed through competitions of collection and expeditions, and also on account of donations arriving from every nook and corner of Estonia, and from outside Estonia.

The issue of how to better preserve and use for research without restrictions, the archival items, unique in Estonia and the whole world, is not only the concern of Literary Museum. Seeking solution to that problem, the researchers of Literary Museum participated actively in the work of Cultural Values Preservation Council and worked out, in the team set up with Ministry of Culture the alternatives of how to digitalise the cultural values most effectively and expediently, and to preserve the digitalised matter usable in the future.

The UNESCO funded project THULE started in 1998, aimed to find out how the preservation of cultural values is provided in larger libraries of Estonia, attained in 2003 the third phase. Completed was the Estonian printed issue *Red Book* (1535-1850), presenting as an image bibliographic entry and photo of cover and flyleaf of the those pieces of printed matter in Estonian, which most of all among the printed word in Estonian, published in 1535-1850 influenced the history of development of Estonian culture and society. With every item of printed matter recorded in *Red Book*, the place of discovery and condition of the issue, subject to international standards, has been indicated. A great number of printed items named in the *Red Book* are available only at archival libraries of Literary Museum.

Besides seeking and working out solutions we managed to get about something very specific: in 2003 we digitalised all phonographic scrolls of Estonian Folklore Archives. The actual content of 23 12cm diameter wax scrolls recorded by C. Kreek and preserved in the Archives untouched since 1920 had been secret even to workers of the Archives. This is so for the simple reason that lacking until now in Estonia is the device allowing listening to phonograph scrolls of large core. Thanks to interest displayed by Swedish Musical Archives located in Stockholm (Svenska Visarkiv) and their hope that the mysterious phonograph scrolls might contain folk music of coastal

Swedes, the Musical Archives organised in Swedish State Radio the digitalising of the wax scrolls. Those pieces of music recorded on carriers, unique in the world were performed in the hall of Literary Museum on 26 February 2004, when President of the Republic Arnold Rüütel handed over, for the 11th time the Folklore Prizes to best collectors.

It is heartening to note that resulting from long work, the Government of the Republic approved in 2003 on 24 December two important national programmes for the years 2004-2008 concerning also Literary Museum: “The Estonian language and the collective national memory” and “Collections in the humanities and natural sciences”.

CO-OPERATION AND OPENNESS ARE FUNDAMENTAL FOR DEVELOPMENT

The annual conference in Moscow in September 2003 of International Committee of Literary Museums (ICLM) of International Council of Museums (ICOM) discussed and argued about the role and responsibilities of literary museums in the modern world. Prevailing was the idea that in the open society, the Literary Museum should simultaneously perform several functions: to be protector and caretaker of abundant archival material deposited in the vaults of the museum, however also act as researcher and publisher of said material. However, Literary Museum as keeper of ideas, thoughts, attitudes etc. rendered eternal in printed word, art of work or sound recording must do more: Literary Museum must also act as the direction indicator and designer of cultural awareness of the society. It should do so primarily by way of educational events and those addressed at cultural public.

Estonian Literary Museum has for years developed towards poly-functionality, with research combined with needs arisen of cultural and educational life. Such multi-directionality presumes co-operation and openness, which were passwords of our work in 2003.

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

Associated with the Estonian Academy of Sciences 28.01.2003

Founded 1988

Personnel: 27, of whom researchers 16

Address: Estonia pst.7, 10143 Tallinn, ESTONIA

E-mail: admin@iiss.ee

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

Director: Raivo Vetik, Tel: +372 644 3078, Fax +372 645 4927, vetik@iiss.ee



The research effort of the Institute in 2003 may be considered successful – the researchers published a number of internationally relevant scientific publications, defended 3 Master’s degrees, participated at professional conferences both in Estonia and abroad, carried out several state-commissioned applied research projects and were actively involved in national science organisation events.

The streamline work of the Institute is related with four target funded topics.

“Restratification processes in post-socialist society: formation of occupational groups in Estonia” (supervisor Rein Vöörmann) – the main goal of the project is to analyse the restratification processes evidenced in the present day Estonia, with reference to occupational groups rather than on the level of social classes. In the reporting year, the team focused on survey of manifestations of social inequality and their extent in Estonia as a post-socialist state; assessment of meaningfulness of inequality factors; analysis of the aggravating or alleviating impact on inequality of institutions. The analysis based on teachers revealed that in Estonia, the professionalisation of occupational groups is overshadowed by a certain controversy of applicable institutional rules, tending to give rise to co-existence of institutionalised inclusion strategies and non-formalised recruitment methods (social networking), which augments the inversion of certain occupational groups. The analysis of the extent of inequality bore testimony to its dramatic worsening; increasing, too was the share of people, who considered differences in income much too large and stood out for observance of equity principles in the society.

“Changes of social-economic environment in Estonia: adaptation and coping strategies of the families” (supervisor Leeni Hansson) – the project focuses on adaptation and coping strategies of families belonging to different social groups in the novel social-economic conditions, as well as the links of those strategies to social-ecological and eco-cultural environment, surrounding the family. In 2003, the team studied the topical theoretical material and perfor-

med secondary analysis of data of earlier population surveys (“Estonia 93” and “Estonia 98”). One of the main tasks of that year was updating the empirical database, and preparation and carrying out of the population survey “Estonia 2003”. In order to provide for comparative analysis with previous comprehensive population surveys (1985, 1993, 1998), the 2003 survey was held as a mail survey, involving the population aged 15-70 (basic questionnaire to age group 18-70 plus a shortened version of questionnaire to age group 15-17). It is a representative sample of Estonian adult population, commissioned on the basis of vital records (4200 respondents). The questions embrace main areas like work, family life, economic coping, leisure time, attitudes and value assessments etc.

Project “Cultural factor as guarantor of sustainable development of Estonian society in the conditions of a global risk society” (supervisor Aili Aareleid-Tart) focuses on analysis of sociological-historical-anthropological cultural spaces of ethnic Estonians and Russian Estonians. With the aim to clarify the rapid change of culture as value-normative patterning of the society, the changes in continuity of mental standards and traditions were subjected to scrutiny. The team studied the transformations of “us” identities (in press comparatively 1991 and 2001) both with ethnic Estonians and non-Estonians, as well as the reflection of changes in biographies of Russians. The team studied the stability and changes of values of different ethnic groups in Estonia, viewed against the background of Baltic rim countries and the Baltic States, using the data of Rokeach value survey of 1991, 1995 and 2002, and the outcome of the third wave of World Value Survey (WVS). Apparently, the values of Estonians stabilised and rapidly approached the Western value system (e.g. of the Swedes) in the second half of 1990s. The study supported the evidence of transformation of value system of Russian Estonians and its clear-cut differentiation from the value system of ethnic Estonians.

