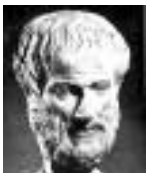

Newsletter

for the History of Science in Southeastern Europe

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THE UNIFICATION OF SCIENTIFIC EUROPE (SEVENTEENTH - NINETEENTH CENTURY)

Fifth International History of Science Conference,
organised by the NHRF

The interesting subject of European unification from the point of view of the establishment of a common scientific discourse was discussed extensively during the work of the Fifth International History of Science Conference, organised by the History and Philosophy of Science programme of the Institute for Neohellenic Research of the National Hellenic Research Foundation (INR/NHRF), held in Athens from 11 to 14 October 2000.

Many distinguished scholars, representing eleven European countries, presented high-level contributions.

The President of the Greek National Academy of Arts and Sciences, Nikolaos Artemiadis, the Director of the INR, Paschalis Kitromilides, and the Research Director of the INR, Yannis Karas, welcomed the participants with short addresses, while the sessions were opened by Ion Siotis, President of the NHRF.

The first speaker was the Greek historian and President of the European University Eleni Glycatzi-Ahrweiler, who gave us, in her excellent address, a thorough-going picture of the meaning of the European region during the seventeenth - nineteenth centuries.

Andreas Kleinert, from Germany, following her on the podium, presented the results of his extensive research into the role played by scientific migration in the development of European institutions and universities. Paolo Brenni, from Italy, described another dimension of scientific instruments - that of a tool for the dissemination of scientific thought throughout Europe.

Karl Siilivansk came from Estonia to speak about the way in which common scientific practice was established in the Baltic countries, while Roman Duda examined the process of the formation of the famous Polish school of mathematics.

The development of modern mathematics in Russia was the subject chosen by the Russian historian of science Sergei Demidov.

Surprising though it is that this is still not the prevailing opinion, Vittorio Marchis proposed the view that Italy served as a meeting-point for East and West during the

A snapshot of the Conference. From the left: A. Petrovich, K. Chatzis, M. Kacar, M. Assimakopoulos, G. Vlahakis, E. Ihsanoglu, Y. Karas, E. Nicolaïdis, M. Lambrou.

centuries we were concerned with. The dissemination of Descartes philosophical and scientific ideas in Italy was the topic of Vincent Jullien.

Kostantinos Chatzis discussed the social influence of engineers in eighteenth and nineteenth-century France, and Robert Halleux, Secretary General of the DHS of the International Union of History and Philosophy of Science, dealt with the appearance of science in Belgium.

The representation of the countries of South-Eastern Europe was particularly enthusiastic and significant.

Aleksandar Petrovic, from Yugoslavia, spoke of the way in which European science developed, using as a pattern the Cartesian model and other alternative paradigms.

Radu Iftimovici and Mariana Ion, from Romania, examined the appearance of modern medicine in their country through the efforts of the son of the famous composer Franz Liszt.

The Turkish historians of science taking part in the Conference made high-quality contributions.

Ekmeleddin Ihsanoglu, Vice-president of the DHS of the International Union of History and Philosophy of Science, with his well-known fluency and deep knowledge of the subject, attempted to examine the links between European science and the Ottoman Empire.

Mustafa Kacar gave us hitherto unknown and valuable information about the Greek philosophy school of Constantinople at the beginning of the nineteenth century. Feza Günergun impressed his audience with his account of the physician Mavrogeni Pasha, of Greek origin, and his role in the development of contemporary medicine in Turkey.

We must also note that many Greek researchers took part in the Conference and made very interesting contributions.

Yannis Karas presented, in his introductory address, the results and prospects of the History and Philosophy programme of the CNR, while in his main contribution he made a successful attempt to answer the question of whether the unification of Greek and European discourse was achieved through a schema of dissemination or one of parallel courses.

Aristides Baltas demonstrated how schematic is the division of contemporary historiography of the sciences into ‘internal’ and ‘external’. George Kontogeorgis spoke on anthropocentrism and scientific evolution.

Paraskevas Konortas traced the ideological differences between the Orthodox East and the Catholic West.

A special case of a Greek mathematician

who was active in European mathematical circles, Athanasios Karagiannides, was presented by Christine Phili. The scientific idiom used by certain scientific communities were examined by Tassos Tsiantulas, who presented the cryogenic laboratory of Leyden as an example.

Michalis Assimakopoulos examined the role of the Greek scholarly community in Russia in the formation of the sciences in that country during the seventeenth century.

Theodoros Christidis spoke in more theoretical terms about causal probability and its role in scientific thought. The existence of a common method in medicine and the contribution of Greek physicians to it was the subject of Dimitrios Karamberopoulos.

George N. Vlahakis attempted to bring out the particular characteristics of scientific thought in South-Eastern Europe during the eighteenth and nineteenth centuries, which was also the spirit of the talks given by Kostas Krimbas and Theodoros Kritikos about the parallel courses of the Ionian Academy and the University of Athens.

Nikos Matsopoulos gave a picture of the unsuccessful attempt to develop astronomy in nineteenth-century Greece. Savvas Agouridis made a significant contribution in answering the question of the role of the Christian churches when the Enlightenment assigned a central position to science.

The historical evolution and philosophical determinism of nineteenth-century physiology were examined by Yorgos Papagounos, while Michalis Lambrou presented Methodios Anthrakitis's mathematical book 'Antipelargesis'.

The contributions of the Greek participants were completed with an account of the transition from the Ottoman Empire to the modern Greek State by Efthymios Nicolaidis who closed the Conference .

Attention should also be drawn to the role played in making the Conference a success by Vassilis Panayotopoulos, Konstantinos Sekeris, Paschalis Kitromilides, Pantelis Nicolacopoulos and Eftychis Bitsakis, chairmen of the various sessions.