Within the framework of the project “Democratic governance in Estonia: problems and solutions” (supervisor Raivo Vetik), the respective team studies the development of democracy in the post-newly-independent Estonia, focusing on finding the checks-and-balances in the context of colliding interests and attitudes in the society. The research makes emphasis on ethnic policy, its institutional organisation and regulative, normative and cognitive characteristics. Besides the scientific analysis, the goal of the project is to produce policy recommendations, in view of the need for consolidation of the democracy and the context of accession of Estonia in the EU. The analysis shows that the next step should be made in the integration policy of the state of Estonia. The first one focused on teaching Estonian to non-Estonians, which was justified as the main focus of integration, in that time. Apparently significant progress has been made in creating motivation for learning and in the language acquisition. However the analysis of several social processes indicates that the achievement of goals of political and social-economical

integration formulated in the integration programme calls for more attention. The continuing marginality in the labour market of an impressive slice of non-Estonian population and their withdrawal from social and political life of Estonia is detrimental not only to themselves but to the whole state – both in the sense of political and ethical, and economical resources. The analysis also proved that Estonians too should become subjects of the integration policy, because increasing of openness and tolerance with respect to minorities has become a major prerequisite of successful integration.

In 2003 the researchers of the Institute published over one hundred publications – monographs, omnibus volumes of articles and separate articles both at home and abroad. Meriting special mention is the article by Rein Vöörmann and Jelena Helemäe “Ethnic Relations in Estonia’s Post-Soviet Business Community” in journal *Ethnicities* and Raivo Vetik’s article “Elite vs. People? Eurosceptic Public Opinion in Estonia” in journal *Cambridge Review of International Affairs*. Institute issued another “Estonian Human Development Report”, in that year highlighting the trends of human development in the context of the social “new deal”, triggering a lively public debate.

The collaborators of the Institute defended in 2003 three Master’s degrees: Kadri Täht, Niina Derman and Jelena Baljasnaja.

Institute participates in many international projects both as partner and co-ordinator. The subject of the project CAMSIS (Cambridge Social Interaction and Stratification Scales) is working out and implementation of a new system, measuring social stratification on the basis of continuous scale for inter-states comparison in the area of social stratification, initiator of the project Cambridge University (Professor Kenneth Prandy); GLOBALIFE (Life Courses in the Globalisation Process) – the goal of the project is to analyse the impact of globalisation on the life course of people in European countries, project leader Professor H.-P. Blossfeld, Bielefeld University; ESPAD (The European School Survey Project on Alcohol and Other Drugs), co-ordinators the Council of Europe Pompidou group, Dr B. Hibell; EU Phare project “Review of organisations dealing with racism, xenophobia etc.”, co-ordinator RAXEN, Austria. The Institute participated, as partner on the part of Estonia, in European Commission’s Topical Network “Globalisation and Europeanisation Network in Education”, co-ordinator Susan Robertson of Bristol University.

One of the priorities of further development of the Institute is involvement of post-graduate and doctoral students in projects of the EU research and development framework programme, both those in progress and contemplated. In January 2003, launched was the project of the 5th framework programme “Political Participation of Youth”, within which Marti Taru is finalising his doctoral thesis. In spring 2003 the Institute applied, as partner for a new project of the 6th framework programme, dedicated to the solution of ethnic

conflicts. The application was granted and the work will start in March 2004. In autumn 2003 the Institute as co-ordinator requested funds for the project of the 6th framework programme “Towards Life-long Learning Society in Europe: The Contribution of Educational System”, involving as co-operation partners the scientists of Ireland, England, Scotland, Belgium, Portugal, Norway, Austria, Slovenia, Czech Republic, Hungary, Bulgaria, Russia and Lithuania. Within the SOCRATES programme, we are partners in the proposed project (6th FP) monitored by Idees Nicaise (Belgium) “The right to learn. Advanced European course on education and social inclusion.”

In 2003 the Institute organised two larger scientific conferences: “Mission conference II: ‘Estonia’s development strategies and the social “new deal”?”, (a joint forum of social scientists and political leaders on key issues of the Estonian society) and “Annual conference of Estonian social scientists IV”.

ASSOCIATED SOCIETIES, UNIONS

ESTONIAN NATURALISTS' SOCIETY

Associated with the Estonian Academy of Sciences
23.01.1998

Founded 1853

Membership: 802 active members (incl. 42 permanent),
23 honorary members and 658 trustees

Street Address: Struve 2, 51003 Tartu, ESTONIA

Postal Address: P.O. 43, 50001 Tartu, ESTONIA

E-mail: struve@elus.tartu.ee

Website: <http://www.loodus.ee/lus/>

President: Tõnu Möls, + 372 553 3820, Tel: + 372 734 8096, + 372 747 2447

Scientific Secretary: Linda Kongo, Tel: + 372 734 1935, + 372 5590 7544,

Fax: + 372 742 7011



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 enthusiasts and the Commission of Lakes.

Reporting to the Society are three special commissions: Commission on Observation Networks; Commission on Library; Commission on History of Natural Sciences; Commission on Natural Education. In addition, 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 environmentalists, centre of game biology and working group on information technology. Under a co-operation agreement with the Estonian Forestry Society, the Naturalists' Society organised the activity of Research centre of rodents, located in Elistvere Animal Park.

The main concern of the Society is the continuation of nature observations. The Society organised phenological observations and continually monitored the diversity of nature (hoofed animals, flying squirrels, bats, crayfish). Members of the Society participated in making the Red Book of Estonian habitats as water experts and also in creating a guide for the collection and evaluation of invertebrates for nature enthusiasts. Estonian Naturalists' Society participated in composing species maps for Natura 2000. The section of botany was involved in the commission's work on Estonian independent

botanical terminology. It updated the database of plant names in Estonian on the Internet. Data was compiled for the distribution atlas of Estonian vascular plants. Estonian Naturalists' Society participated in selecting potential Natura areas organized by the Ministry for the Environment. There was a seminar held aiming at creation of organised system of elements necessary for protection of biological diversity of lower plants and mushrooms of Estonia (ENEP project). Members of the Society also organised two mushroom camps (spring and autumn) in Ähijärve, located in Karula National Park. Estonian Mycological Society and section of mycology from Turku together organized a collective expedition to Finland. The forestry research and the study of history of natural sciences proceeded unabated. The society participated in the commission's work on the National Olympiad in biology. The annual instruction of nature-observation students was continued and training camps were organised. 13 mushroom exhibitions were arranged, two of them outside Estonia – in Toronto and in Newfoundland. The list of fountain mosses from the Endla Reservation was completed during the Friend of Lichen's IV convention (93 species).

The Society convened for the 150th anniversary of Estonian Naturalists' Society, organized 8 general meetings (one of them as Baer Day) and *ca* 30 meetings with reports from various committees. The following events were held: XXVI Estonian Naturalists' Congress in Elistvere – "Nature in Voo-remaa"; XXIX Spring School of Theoretical Biology in Kiidi, Võrumaa – "Theory of Rest"; Autumn School of Estonian Theriological Society in Hiiumaa; IX Estonian Ecological Conference – "Estonian Ecology in the Globalizing World". In cooperation with the Centre of Physical Anthropology of the University of Tartu, the Society organized a day for the presentation of scientific reports, in commemorate to Juhan Aul.

Jakob von Uexküll Centre continued organizing the series "Personal Natures", focusing on relations between nature and culture. It was continued with an innovative public seminar series "Lifeworlds – Worlds Alive", seeking to interpret the concept of "own world" of Jakob von Uexküll, by use of observer's role. The Centre organized the third summer seminar of ecosemiotics. Many young people participated in these activities. Members of the Society participated in international conferences and presented reports. The Section of Entomology took part in the XXVI congress of Entomology of the northern lands in Skalupe, Latvia. A member of the Estonian Theriological Society, A. Miljutin presented a paper in the congress of Theriology in Moscow. The members of the section of anthropology participated in the international Baltic Medical Congress and in the Russian International Congress of Anthropology and Ethnology. The Society commemorated the births of venerated scientists (K.E. von Baer, A. v. Bunge, W. Ostwald, G. Backman, J. Aul and V. Masing).

The following publications were released:

- Year-Book of Estonian Naturalists' Society, vol. 81 (285 pp.);
- L. Kongo – 150 Active Years of the Estonian Naturalists' Society 1853–2003 (471 pp.);
- Papers of the XXVI Estonian Naturalists' Congress “Nature of Vooremaa” (88 pp.);
- *Schola Biotheoretica*, XXIX - “Theory of Rest” (84 pp.);
- *Folia Cryptogamica Estonica* no. 40 (68 pp.);
- Lepinfo no. 14 (jointly with Estonian Lepidopterological Society, 112 pp.);
- Booklet “Estonian Naturalists' Society” (25 pp.);
- Manual “For Those Who Care About Nature”;
- The Internet Journal of the Section of Botany “The Friend of Lichen's” no. 6

The library of the Society numbered, by the end of 2003, 159,103 units of printed matter. The titles were exchanged with 101 institutions and organisations from 24 countries.

ESTONIAN GEOGRAPHICAL SOCIETY

Associated with the Estonian Academy of Sciences
27.01.1998



Founded 1955

Membership: 427 active members, 14 honorary members, 4 foreign members

Address: Kohtu 6, 10130 Tallinn ESTONIA

E-mail: kotliegs@hotmail.ee

President: Jaan-Mati Punning, Tel: +372 662 1853, 052 51 095

Scientific Secretary: Helve Kotli, Tel: +372 645 2744, +372 5193 2289

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. In December, the foundation meeting of the section of young geographers was held.

The work within the programme “European geoparks” continued, with the aim to lay down landscape reserves and geoparks; so did the work in the area of organisation of Estonian natural monuments (Hella Kink, Toomas Metslang). The studies on the cartography related activity of A.J.von Krusenstern was started (Heino Mardiste).

The School Geography Section was engaged, jointly with Institute of Geography of University of Tartu and Ministry of Education and Science in solution of several scientific-methodological problems related to teaching geography (compilation of subject curricula etc.), preparation for state

gymnasium examination in geography and in international comparative research TIMSS for school form 8. The members of the Society tutored the extra-curricula geography related research of the school students, organised hiking to nature reserves and environmental camps, jointly with their Finnish sister school. The Society participated at organisation of district rounds of Geographical Olympiad in its final competition in Türi Gymnasium on 9-11 May. The Society also participated at 4th Geographical Olympiad of the Baltic States in Lithuania, Nida. The Member of the Society Kersti Ojassalu was awarded, for merits in pedagogical work, the title of Teacher of the Year 2003 of Harjumaa. Members of the Society delivered two lectures to teachers of geography of Harjumaa: "Soils and their evolution" (Urve Ratas) and "Climatic changes in the last decades" (Helve Kotli).

Estonian Geographical Society organised, in the hall of the Academy, in co-operation with Estonian Marine Museum, Estonian Polar Fund and National Maritime Board a scientific conference to commemorate the 225th anniversary of the famous navigator and discoverer of Antarctic Admiral F.G.Bellingshausen (7 papers). The international guests were invited to visit the places related to F.G.v.Bellingshausen in Lääne-Virumaa and also to visit his native place in Saaremaa. A group of members of the Society and the Polar Club travelled to Kronstadt, paid tribute to Admiral Bellingshausen on his grave and set a wreath on Admiral's monument. In the Academic Library there was an exposition "F.G.v.Bellingshausen – discoverer of the Antarctic, native of Estonia – 225".

Together with other scientific societies associated with Estonian Academy of Sciences the Society organised a conference "The role of Estonian academic scientific societies in formation and preservation of Estonian national identity". Ott Kurs represented the Society in the steering committee.

In co-operation with the Estonian Polar Club the Society organised "The Day of Polar Literature" in Tallinn (6 papers). Water handling facilities over the centuries was the topic of paper by Anto Juske.

At General Meeting of the Estonian Geographical Society, Mart Saarso delivered a paper "Estonian Antarctic expedition".

The Society regularly issues the Estonian Geographical Society yearbooks and the collection in English "Estonia. Geographical studies."