The proceedings of the Conference will be published.

George Vlahakis

Ist CONGRESS ON TURKISH HISTORY OF SCIENCE AND TECHNOLOGY

The first congress in a series to be organised by the TBTK on the History of Science and Technology in Turkey will be held in November 2001.

Objectives of the congress:

Technology can be defined as the sum of works concerning instruments, appliances and constructions aimed to improve the living conditions of man such as nourishment, shelter, protection etc. and which are the products of human intelligence from the ancient times to our day. These products of human intelligence, created by various cultures at different time periods, have become common entities of humanity through passing from one culture to the other in the course of history. Technology has been produced at places and cultures where conditions were favourable and then transfered to other cultures and societies, thus coming to our day.

In a developmental process like this, the Turkish nation has interacted and become familiar with various technologies at different locations and periods of time ranging from the Central Asia to the Turkish Republic of our time. The fundamental goal of this congress is thus to present an account all contributions and developments that might be considered "technological". The proceedings book of the congress will constitute an important resource for the coming studies on the issue. The congress aims to bring together not only the historians of science and technology but all scholars and researchers exploring the fields of engineering, archeology, antropology, philosophy, military arts etc. and make them discuss their papers, thus bringing about a scientific work on Turkish technology and its development.

The theme of this coming congress is "History of Technology in Turkey" and papers on the following issues are welcome:

Topics:

I-Agriculture and Food

II-Construction

III-Water

IV-Transportation and Communication

1-Land, sea and air transportation 2-Post, telegraph, telephone etc.

V-Energy

VI-Mining and Metallurgy
VII-Industry 1-Chemistry 2-Ceramic 3-Glass 4-Textiles 5-Paper etc.
VIII-Measurement and Observation Instruments 1-Time measuring instruments 2-Distance, weight, volume etc. measuring instruments 3-Observation instruments
IX-Machines
X-Military Technology
It is also possible to participate in the symposium in other subjects concerning the history of science and technology.
Application: The languages of the congress are Turkish and English. Scholars might participate in the congress with or without papers. Those to contribute with their papers are kindly requested to send their abstracts of 200-300 words (double space- MS Word; font type: Arial, font size: 10 p.) in two copies including the title, aim, approach and the conclusion no later than 15 April 2001. Accepted participants will be informed by a second notice concerning the full length paper and spelling rules until 15 June 2001. The final papers to be presented in the symposium must be received by the congress secretariat no later than 15 August 2001.
Presentation: Each participant will have a time limit of 20 minutes for his or her paper. There will also be invited papers at the congress.
Registration: The congress fee is 20 million TL including the costs of the proceedings book and social activities as will be noted in the second notice. Please use the following bank account number to pay the participaption fees: Is Bankasi, Yildiz University Branch, Turkish Society for History of Science account no: 1199-304250-3048503.
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HISTORY OF SCIENCE PUBLICATIONS IN TURKEY

History of Ottoman Geographical Literature, 2 vols., prepared by Ekmeleddin Ihsanoglu, Ramazan Sesen, M. Serdar Bekar, Gülcan Gündüz, A. Hamdi Furat, edited by Ekmeleddin Ihsanoglu, History of Ottoman Scientific Literature Series no. 3, Istanbul, 2000, lxxxix+912 p.
Price: set of 2 vols.: US$ 80

This two-volume work is third in the series titled History of Ottoman Scientific Literature after the History of Ottoman Astronomy Literature (1997) and the History of Ottoman Mathematical Literature (1999). It follows the samr4e methodology as the first two works. It contains entries for 1629 printed and manuscript works produced on Ottoman lands, during the Ottoman period, on scientific subjects relating to geography, cosmography and cartography. The authors of 727 of these works are known, whereas those of 901 are not. The latter figure is inflated by the printed maps numbering 741. The number of authors whose identity is not known is 441. Of these, 6 are known to have been produced in the 15th century, 29 in the 16th, 20 in the 17th, 30 in the 18th, 176 in the 19th (almost 230 including those written by authors who died in early 20th century), and 167 in the 20th. As to the works whose authors are known, 4 were written in the 15th century, 42 in the 16th, 24 in the 17th, 47 in the 18th, 244 in the 19th (the majority of works written by authors who died at the beginning of 20th century were written in the

19th), and 335 in the 20th. Except a few, the works produced between the years 1398 and 1800 are manuscripts and those produced between 1800 and 1923 are printed. The number of copies of manuscripts covered by this bibliographical compendium is 969.

The works are distributed as follows according to type and subject: there are 941 maps, atlases and plans, 255 works on the geography of continents, 81 travelogues, 73 works on the Ottoman lands, 61 on the geography of regions, 39 land surveys, 32 works on navigation, 32 on economic geography, 18 on cosmography, 16 on military geography, 11 ambassadorial reports, and 9 dictionaries and glossaries of geographical terms. The number of translated works is 75; 39 were translated from French, 24 from Arabic, 14 from English, 3 from Latin and 3 from Persian, into Turkish.

The findings of this comprehensive survey show that advances were made in both Western- and Eastern-oriented geographical sciences throughout the Ottoman period. Their parallel progress continued until Western-type geographical science became dominant in the 19th century following the establishment of universities which included geography in their curricula. The main centre of geographical research was Istanbul.

Future volumes to appear in the History of Ottoman Scientific Literature series will deal with the literature produced in natural sciences and translations of scientific works from Western languages into languages of Muslim nations.

Osmanli Matematik Literatürü Tarihi (History of Ottoman Mathematical Literature), prepared by E. Ihsanoglu, Ramazan Sesen, Cevatizgi, ed. E.Ihsanoglu, Series on History of Ottoman Scientific Literature No. 2, 2 volumes, IRCICA Publications, Istanbul 1999, CVI+732 pages (in Turkish, foreword also in English).

Two new volumes have been published within the farmework of IRCICA's research project on the History of Science in the Muslim World. Following the first two volumes entitled History of Ottoman Astronomical Literature published in 1997, these two are devoted to the History of Ottoman Mathematical Literature.

This publication resulted from more than a decade's research in the farmework of IRCICA's large-scale project aimed at recording and highlighting Muslim scientists' contributions to scientific advancements during the past centuries. The project covers all branches of astronomical, mathematical, natural, geographical, etc. Sciences as extensively as possible and yields a series of bio-bibliographic compendia about the scientific literature produced in each discipline. The first stage of the project dealt with the corpus of astronomical literature which was produced during the Ottoman period (1299-1922) and throught its territory. The resulting compendium was published in two volumes. IRCICA is now proud to present another two-volume compendiumm, this time on the history of mathemetical literature.

The book contains a foreword, an introduction, the main part, a bibliography, and indexes. A few statistics would give a picture of its contents. The main part gives information about 963 works authored by 491 scientists and 153 works whose authors are now known, i.e. 1114 works in total, which were produced throughout the Ottoman period (1299-1922). Their distribution according to language is as follows: 561 are in Turkish, 524 in Arabic, 8 in Persian, 14 in French, 2 in Turkish and French, 2 in Arabic and French, and 1 in English. 524 out of the total were printed. The distribution of the works according to their periods indicates that 28 of them were written in the 15th century, 81 in the 16th, 70 in the 17th, 121 in the 18th, 176 in the 19th, 466 during the first quarter of the 20th, the period of 21 works is not known. An overall increasing trend can be observed in the number of mathematical works produced, except for the 17th century. In earlier times the motive for writing mathematical workks was mainly practical. A greater number of books of high theoretical and practical value started to be produced in the 19th century, after the establishment of schools of engineering and other universities. At the same time, mathematics books in Turkish increased considerably after the establishment of schools and outnumbered those in Arabic.

Mathematical sciences in the early Ottoman period were a continuation of medieval Islamic mathematics. From the 18th century onwords, the Ottomans started to follow the developments taking place in Europe and

became acquainted with logarithmic tables and some new branches of algebra and geometry. By the end of the 19th, they were already keeping pace with European advances in this field. Orginal and innovative books were published in addition to translations from Western sources.

Ramazan Sesen

Science in Islamic Civilisation. (Proceedings of the International Symposia Science Institutions in Islamic Civilisation and Science and Technology in the Turkish and Islamic World.), eds. Ekmeleddin Ihsanoglu & Feza Günergun, IRCICA Publications, Istanbul 2000, V+289 pages.

Science in Islamic Civilisation is a collection of the proceedings of two international symposia, the fourth and fifth in a series convened by IRCICA to deal with different aspects of history of science, organised by the Research Center for Islamic History, Art and Culture (IRCICA) in 1991 and 1994 respectively. The first was the international symposium on "Science Institutions in Islamic civilisation" organised in 1991 at IRCICA's headquarters jointly with the Turkish Society for History of Science (TBTK), UNESCO and the Third World Academy of Science (TWAS). The second international symposium on "Science and Technology in the Turkish and Islamic World" was organised in 1994 at Kandilli Observatory with the collaboration of the TBTK, Bosphorus and Marmara Universities in Istanbul and the Uzbekistan Academy of Sciences. The symposium was held on the occasion of the 600 th birthday of Ulugh Beg and the 125 th anniversary of the foundation of the Kandilli Observatory in Istanbul.

This proceedings book contains valuable research findings and innovative assessments by distinguished scholars and colleagues from various countries. It brings together papers from the two symposia addressing inter-related topics and shedding light on previously unexplored aspects of history of science in the Muslim world. The papers give evidence that Islamic science did not go into a steep decline after the eleventh century but continued to flourish. The scholars who contributed the two symposia and their papers in the proceedings book are as follows:

Ekmeleddin Ihsanoglu, Preface

Institutions

George Makdisi, "The reception of the model of the Islamic scholastic tradition in the Christian West"; Gert Schubring, "Recent research on institutional history of science and its application to Islamic civilisation"; M. Hulusi Lekesiz, "Ottoman scientific mentality: an essay on its formation, development and Decline"; Nesimi Yazici, "Some considerations on the teaching of sciences in the late Ottoman Medreses"; Sevtap Ishakoglu-Kadroglu, "The teaching of mathematical and natural sciences at the Darülfünun and Istanbul University Faculty of Science"; Ghulam M. Haniff, "Scientific knowledge and the contemporary muslims".

Astronomy

Edward S. Kennedy, "The heritage of Ulugh Beg"; David A. King, "Islamic world-maps centered on Mecca: The rediscovery of a remarkable tradition of medieval cartography"; Merce Comes, "Islamic geographical coordinates: al-Andulus' contribution to the correct measurement of the size of the Mediterranean"; T.S. Yuldashbaev, "Mirza Ulugh Beg and modern astronomy in Uzbekistan".

Mathematics

Ashraf Ahmedov & Boris A. Rosenfeld, "The mathematical treatise of Ulugh Beg"; Roshdi Rashed, "Histoire de l'analyse combinatoire"; Ahmed Salim Saidan, "Al-Biruni on trigonometry"; Boris A. Rosenfeld, "Tashkent manuscripts on mathematical atomism"; A. Göksel Agargün, "Kamal-al-Din al-Farisi and the fundamental theorem of arithmetic"; Moustafa Mawaldi, "Methode de l'analyse et de synthese de Kamal-al-Din al-Farisi".

Engineering technology, Cartography

Ali Akyildiz, "The modernizing impact of a technological transfer: The case of the Constanta.