The Society organised 6 club soirées, hearing the travelogues and news in geography. Captain of the vessel "Lennuk" Mart Saarso paid homage to the Society, visiting it. The traditional scientific excursion with 98 participants was held in Eastern Latvia. The geographers looked at nature, historical monuments and got acquainted with problems of regional economy. The sections of the Society organised the total of 8 one- or two-day tours: by bus

to Setumaa, hikes to the bog Sõbesoo and the Lipstu moorland (Tiit Petersoo), to Männiku-Saku, Kõrvemaa, the walking tour in spring “Beautiful Harjumaa”(Vello Joonuks), canoe trip in Harjumaa and by boat to the island Osmussaar (Juta Kuik). The geographers visited the Jõelähtme landfill, built in compliance with the EU standards and the Tallinn waste recycling plant. On excursions outside Estonia, the Society visited St. Petersburg, to take delight in historical and cultural monuments of the city. On their way back, they made a detour to Kronstadt.

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: 232 members

Address: Kohtu 6, 10130 Tallinn ESTONIA

Chairman: Andrus Ristkok, Tel: +372 5664 7806

Deputy Chairman: Elvi Sepp, Tel: +372 692 5802

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

The Board of the Society includes 9 members, attached to the Board is the 10-strong Village Commission (Chairman Kaljo Laas). The Society maintains larger co-operation groups in Tallinn (77 members), Pärnu County (48 members), Järva County (23 members), Viljandi County (23 members), Harju County (13 members), Ida-Viru County (Alutaguse division, 10 members), Rapla County (7 members), Põlva County (6 members). The circle of regional studies with Tallinn City Museum celebrated its 40th anniversary in 2003.

The General Meeting of the Society was held on 28 March 2003. By decision of the General Meeting Jaan Eilart was nominated Member Honoris Causa of the Society of Estonian Regional Studies. The organisation of work of the Society was discussed and planned at 7 Board meetings. Like earlier, the methodological supervision and guidance of regional studies was the order of the day. In November the lecturers of the Society organised a one-day training event to the libraries of Jõgeva County for identification and use of regional studies sources. The Society released the “Information collection no. 3”, containing among others the methodological guidelines for study of the closed schools, initiated one year earlier by Village Commission. The bibliography of printed matter reviewing the Estonian villages and settlements for the years 1990-2000 was digitalised.

In March, the 12th competition of young guides was held. In co-operation with the Centre of Estonian Youth Work and promoted by it, there was organised the traditional 9th expedition for young guides and amateurs of regional studies, in that year titled “Sakala and Ugandi”. On 17 October 2003, Tallinn witnessed the completion of the 35th national competition of works in regional studies, and the respective festive conference in the Academy Hall.

The summer time study trip of the Society was organised in Tartu County (on the itinerary Raadi-Äksi-Kukulinna-Kärkna-Tõravere-Elva-Vitipalu). There were held several local study tours: in July the two-day study tour of the regional studies activities of Pärnu County, the Pärnu-Jaagupi Day, in Tallinn the visit to State Archives, the Madara reading room and to Historical Museum, the Maarjamäe compound. In April, the activists of the Society watched the documentaries by member of the Society Karl Kello, in November they met with the merited researcher in sports historian Heldor Käärats, who presented his long sports history related research career. By co-moderation of member of the Society Mihkel Veiderma, there was a conference held in Kullamaa “Jaan Veidermann 150”.

At joint conference of scientific societies associated with Estonian Academy of Sciences “The role of Estonian academic scientific societies in formation and preservation of Estonian national identity” Jaan Eilart delivered a paper, from the Society of Estonian Regional Studies.

The membership of the Society is as prolific as ever, when it comes to the publishing effort. Several books and brochures were released in print:

- Information collection of the Society of Estonian Regional Studies 3. Ed. Kaljo Laas (39 p.);
- Estonia in anno 1200. Ed. Marika Mägi (252 p.);
- Jaan Ellen. No mercy, no grace. Occupant’s secret files. Book I (128 p.);
- Helve Joon. Sudiste village (48 p.);
- Between two rivers. Our life over time, no. 2. Paikuse (62 p.);
- Karl Kello. On Kalevipoeg and “Kalevipoeg”. *Haridus*, 1, 2003, p. 3-39;
- Stories of the native place. Volume of regional studies. Ed. Ester Kulagina. Rapla (161 p.+121 ill);
- Kaljo Laas. Estonian population on the threshold of new millennium (56 p.);
- Koidu Liivak. Jäneda village and its nearest vicinity. Jäneda (54 p.);
- Natural monuments. Natural heritage of Estonia, 8. Harjumaa. Harku, Keila, Paradise. Ed. Hella Kink (47 p. + 21 ill);
- Natural monuments. Natural heritage of Estonia, 9. Ida-Virumaa. Vaivara, Sillamäe, Toila. Ed. Hella Kink (46 p. + 21 ill);
- Leho Lõhmus. Hiiu-Rahu cemetery (43 p.);
- Heino Mägi. Conductor and pedagogue August Krents of Otepää. Life and work of long-term secondary school music teacher and promoter of local cultural life. Otepää (32 p.);
- Heino Mägi. Thirty three years as headmaster at Otepää Secondary School. Otepää (112 p.);

- Heino Mägi. Headmasters of Otepää Gymnasium (36 p.+ill);
- Märt Mõtuste. Holiday making place of Toila (26 p.+91 ill);
- Biographies of Nõmme. /Nõmme Museum (53 p.);
- Story of restoration of the French Lycée. Ed. Irene Merik (40 p.+ill);
- Regional studies activists of Pärnumaa 1988--2002. Reference book. Ed. Vaike Birk. – History of Pärnumaa. Fascicle 6. Pärnu (106 p.);
- Junior college of Saku over times. Ed. Alfred Kasepalu and Armar Paidla (411 p.+26 ill+ 1 annex);
- Sergei Seeland. History of libraries of Pärnu-Jaagupi parish. Pärnu-Jaagupi (92 p.);
- Sculptor Lembit Paluteder. Ed. Kersti Karu. Osula, 2000–2003 (55 p.);
- Henn Sökk. Places of sightseeing in Järvamaa. Paide (80 p.);
- Aleksander Vassenin. People visually impaired (143 p.);
- Corn country I. On paths of history of Hanila and Karuse. Studies and reminiscences. Ed. Laine Vesker, Hanila (221 p.);
- Regional studies by school students, 23. Ed. Ene Luka (169 p.);
- 35th Estonian regional studies conference of school students. Ed. Ene Luka (24 p.);
- 100 pictures of Vana-Paldiski. Ed. Lembit Odres (95 p.).