Railway"; Dogan Uçar, "Turkish cartography in the 16th century"; Frédéric Hitzel, "François Fauffer (1751?-1801): Ingenieur-cartographe Français au service de Selim III".

Medical sciences

A.H. Helmy Mohammad, "Notes on the reception of Darwinism in some Islamic countries"; S. Irfan Habib, "Delhi Tibbiya College and Hakim Ajmal Khan's crusade for indigenous medicine systems in the late 19th and early 20th century India"; Nuran Yildirim,

"Disinfecting stations in Ottoman Empire"; Serge Jagailloux, "Paraléllisme dans le développement de la nouvelle médecine occidentale en Turquie et en Egypte dans la première moitié du 19eme siècle".

A.Öztürk

Turkiye'de Bilim, Teknoloji ve Tip Tarihi Calismalari (1973-1998) [Bibliographical Studies in History of Science, Technology and Medicine in Turkey (1973-1998)]. Edited by Feza Günergun, Ankara 2000, 604 p.

The book aims to survey the activities carried out in history of science, technology and medicine (HSTM) in Turkey during the past 25 years. It consists, mostly, of papers presented at the symposium «Studies in History of Science, Technology and Medicine in Turkey (1973-1998)" organised by the Department of History of Science, Instanbul University in 1998.

A number of papers display the activities in HSTM in various Turkish institutions and list of publications of their staff members. A second group includes bibliographical studies listing the publications made on the history of astronomy, mathematics, physics, geophysics, chemistry, veterinary medicine, agriculture and pharmacy.

The bibliographies handed by the authors have been updated since a considerable number of publications appeared in 1998 and thereafter.

ABOUT THE ACTIVITIES OF THE ROMANIAN HISTORY OF SCIENCE TEAM

The Romanian team for the study of the history of biology and medicine, consisting of Radu Iftimovici, Cristian Prodescu, and Marina Ion, has been dealing since October 2000 with the problem of the scientific relation between nature researchers from the European West and some thinkers who were born and lived in the present territory of Romania. More exactly, our team is carrying out bibliographical research in Sibiu and Bra_ov, as well as in Holland (Utrecht and Amsterdam) regarding the Cartesian thinker Bartholomäus Bausner, from the Romanian province of Transylvania, who is regarded not only as an adherent of William Harvey's theory on the circulation of the blood, but also as a passionate populariser of the theory among intellectuals (natural scientists and physicians included) from that province of Romania.

Bartholomäus Bausner was born in Rupea, Brasov, on 8 May 1629. On his father's side, he came from a family of Saxons (a Saxon population was established in some areas of Transylvania as far back as the twelfth century) and on his mother's from a mixed Romanian-German family. After leaving secondary school in the old town of Sibiu, Bartholomäus Bausner attended philosophy courses (1651 - 1654) in Germany (at the University of Wittemberg) and in Holland (at the University of Leiden).

At that period, the theory of the circulation of the blood launched by William Harvey in his book Exercitatio Anatomica de Motu Cordis et Sanguinis in Animalibus (1628) was the object of a vehement controversy in the medical and philosophical circles of Western Europe.

It will be recalled that the English physician, a disciple in Padua of Fabricio d' Aqua-pendente, contested essentially the theory of the circulation of the blood advanced by Claudius Galen, which for more than 1,500 years had represented the basic doctrine of the physiology of the heart. Bartholomäus Bausner was the contemporary of the furious attack of the Galenists on Harvey. The books, "with a smell of fresh ink", which called Harvey a "quack", an "impostor", signed by the French authors Jean Riolan, Jr. (1577-1657) and Guy Patin (1601-1672), as well as by Jack Primerose in England and August von Hoffman in Germany, were greedily read by the students of that time, who tried to form their own opinion


Q. D. B. V.
DISPUTATIO PHILOSOPHICA
DE
Cordis Humani Actionibus,
PRÆSIDE
Viro Clarissimo atque Doctissimo,
D. ADRIANO HEEREBOORD, I. A. M.
& in inclyta Lugd. Bat. Acad. Philosophiæ Professore primario, & longè celeberrimo,
ad eruditorum publicum propugnatore
A
BARTOLOMÆO BAVSNERO, Schaffh. Transylv. Stud. Acad. & Respond.
ad diem Septembris, horis consuetis.
LVGDVNI BATAVORVM,
Apud JOHANNEM & DANIELEM ELZEVIRIOS, Academ. Typograph.
CIↃ IↃC LIX.

in the matter by comparing them with the works of Harvey's defenders (Paul Schlegel in Germany, Niels Stenon in Denmark, Raymond Vieussens in France, Jean de Wale and De la Boë Sylvius in Holland, etc.).

William Harvey was still alive in 1654 (he died three years later) when the young student of philosophy Bartholomäus Bausner, encouraged by his teacher, the Cartesian Adrianus Hereboord (1614- 1661), published a pro-Harvey work: Disputatio Philosophica de Cordis Humani Actionibus. The work, published in Latin, contains 24 theses. Of great interest, in our opinion, are theses 8-18, in which the young Transylvanian philosopher, though an adherent of Descartes, combats his errors regarding the ciculation of the blood and asserts with aplomb that the atria contract before the ventricles and that the blood is ejected following ventricular contraction. It is curious that, although he emerges as an adherent of Harvey's ideas, Bausner does not mention his name in the work, nor that of Descartes, though he refers to ideas of the Cartesian theory of circulation. This is due to the fact that, at that period, the council of the monitoring staff of the University of Leiden had forbidden any reference to these two "mad rebels" (Harvey and Descartes). It is interesting that, in the 7th thesis, Bausner also described as the competence of a true anatomist the system of the lymph vessels described by Asselli 33 years earlier. Moreover, Asselli is quoted in his work. In the final part, headed Corollaria (eight aphorisms), Bausner concurs that "all those who deny circulation, deny reason and experience".

In 1656, at the age of 27, Bausner published another book, in Amsterdam: De Consensu Partium Humani Corporis, libri III. In the three parts of this comprehensive biologico-philosophical essay, Bartholomäus Bausner resumes with new arguments (taken from Fernel, Descartes, Harvey, etc.) the originally Aristotelian and Galenic theory as to the harmonious functioning of the various parts of the human body (in fact, in full agreement with the present theory about the Von Bertalanffy systems: integrality of the biosystem and dynamic equilibrium - homeostasis).

Particularly meritorious in the Transylvanian philosopher is the fact that as early as 1656 he raised the problem of the blood capillaries, at a time when on this question the literature contained only vague hypothetical references in the works of Bartholini, Harvey, and the Dutch Johannes Antonides van der Linden (Medicina Physiologica, published in 1653, only three years earlier). In any event, the existence of the capillaries was proved experimentally by Marcello Malpighi only five years after the appearance of Bausner's book, namely in 1661.

At present, our team is making a thorough study of these two works by Bausner (which may also be found in libraries in Germany, England, Denmark, Holland, and other countries), in order to gain information on sources or starting-points for research or monographs elaborated afterwards, in the eighteenth and nineteenth centuries in Sibiu, Cluj, and Brasov - well-known cultural and university centres of Romania. What we know so far is that Bartholomäus Bausner returned to Transylvania in 1656 and became a cleric in Sighi_oara. In 1667, he was General Dean of the Evangelical Church of Transylvania. He was an active propagator of Cartesianism, which he defended eloquently at the synod of the Lutheran Church of Transylvania. On this occasion, the mystic dogmatic bishop Christian Barth, alarmed by the great number of adherents attracted by Bausner to Cartesian rationalism, beseeched those present to follow only the Word of God and not the delirium of the reason of some individuals (Verbum Dei sequimur nos, sequatur alius rationis suae deliria).

Bartholomäus Bausner died on 14 April

1682, at the age of 52. He was a true apostle of Cartesian rationalism, of the new physiology, and of other ideas which afterwards prepared the way for the Enlightenment in Romania.

Prof. Radu Iftimovici, MD
Academy of Medical Sciences, Romania

RECENT SERBIAN HISTORY OF SCIENCE BOOKS

Milan Popovic
Letters of Albert and Mileva Einstein
to Helen Savic
Podgorica, CID, 1998, 324 p.

After the first appearance of Einstein's Collected Letters (Princeton), there has been a constant increase in interest in the life and work of his first wife, the Serbian physicist and his student colleague, Mileva Einstein (née Maric). This book contains 70 letters, almost completely unpublished hitherto, of Mileva Maric to her Austrian friend and colleague Helen Kaufler, who after her marriage to Milovan Savic, went to Serbia and became a Serbian citizen. The letters were written between 1899 - 1940; a few of Einstein's letters to Helen Savic are also included. The correspondence covers a long period, starting at the time when the young Einstein was vainly trying to find a job, and ending with the period of Einstein's undoubted pride and glory. In letters which are quite transparently passionate, Albert and Mileva's emotional and intellectual closeness, which makes possible profound dialogue about crucial points of contemporary physics as well as often anxious exchanges about everyday life, is apparent.

The book has been beautifully edited by Milan Popovic, Professor of Psychology at Belgrade University and grandson of Helen Savic. All the letters appear in Serbian and German. An English edition is not yet available.

Milutin Milankovic
Canon of Isolation and Ice-Age problem
Museum of Science and Technology,
Agency for Textbooks, Belgrade 1998, 620 p.

This is the first available English translation of Milankovic's famous book, originally published in German by the Royal Serbian Academy of Science in 1941. Almost destroyed in the press during a German air raid at the beginning of World War II, Milankovic's book, which describes long-range climatic changes, became one of the most influential books in modern palaeontology, mathematical climatology and astronomical theory of the isolation of the Earth. There has been an impressive recent revival of interest in the astronomical theory of palaeoclimates, with geological data confirming the Milankovic theory. The titles of the six parts of the book are: 'The planets' motion around the Sun and their mutual perturbations', 'The rotation of the Earth', 'Secular wanderings of the rotational poles of the Earth', 'The Earth's isolation and its secular changes', 'The connection between isolation and the temperature of the Earth and its atmosphere', 'The mathematical climate of the Earth', and 'The Ice Age, its mechanism, structure and chronology'.

With its extensive technical exposition of the topics listed, this classic work serves as a supporting text for a variety of graduate courses in atmospheric and astronomical sciences. In view, also, of Milankovic's special interest in and the comprehensive coverage of the history of science involved, it is also of interest to historians of science.

Nikola Tesla
Collected Works, Vols 1 - 3
Nikola Tesla Museum, Agency for
Textbooks, Belgrade 1999

This is the first complete English edition of the works of the famous inventor, of Serbian origin, Nikola Tesla. The first volume contains all Tesla's published articles, for the first time carefully collected from various journals. The volume is divided into four parts: 'Auto-biographical articles', 'Views', 'Scientific and technical articles', and 'Popular articles'. This organisation of the volume permits the reader to follow the development of Tesla's ideas and its realisation. Probably the best-known text in this colume is 'The problem of increasing human energies', which forecasts future energy crises and suggests ways of overcoming them.

The second volume, 'Lectures', contains five lectures given in the period 1888-1898, from 'A new system of alternating current motors and transformers' to 'High-frequency oscillators for electro-therapeutics and other purposes'. Besides these five, this volume also contains a previously unpublished lecture concerning Tesla's research into high-frequency electric currents and its implementation in the

investigation of x-rays.