ESTONIAN MOTHER TONGUE SOCIETY

Associated with the Estonian Academy of Sciences

4.02.1998

Founded 1920

Membership: 339 active members, 9 honorary members

Address: Roosikrantsi 6, 10119 Tallinn ESTONIA

E-mail: es@eki.ee

Chairman: Mati Erelt, Tel: +372 737 5213

Scientific Secretary: Asta Õim (up to 30.04.2003),

starting 01.05.2003 Maria-Maren Sepper, Tel: +372 644 9331

Librarian: Helju Kaal, Tel: +372 644 9331



Convened or co-convened by Estonian Mother Tongue Society were two conferences. On 27 June, in Tartu the XXXVI J. V. Veski Day was held "The strategy of the Estonian language". There were three papers delivered: Jüri Valge – "Strategy of development of the Estonian language and laying it down", Helle Metslang – "The present state of the written language and its perspectives for the future, judged by *as is*", Martin Ehala – "Formation of language postures and identity development". Chairman of the Society Mati Erelt presented the 48th yearbook Analysis of the situation with research of the "Estonian language". On 10-11 October, Estonian Union of Terminology, Institute of the Estonian Language and Estonian Mother Tongue Society organised in Tallinn an international conference on terminology "Estonian

terminology 2003”, with 19 papers delivered during two days, of which 6 by foreign scientists. On the agenda at the conference were both the theoretical foundations of terminological work, principles of terminology making and the practical side of terminology and the related problem range. Papers of the conference will be published as a collection in 2004.

Co-convened by the Society were 9 language days, of which 4 in Estonia. In Johannes Aavik Museum, dialects and the language days held in Saaremaa was the topic, in Õismäe humanities gymnasium – Kreutzwald, the Kreutzwald Year and “Kalevipoeg” as seen by school students. In Pelgulinn gymnasium and in the 21st secondary school of Tallinn the focus was on vocabulary, the ways to enrich it and the organisation of word competition. Organisation of local language days has become, ever more school-centred after the 14th March was proclaimed the Mother Tongue Day. For that reason the Society is not always cognizant of them. On the one hand, such grassroots initiative is most welcomed, on the other hand the youth interested in the activity of the Society may not get information of such local language days. This predicament will apparently be partially alleviated by the linguistic journal *Oma Keel*, which will be intensively promoted by the Society in the next year, as one of the major goals of the Society.

The language days of expatriate Estonians are an essential follow-up to the domestic language days, traditionally held for decades. Co-moderated by Ministry of Education and Science and local Estonian societies, there were 5 language days held outside Estonia. In the 2nd secondary school of Petseri, there were two language days, with surprisingly active participation of students (altogether 29 papers). On the agenda was the Estonian language policy, the Võru language, teaching and literature. Language days of St. Petersburg, Moscow and London focused on research of Estonian and the strategy of its development, areas of use of written language and the related topical problems, as well as name regulation.

There were 8 meetings with papers, of which 4 in Tartu and 4 in Tallinn. Becoming a tradition to be hailed is the students’ conference in June, where the best authors of graduation papers of University of Tartu and Tallinn Pedagogical University spoke. There were three topical meetings: the name meeting and the etymological meeting; jointly with Ministry of Education and Science, there was held a mini-conference “Mother tongue at school”. Three meetings were held to commemorate anniversaries and celebrate birthdays: Eduard Ahrens 200 (jointly with the Institute of the Estonian Language), Ülo Tedre 75, Jaak Peebo 70 (jointly with Literary Museum and Society of Folklore), tackling the development of written language, the principles of composing corpus of the old literary language, reforms of orthography by Ahrens and problems of morphology, seen from different angles of view; there were also some papers on folklore.

In the 84th year of activity of Estonian Mother Tongue Society, several important and large-scale projects were completed, of value not only to the linguistic circles but also to the whole society. Within the framework of composing “Strategy of development of the Estonian language (2004-2010)” the role of the Society was instrumental in providing analysis of the situation of the Estonian language and the state of areas of use of the Estonian written language. The Estonian Language Panel comprised five members out of seven of Board of Estonian Mother Tongue Society: Mati Ereht, Jüri Valge, Jüri Viikberg, Silvi Vare, Tiit-Rein Viitso. Strategy of development of the Estonian language was also the topic of the 36th J. V. Veski Day. Worth highlighting are several research projects, which Estonian Mother Tongue Society co-ordinated and organised and which the Estonian Language Panel referred to when composing “Strategy of development of the Estonian language (2004-2010)”.

- The Society completed, directed by Helle Metslang the analysis of the state of areas of use of the Estonian written language (education, science, law and administration, journalism, entertainment, economy and business, banking, information and advertising, IT). It was published as Proceedings no. 4 of Department of Estonian of Tallinn Pedagogical University.
- New series of monographs of the journal *Linguistica Uralica* was inaugurated with the book “Estonian Language” edited and compiled by Mati Ereht.
- Published in Estonian Mother Tongue Society Year Book 48 was the analysis of research of Estonian, providing an overview of studies in modern and old written Estonian, history of Estonian, its dialects and use.

Completed was the manuscript of texts in the Võru dialect “Vana Võromaa jutustab. Kuiss vanal Võromaal eleti”, eds. Mari Must, Eevi Ross and Helju Kaal.

Released in print in 2003 were:

- Estonian Mother Tongue Society Year Book no. 48 (2002) (317 p.);
- Linguistic journal *Oma Keel* no. 1 (92 p.); no. 2 (76 p.).

The language stock was replenished by 1003 cards – Ed. Leppik’s place name collection from the Kadrina parish.

In 2003 the Library of the Estonian Mother Tongue Society was replenished by ca 125 acquisitions, obtained by exchange, donation or purchase. By the end of the year the stock of Library totalled 5 514 inventoried books.

ESTONIAN UNION OF THE HISTORY AND PHILOSOPHY OF SCIENCE

Associated with the Estonian Academy of Sciences
4.02.1998

Founded 1967

Membership: 110 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: +372 737 5657

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 manuscript of the second volume of Biographical Lexicon was completed (nearly 1800 biographies, total ca. 65 author’s quires) and was left with the Estonian Encyclopaedia Publishers.