The third volume, 'Colorado Springs Notes 1899-1900', contains Tesla's notes on his experiments in Colorado Springs devoted to research into high-frequency energies and wireless transmission. In Colorado Springs, he also investigated the properties of the lower atmospheric layers and their behaviour in relation to very high energy levels.

Phlogiston
Journal for the History of Science,
No. 11
Belgrade 2000, 355 p.

Phlogiston is the journal of the Serbian Society for the History of Science. This volume considers in a set of articles and columns various problems concerned with the general and national history of science. All the articles have an English summary.

The editorial considers the role of the history of science in understanding current scientific and cultural problems. Other articles are:

1. Boris Banjevic, 'Chronology of Ancient Egypt from the I to the XI Dynasty Based on the Palermo Stone and the Turin Canon', 2. Miloje Vasic, 'Inflation in the Roman Empire' 3. Milan Bozic, 'The Role of Paradoxes in the Development of Mathematics', 4. Aleksandar Petrovic, 'Laza Kostic and Kosta Stojanovic on the Neo-Cartesian Paradigm', 5. Stanislav Knezevic, 'Construction of Violins and Other Stringed Instruments in Serbia', 6. 'Presentation of the Airship of Dr Miodrag Stokic in Paris in 1901'.

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A. Petrovich, member of the editorial team of the Newsletter, has been elected Secretary of the Serbian Society for the History of Science.

RE-APPROACHING CLIO: SOME REFLECTIONS ON THE STUDIES OF SOUTH-EASTERN EUROPEAN SCIENCE AND SOCIETY

Several decades of scholarship now have challenged the traditional understanding of science as an unambiguous blessing to intellectual, political and social life in late modern societies. Contrary to what the majority of world citizens would tend to assume about the universal validity of scientific knowledge, it has been argued that science, like the other so-called indigenous or ethno-knowledges, must be viewed as a locally situated system of claims characterised by a set of local, spiritual, institutional and ideological determinants. Moreover, these same contingencies are seen as responsible for the claims made about the alleged apolitical, a-social and value-neutral character of techno-scientific knowledge. Indeed, what makes techno-science universal, rational, and objective does not depend upon the rigours of laboratory or field research, but a powerful and exclusivist rhetoric of the social élites produced in specific contexts (e.g., Protestant and Catholic metropolitan centres of learning and wealth) and at specific times in history (since the mid seventeenth century). Moreover, for many post-colonial, feminist and Third World science historians, it has become increasingly difficult to see science as a ferment of democratic modernity, because the majority of citizens who bear the consequences of science and technology decisions do not have a proportionate share in making them. As a consequence of these deconstructions, it has become clear that any critical project of locating the place and power of scientific rationality in late modern societies cannot take universalist/objectivist claims at their face value.[1]

What do these conclusions have to do with the history of techno-sciences and medicine in Eastern European societies? Why should a historian engage with the issues related to the social, economic, and political contingencies of techno-scientific knowledge? The format of this contribution does not allow me fully to address these problems. Instead, I would like to offer a personal and perhaps an idiosyncratic view of how historians of South-Eastern European science can take advantage of the recent socio-cultural study of science in general to approach the unique character of

the South-Eastern European intellectual geography with an informed attitude towards science as situated knowledge. First, we may observe that in de-centring and de-universalising rational knowledge, social historians have put forward a historiographic perspective from which to perceive nineteenth and twentieth-century science as inherently political, gendered, and manipulative of environmental and human resources (especially in the developing countries). Furthermore, social studies of science in both the North-West and in the South-East have also illuminated a spectrum of the uses to which science as a totem of civic virtue has been put in suppressing indigenous knowledges and practices which it labelled as 'superstitious'. In the this context, historians are discovering that an adherence to traditional forms of knowledge cannot be seen as a matter of intellectual inertia or xenophobia, but a genuine reaction to the imposed norms which did not answer the needs of local people or fit the sensibilities of local élites. Such conclusions have undermined the belief that techno-science transcends national and regional peculiarities and that its products possess an indisputably beneficial character wherever they are put to work.

Second, there is already a number of historians of South /Eastern European Science and Society who, rather than reproducing heroic / hagiographic narratives of progress, intellectual enlightenment and achievements of the South-Eastern European states, seek to assess the complex interweavings of epistemic, human, and moral dimensions of techno-sciences in different periods of the region's turbulent past. These historians are not interested in celebrating science, but in understanding its placement in societies whose different heritages may or may not sit comfortably with, for instance, the heritage of European Protestant society. The questions which can be fruitfully posed with regard to this project are many. What happens, for example, when an oral, rural and predominantly Christian Orthodox (or Muslim) society comes under the influence of norms, values, priorities and requirements set forth by a culture made up of predominantly urban and Catholic/Protestant scholars whose means of communication are primarily in print? What happens to the notions of space, time and hierarchy when a predominantly static and agricultural society experiences the effects of railway, telegraph, and land reform? Or, what happens to ethno-botany and indigenous healing practices in the mountainous regions of the Balkans following the institutionalisation of Western diagnostic and therapeutic procedures? Focusing on the academic life, in which context some important studies have already been undertaken, historians may search for those curricular and extra-mural conditions which, for example, informed the preference of mid nineteenth-century Greek students for practical over theoretical courses at the National Technical University in Athens. In this case, it seems that we need a refined picture of the nineteenth-century social and political world in which, as Georgios Vlahakis has pointed out, Greek intellectuals preferred to engage with meta-scientific and ideological aspects of science rather than with original research. Why is it that one can describe Greek science (and that of other Balkan states) as a "reservoir-like science in which almost all the new scientific theories were instantaneously received and accepted, but the appearance of original scientific products was restricted to a minimum?"[2]

What these questions are trying to convey is the sense in which we can see the ways to contextualise - not merely describe and narrate - the last three centuries of scientific, technical and medical disciplines in Albania, Bosnia, Bulgaria, Greece, Romania, Serbia, and Turkey. However, for this contextualisation to make sense, it would be necessary to invoke the results of critical science studies and reject the belief that discussing the history of SEESS is equivalent to discussing the 'penetration', 'diffusion' and 'assimilation' of 'Western' ideas into the unlettered populace of South-Eastern European lands. This agenda has marked SSEESS to the point where it has become virtually impossible to discuss historical tendencies outside positivistic, progressivist, and technocratic accounts of a slow, gradual, and partial scientific edification of a European periphery. One can ask: periphery in relation to what centre? Was not this centre defined as a (political) positioning against any other centres which the new national states sought to abandon as their emblems? More generally, if the centre/periphery model continues to be imposed on our research, it will, I fear, result in the kind of misconceptions which have arisen in colonial historiography, and which

are currently being challenged by many scholars in East and West. We should try to avoid, as Maria Todorova has reminded us, an internalisation of stigmas and stereotypes created in the West and replace the sense of marginality and belatedness of scientific achievement in the South-East with a recognition that a regional contextualisation - not a comparative stigmatisation - provides richer grounds for understanding SEESS. On a meta-level, we should begin to explore what purposes progressivist historiography served outside its originating (Western) cultures, and the consequences it had for the intellectual life and self-perception of South-Eastern societies.[3]

What my present outline suggests is the possibility of a major synthesis addressing the role of Western science, medicine and technology in the social, material, ethnic, political, and religious lives of South-Eastern Europe. The motivating principle of the new synthesis is the need that in our future studies we refocus from the exclusive theme of comparative history based on the centre/-periphery model to the more locally-orientated exploration of syncretic techno-scientific history. Without attempting comprehensiveness or exclusion of other directions in research, such a synthesis could perhaps begin by addressing the following issues:

1. The most far-reaching changes in South-Eastern European societies inaugurated by research, education, and the popularisation of European sciences, technologies and medicine.
2. Vehicles and forms in which scientific rationality exerted its influence in the public sphere, everyday political discourse, and attitudes towards religion, economy, and popular (peasant and bourgeois) culture.
3. Uses of scientific ideology in the processes of nineteenth-century national state-building.
4. The moral and civic rhetoric used by SEE governments in legitimating Westernisation of the SEE epistemological sphere. What political advantages and economic profits were anticipated? Whose interests did scientific education serve in particular?
5. Issues of gender and science, with emphasis on the differences between SEE and other cultures' perception of the gender-based distribution of intellectual labour.
6. Effects of the cultural stigma felt by generations of South-Eastern European intellectuals with respect to 'developed' Europe. How did this stigma and self-stigmatisation influence historiographical assumptions in more recent historical studies of scientific knowledge?
7. Consequences of the perception of techno-scientific lag in the importation of Western ideas and practices.
8. The polarisation of rural - urban milieus.

To open up a discussion on these and other issues we would need to co-ordinate our activities, set up priorities, and facilitate regular communication between the scholars in the field. Ways of achieving this complex of activities would be to:

A. Set up a meeting designed to assess the current state of scholarship in SSESS (Studies of South-Eastern European Science and Society).

B. Identify interests of the past, present and future involved in SSESS. Draw a geography of researchers and archives, and of previous and current academic affiliations and funding institutions.

C. Debate the issue of co-ordination: is there a valid basis for the concept of South-Eastern European Science, Technology and Medicine? Is the geographical criterion sufficient? What kinds of shared historical experiences unify SSEESS?

D. Discuss methodological issues, such as periodisation, historical approaches and the relationship between the current and earlier historical discourses which address the history of SE Europe.

E. Outline new approaches and themes which have been left out in earlier investigation (e.g., the issues of communication in the history of SESS, the role of linguistic reforms, science and nationalism, science and politics, science and traditional forms of knowledge, institutionalisation, the relationship between science and religion, etc.).

F. Determine the best ways of dissemina - tion of research: journals, internet, conferences, workshops, mailing lists, etc.

E. Consider an engagement of non-EES scholars in the debate about the place of science, technology and medicine in non-Western contexts.

Going beyond academic concerns, it is my belief that a synthetic approach to SSESS will give us tools to re-examine the status of SEE scholarship in general, particularly in its relationship with the national cultures, public

spheres, and ideological alliances made in the last two centuries. Let us hope that a strong SSESS becomes a forum for integration of scholars and for interchange of exciting ideas which will transcend the boundaries of the region.

1. The science studies literature is quite extensive. A useful collection is Mario Biagioli (ed.), The Science Studies Reader (New York: Routledge, 1999). See also David Hess, Science and Technology in a Multicultural World (New York: Columbia University Press, 1995), Terry Shinn et al. (eds), Science and Technology in a Developing World (Dordrecht: Kluwer, 1997).

2. George N. Vlahakis, 'Science and Society in Nineteenth-Century Greece: The Journals' in E. Nicolaidis and K. Chatzis (eds), Science, Technology and the Nineteenth-Century State (Athens: Institute for Neohellenic Research, 2000), 117.