Jointly with University of Tartu, the Union commemorated on 17 October, with a historical scientific seminar the 150th anniversary of the alumnus of University of Tartu, Nobel Prize winner Wilhelm 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:

- Harri Moora. The issues of our ethnic culture. Ed. H. Runnel and A. Marksoo (540 p.);
- Science in the history of development of Estonian agriculture. Part II (1918–1940). Ed. J. Kuum (212 p.);
- Väino Rajangu. Estonian higher education system and the role of Tallinn Technical University in that (56 p.);
- Tallinn Technical University. Rectors 1918–2003. Eds. V. Rajangu and I. Kaasik (33 p.);
- Eedo Kalle. Basics of research work (131 p.);

- International symposium on human impact and geological heritage: in memory of academician Karl Orviku. Ed. A. Raukas and H. Kukk (144 p.);
- Anto Raukas. Basics of geology and geophysics (168 p.);
- Toivo Meikar. Estonian forestry in agricultural journals in German and Estonian (106 p.);
- Historical forestry regulation materials and options to use them. Ed. T. Meikar (79 p.);
- Works on history of Estonian forestry. IV Ed. T. Meikar (178 p.);
- Anto Juske. Estonian-born admiral F. v. Bellingshausen, the discoverer of Antarctica (1778–1852) (55 p.);
- 150 years (1853–2003) of tube drainage in Estonia. Ed. Anto Juske (53 p.);
- Plato, 427–347 BCE. Apology of Socrates. Ed. M. Lepajõe (472 p.):

ESTONIAN SCIENTIFIC SOCIETY IN SWEDEN

Associated with Estonian Academy of Sciences
19.03.1999

Founded 1945

Membership: 142 active members and 7 honorary members

Address: c/o I. Paljak, Backvindeln 27, 129 42 Hägersten, SWEDEN

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

E-mail: paljak@swipnet.se

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

E-mail: diana@ling.su.se

Chairman of South-Swedish Division: Paavo Roos, Tel: +42 260 334

Secretary: Indrek Martinson, Tel: +46 465 7308

E-mail: indrek.martinson@fysik.lu.se

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 film soirée and the ceremonial public meeting celebrating the anniversary of University of Tartu.

At the annual meeting, the paper was delivered by Dr. of Phil. Virve Raag “Our cognate people the Vepsians”. On the agenda at the meetings with papers was the impact of the Estonian Students’ Union on development of the Estonian national feelings; the continuity of the Republic of Estonia 1940-1992; how the Swedish authorities organised the welcome to fugitives from Estonia in autumn 1944; witchcraft and superstition in 17th and 18th C.; ostrich breeding in Estonia.

On excursion to Uppsala University, the members of the Society visited the Department of Finno-Ugric Languages, the University Library, the main building and also the Uppsala Cathedral. Jointly with the Estonian Embassy and Stockholm University, a film soirée was held, where the historian and amateur cameraman shooting films on nature Riho Västriik of Tallinn showed the documentary about the Kaali meteorite crater “Mystery of Kaali”.

The 84th anniversary of the University of Tartu was celebrated with a ceremonial public meeting, with paper on climatic changes presented by PhD Rein Vaikmäe, Head of Laboratory of Institute of Geology of Tallinn Technical University. Followed a concert.

The Society continued co-operation with Estonian Union of the History and Philosophy of Science, to issue volume II of Biographical Lexicon of Estonian Scientists.

The annual meeting of the South-Swedish, Lund heard the paper by Licentiate in Philosophy Ants-Michael Uesson “Anthology of the Estonian people”.

The Society organised a spring symposium “Young Estonian scientists in Lund”, with four doctoral students from different areas of science of Lund University speaking. At the meeting with papers, the economist Mare Kukk Grönbjerg spoke about accession to the EU opinion poll in Estonia, its influence on Estonian community in Scandinavia and Estonian-Scandinavian relations.

At the scientific gathering marking the 83rd anniversary of University of Tartu in Lund, Doctor in Physics Olev Mathiesen delivered a paper “About measurements”. There was a concert, to add festivity to the event.

ESTONIAN LITERARY SOCIETY

Associated with the Estonian Academy of Sciences
since 23 January 2001

Established in 1907

Membership: 270 members (incl. 15 lifetime members,
7 honorary members and 22 trustees)

Location: 19 Vanemuise, 51014 Tartu ESTONIA

Tallinn branch: 8 Estonia, 15044 Tallinn ESTONIA

Internet address: <http://www.kirjandus.ee>

Chairman: Toomas Liivamägi, Tel: +372 737 5700, toomas@utlib.ee

Academic Secretary: Krista Ojasaar, Tel: +372 7427 079, eks@kirjandus.ee

Tallinn representative: Kristel Kiigemägi, Tel: +372 5664 4243,
kristelki@email.com

Estonian Literary Society actively promoted literature, scholarship and art in academic as well as popularising manner. 2003 was a successful year for the

Society: the Tallinn branch was opened, preparations were made for founding the youth section, development plan of the Society was approved and task forces were formed for better organization of the Society's work in accordance with its historical tradition. Co-operation with other cultural and educational institutions was improved, the seminar series which were started in the previous year continued with new interesting topics and speakers. A café and art gallery Krüpt was launched in the Tartu Literature House, which is jointly administered by the Society and the Estonian Writers Union.

Students' theory club gathered once a week, uniting students and postgraduates who have a deeper interest in literary theory. The seminars led to a conference in Urvaste, 7-8 June.

Theatre seminars were continued, five seminars were held, where theatre researchers and critics analysed the original plays staged in Estonian theatres, and the authors and directors answered the questions asked by audience.

Jointly with the Jakob von Uexküll Centre, seminar series "Personal Natures" was continued. The seven seminars discussed the ways, how subjective experiences and professional approaches influence our understanding of nature and our relationships with environment. The first season of the series was summarized on 23 May by the colloquium "Mediated Natures".

The third continued series was "Childhood and Literature" where writers spoke about their reading influences in childhood. 11 seminars were held. Since September, the seminars were organized jointly with Estonian Radio as public recording sessions of the literary broadcast "Litter".

The opening seminar of the Tallinn branch was called "Revolutions in the 21st century literature". The visions of the future of literature were presented.

Two literary Saturdays were organized for popularising literature, in the course of which authors had to write a story or a poem on a given subject in front of a live audience. The writing process was commented on by the authors. No sooner had the discussions ended than the books composed of freshly written essays had been completed.

The Society and the Finnish Institute held a conference with papers "Woman + literature = female literature?" The meeting was aiming at presentation of women's studies and literature written by women, to a wider audience. The speakers were both from Estonia and Finland.

The traditional meeting, held to provide an overview of Estonian literature in 2002, focused on volumes of poetry, prose, drama literature and recently published literature textbooks. The Tallinn branch of the society presented overviews of Estonian literature in 2002.

A literary week "SOTSIA" was organized by the Society and Tallinn Pedagogical University in Tallinn, from 14 to 17 April. A meeting with papers was

held about sociality and erotic in literature, there were the art and poetry soirees, exhibitions, book fair, performances of literary groupings, seminars on works of Georges Bataille and A.H. Tammsaare and erotic.

The opening event of the book month was organized by the Society and the Finnish Institute on 28 April in Ida-Virumaa. There were opened two exhibitions. Book weeks were held by the Society, Estonian Publishers Union and Estonian Booksellers Union; books at affordable prices were sold in book-shops all over Estonia.

From 9 to 10 May, Vanemuise Culture Street festival took place in Tartu, co-organized by the Society. The purpose of the festival was to introduce the cultural and educational institutions located on the Vanemuise Street to a broader public. During the festival the spring literary day of the Society "Who is a classic?" was held. More information about the festival can be found at <http://vkt.tartu.ee>

Two anniversaries were accorded special attention. In September, the Society celebrated the jubilee of Leo Anvelt with a memorial conference. The papers handled the activity of L. Anvelt as philosopher, translator of antique poetry, as writer and literary critic. In November, Peeter Olesk held a lecture "Intellectual Gustav Suits" commemorating Gustav Suits on the latter's 120th anniversary. A memorial evening of Gustav Suits took place in the early 20th century style, with performances about Aino and Gustav Suits. In May, there was Aleksander Suumann' memorial soiree.

There were two outings held: to Hiiumaa, where the literary grouping Erakond performed in Käina library and Kärkla co-educational gymnasium, Exhibitions were opened there about Estonian writers. There was another outing to Elva, where cultural views were presented by Professor Emeritus Karl Muru.

Three new series of seminars were started: the Tallinn branch of the Society the series "On the margin of belles letters" and a seminar series of literary criticism with the Sirp cultural weekly, where literary critics analyse the recently published works. In Tartu, the Society started a seminar series "Book Art", considering the rules of book art, among others those of illuminating the books, the history of typography and the current state of book design in Estonia.

Publications of Estonian Literary Society in 2003:

- The Yearbook XXIX (2002) of the Society (96 pages);
- "Text and Nature", 2nd edition (170 pages), eds. Timo Maran and Kadri Tüür;
- Vihik quarterly no. 4 (86 pages), no.5 (76 pages), Drama Special (196 pages);
- Kerttu Rakke, Kaur Kender, Karl Martin Sinijärv "Born Free" (36 pages);
- Jüri Ehlvest, Sven Kivisildnik, Peeter Sauter "Undergraduate's Dream" (40 pages).

ESTONIAN LEARNED SOCIETY

Associated with Estonian Academy of Sciences
23.01.2001



Founded 1838

Membership: 96 active members, 11 honorary members

Domicile: Lossi 3, Tartu ESTONIA

Website: www.ut.ee/OES

Chairman: Tiit Rosenberg, Tel: +372 737 5650, tiit@loss.ut.ee

Vice-Chairman: Heiki Valk, Tel: +372 737 5653, heikiv@ut.ee

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 in subjects related to Estonia and also to provide opportunities to speak up and get experience for the future scientists – M.A. and Ph.D. students.

In 2003, there were 2 conferences and 17 meetings with papers, attracting 726 participants (291 members of the Society and 435 guests) and hearing the total of 32 papers. By topics, the papers were delivered in the following areas (in bracket number of papers): history (10), history of science (8), folklore (3), literary criticism (3), geography (2), ethnology (2), archaeology (2), history of law (1), journalism (1). The presentations at one meeting were attended by a total of 38 people (last year 31).

At Kreutzwald anniversary conference “On Kreutzwald and “Kalevipoeg”” held on 17 January in the Historical Museum of University of Tartu, there were seven papers delivered, the authors of five of which were members of the Estonian Learned Society. On conference “The role of Estonian academic scientific societies in formation and preservation of Estonian national identity” held on 21 May the topical paper was presented by Chairman of the Society Tiit Rosenberg. Tõnu Tannberg’s paper “The plans of the Kremlin with respect to Estonia in 1953” and Mati Lauri’s paper “Crisis of historical science and us” brought together an impressive number of listeners (56 and 55 people, respectively).

The Society made tentative steps to establish the Tallinn section. There were two meetings held in the Academy House on the issue, however due to a cold shoulder received, the plan has been put on hold.

Upon commission by Ministry of Education, a three-volume compendium “History of Estonia 1700-2000” was being continued. Volume IV of the book appeared in March, the manuscripts of volumes V and VI are being finalised.

In co-operation with the Library of the University of Tartu, the Society has continued compilation of bibliography of Estonian history 1918-1944.

In the area of archaeology, the excavations in the Viljandi Castle Park were carried on, in co-operation with the town of Viljandi. In the Castle Ruins, the experts of the Society studied the layer with material remains (e.g. artefacts and dwellings) of past human life and activities of the second half 13th C., and in Musumägi, the mound upon which the besieging contraption was mounted during the siege in August 1223.

With support from Ministry of Defence, the preparation for publication of the monograph “Estonian pre-historic towns”, halted due to untimely departure of Evald Tõnisson’s, was continued.

The Society paid homage to its honorary member Ants Viires in December on his anniversary conference, by presenting to him an honorary address.

Publications:

- The Estonian Learned Society Year Book 2002 (344 p.);
- History of Estonia IV (311 p.).

DIRECTORY

Estonian Academy of Sciences
Kohtu 6, 10130 Tallinn ESTONIA Reference Desk +372 645 3821

PRESIDENT	Jüri Engelbrecht	+ 372 644 2129 Fax: + 372 645 1805 je@ioc.ee
Secretary	Sirje Eskola	+ 372 644 2149 sirje@akadeemia.ee
VICE-PRESIDENT	Ene Ergma	+ 372 644 2013 Fax: + 372 645 2742 ene@physic.ut.ee
VICE-PRESIDENT (Estonian Literary Museum, Vanemuise 42, 51003 Tartu)	Peeter Tulviste	+ 372 742 0504 GSM: + 372 503 3659 ysirk@haldjas.folklore.ee
SECRETARY GENERAL	Mihkel Veiderma	+ 372 644 5810 Fax: + 372 645 1829 veiderma@akadeemia.ee tr@akadeemia.ee
Board Secretary	Tiina Rahkama	+ 372 645 0712 tr@akadeemia.ee
DIVISION OF ASTRONOMY AND PHYSICS		
Head (Institute of Chemical Physics and Biophysics, Rävåla pst 10, 10143 Tallinn)	Endel Lippmaa	+ 372 644 1304 Fax: + 372 644 0640 elippmaa@kbfi.ee
DIVISION OF INFORMATICS AND ENGINEERING		
Head (Tallinn Technical University, Ehitajate tee 5, 19086 Tallinn)	Rein Küttner	+ 372 620 3265 Fax: + 372 620 3250 kyttner@edu.ttu.ee
DIVISION OF BIOLOGY, GEOLOGY AND CHEMISTRY		
Acting Head (Institute of Geology at Tallinn Technical University, Estonia pst 7 10143 Tallinn)	Dimitri Kaljo	+ 372 645 4653 Fax: + 372 645 1829 kaljo@gi.ee

DIVISION OF HUMANITIES AND
SOCIAL SCIENCES

Head
(Estonian Literary Museum,
Vanemuise 42, 51003 Tartu)

Peeter Tulviste + 372 742 0504
GSM: + 372 503 3659
ysirk@haldjas.folklore.ee

OFFICE OF DIVISIONS
Senior Reviewer

Senior Reviewer
(Estonian Literary Museum,
Vanemuise 42, 51003 Tartu)

Johann Lasn + 372 645 2528
lasn@akadeemia.ee
Ülle Sirk +372 742 0504
ysirk@haldjas.folklore.ee

SCIENTIFIC INFORMATION

Assistant Secretary General

Galina Varlamova + 372 644 4739
Fax: + 372 645 2742
akadeemia@akadeemia.ee

Senior Reviewer

Helle-Liis Help + 372 644 4739
hhhelp@akadeemia.ee

Reviewer

Villi Ehatamm + 372 631 1071

INTERNATIONAL RELATIONS

Foreign Secretary

Dimitri Kaljo + 372 645 4653
Fax: + 372 645 1829
foreign@akadeemia.ee

Assistant Secretary General
for International Relations

Anne Pöitel + 372 644 8677
Fax + 372 645 1829
foreign@akadeemia.ee

Exchange Programme Assistant

Ebe Pilt + 372 645 1925
GSM + 372 504 2659
Fax: + 372 645 1829
ebe@akadeemia.ee

ACCOUNTING DEPARTMENT

Head Accountant

Marika Pärn + 372 644 3054
rmp@akadeemia.ee

ADMINISTRATION

Director of Administration

Kadi Saar + 372 644 1167
GSM: + 372 514 5334
Fax: + 372 645 2759
kadi@akadeemia.ee

Archivist-librarian

Tiina Soomets + 372 644 3116

Senior Registrar

Ludmilla Böstrova + 372 644 5151

**DECLARATION OF GENERAL ASSEMBLY
OF THE ESTONIAN ACADEMY OF SCIENCES**

The European Union member states have, by now pronounced a decision of a high-principled purport, opting for the path to a knowledge-based society, a sole way to provide for sustainability in the future. For that purpose, the heads of states co-ordinated in Barcelona a concrete social policy process, acclaimed also by the world science forum in Budapest in November this year. In less than half a year, we will be parties to that process.

General Assembly of the Estonian Academy of Sciences, at its session on 17 December 2003, while taking due cognisance of the discussion initiated in Estonia on those issues, and the actions contemplated, must nevertheless recall that two years have passed since Riigikogu approved the research and development strategy “Knowledge-based Estonia”, and yet we are at a standstill, stuck at the stage of plans. To achieve the objective of 3% GDP in the funding of research and development requires a target specific activity from the state. Like done elsewhere in this dynamically altering world, Estonia should not allow itself to lag behind in the basic engines of development of the society: education, science and technological development.

However, as yet lacking is the commonly accepted understanding of such basic concepts as quality of scientific research, innovative character of the research and the technological development activity, and the universal role of fundamental research as a driver of technological innovation. We witness, as yet how the reproduction of intellectual resource crucially important for the future is at peril, for the simple reason that to abide by and provide for quality requirements presented to the college and university instruction, there is dire shortage of administrative capacity and even political courage to call a spade a spade. The latter falls short also, for direction of research and technological development in essential issues, belonging to the competence of the state. The state’s programme-based activity has not yet geared up, systematically. Our image as a progressive and innovative state is formed of many aspects, including the obligation of the state to fulfil the international agreements, for Estonia to participate in its own rights in co-operation and investment programmes. Both scientists and entrepreneurs are keenly interested in that.

The role of the state is bolstered by what is directly dependent on scientific community, and by daily achievements of public-law universities and other research institutions. Like the whole of the European Union, the Estonian universities and other research institutions must continuously add value to the quality of research, because for lack of that, the science will stagnate and the

technological innovation will prove impossible. At this juncture, the role and responsibility of the councils of research institutions is of decisive importance, to be supported and directed by Estonian Science Foundation and Science Competence Council, in accordance with quality requirements and developing the transparent appraisal and decision-making policy. In need of special care are the doctoral study and the attributing value to an academic career. Estonia should not tolerate the substandard quasi-studies. Inextricably linked to that is our capacity, not only to obtain support but to effectively use all opportunities, which accession to the European Union holds in store for us.

Elucidation of the goals and priorities of the knowledge-based Estonia and implanting them in the public awareness, like our Nordic neighbours have succeeded in doing, is not an overnight job, without a goal-oriented effort applied. The dialogue with the society cannot be confined to the yearly haggling over the budget estimate figures. Estonian Academy of Sciences is inviting the scientists, educationalists, captains of industry and political figures to round-table, in order to find out, in common dialogues the common interest in ideas, goals and undertakings on the path towards the knowledge-based Estonia.

Adopted
at session of General Assembly of the
Estonian Academy of Sciences
on 17 December 2003

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| 1940 | Year Book I of the Estonian Academy of Sciences
(in Estonian) |
| 1969–1988 | Annual Report of the Academy of Sciences of
the Estonian SSR (in Russian, 20 volumes) |
| 1989 | Annual Report of Estonian Academy of Sciences
(issued separately in Estonian, Russian and English) |
| 1990–1995 | Annual Report of Estonian Academy of Sciences
(issued separately in Estonian and English, 6 volumes)

Scientific Publications of the Estonian Academy of
Sciences (with a Foreword in Estonian and English,
6 volumes) |
| 1996–2003 | Year Book of the Estonian Academy of Sciences II–IX
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