3. Maria Todorova, Imagining the Balkans (New York: Oxford University Press, 1997).

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ASCLEPIUS OR THE PHOENIX IN MEDICAL HISTORIOGRAPHY

A little miracle occurred in Bulgarian medical histiography nine years ago. The international and national annual for the general theory and history of medicine was vindicated. It had been published in Sofia since 1970. It came to life again like a phoenix out of the ruins and the stagnation of the communist period. Yes, a phoenix, because for 14 whole years this unparalleled scientific publication was detained, closed down, taken into custody by its founder, Vera Pavlova. Its readers and contributors could not understand why Pavlova had acted in this way. The Asclepius journal had a good name and was popular in Eastern Europe as an international publication in the socialist countries. It fell into disgrace. Several files of proposed articles were locked in various offices and desks. For what reasons? The political ones predominated. The authorities did not draw dividends from it. Government institutions were not able to finance it. The state did not need to carry out scientific activities. Unfortunately, the authorities did not pass Asclepius for publication. Hence, it took 14 years, from 1978 to 1992, for it to be possible to start the new series of Asclepius. The start of the new Asclepius was brought about by the very competent members of the editorial board, with Miladin Apostolov at their head. The first volume of the present series was published without the involvement of the state, with the support of the Bulgarian society for the history of medicine and the Bulgarian scientific community.

In 1992, the conditions indispensable for the re-animation of Asclepius were created. Bulgarian society was striving for democracy. Bulgarian science was looking for its merited position in the new civil society, though it lacked state support; it was attempting to re-organise and make its contribution to scientific and civil progress. The freedom of speech and removal of censorship achieved by the ex-editor-in-chief created the conditions for converting Asclepius into a general theoretical and historical publication in Eastern Europe. A programme for the new look of the journal was published as early as the first number of the new series (Volume VI, 1992). This programme was signed by M. Apostolov as editor-in-chief and president of the Bulgarian society for the history of medicine. This programme gave prominence to more democratic changes and the opportunities for Asclepius not only to be reinstated, but to be transformed into a free scientific forum. Apostolov in his message to its readers (p. 9, Vol. VI) asked the question "What about the earlier Asclepius?", and he answered himself: "What remains? Not only does the title of Asclepius as a symbol of the universal aspiration to give human service to the patient remain. The principal sections remain. They had the potential of fuller realisation. The intentions of the founders of the publication and their successors to develop the history and the general theory of medicine in its international and national aspects, to stimulate international scientific collaboration remains too. In our specific case, the principles of continuity in the history of science are manifest ... "

To the second question, "What is new in our new Asclepius?", the editor-in-chief replied: "The fundamental features of our programme are freedom of speech, the right to choose topics, style, individual position and evaluation of methodological and systematic approaches in the studies of different problems, ideas,

personalities, phenomena." Now it is our turn to ask: "Has Prof. Apostolov kept his promise?" I am deeply convinced that all the readers and all the contributors will answer with a single voice - Yes!

Prof. V. Pavlova, Prof. N. Zaprianov, and some others, are no longer on the new editorial board. The Hungarian scientist and politician J. Antal played an active role on the former editorial board. When he led the Hungarian democratic forum as Prime Minister, he showed an interest in Asclepius and gave important encouragement. The role of the Russian editors Academician Yuri Pavlovitch Lisitzin, corresponding member Prof. Tatiana V. Gouravliova (scientific secretary of the journal), Prof. Gergui Shingarov, and Prof. M.B. Mirskyi was by tradition an active one. For some decades past, the Spanish scientist Prof. Francisco Gera was active as a contributor and editor. In our own day, the editorial board has been supplemented by the Greek scholars Prof. Spyros Marketos and Prof. Yannis Karas from Athens. Young historians of medicine have been drawn in.

We see the principal achievements in the expansion of the range of subject-matter, in the creation of new sections, in the breaking of their routine, in the inclusion of Bulgarian and foreign historians of science, methodologists, philosophers, sociologists. We have have attracted some assistant editors-in-chief: Prof. Veselin Borisov, a leading Bulgarian socio-hygienist, Prof. Tzekomir Vodenitcarov, Head of the Department of Social Medicine and Health Management, a distinguished researcher and lecturer in medical ethics and deontology. The purpose of their inclusion was to enlarge the sphere of subject-matter of Asclepius. In this sense, as a result we can accept a historian as a principal scientific secretary.

The promise that Asclepius would carry on its traditions with its translation into Russian and German has been more than fulfilled (Vol. VI). Now Asclepius is multilingual. The various articles are published within the framework of a supplement in the principal European languages, as well as the language of the host country. There are summaries in Greek.

Many difficulties are in store for us in distributing Asclepius and overcoming the printing problems. We are surmounting these difficulties with the help of the international 'Open Society' foundation and the newly-created Bulgarian-Greek-German foundation 'Charity'.

We rely on the active assistance of historians and scientists in Bulgaria, Greece, FYROM, Croatia, Russia, Hungary, Germany, Poland, Romania, and the Baltic countries. The new series of Asclepius proves scientific society to be a new free scientific tribune with national and international dimensions, with an intelligent and critical view on the past, the present and the future of medicine and health services, on the whole of science ...

Penka Ivanova
Scientific Secretary General of Asclepius
Secretary General of the Bulgarian Society
for the History of Medicine

THE EMANCIPATION OF THE HUMANITIES IN BULGARIA IN THE FIRST HALF OF THE TWENTIETH CENTURY AS A SCIENTIFIC AND CULTURAL REVOLUTION

The beginning of the twentieth century was for Bulgaria a very important period, characterised by social and cultural changes, when innovative transformations in the intellectual climate of society and of the age were milestones for scientific progress.

The retarded historical development of the Balkans, and in particular of Bulgarian culture after the ages of Ottoman assimilation, imposed the necessity of modernisation and acceleration of the style of scientific thinking and prepared new ways for the cultural advance of the Balkan nations.

The humanities as a specific form of theoretical self-consciousness were the true chance for spiritual emancipation and liberation from the old-fashioned norms and prejudices of the traditional world view. The process of global reform of social life was at the same time a process of global scientific reform also.

The historical delusion, still tolerated, that the history of science is connected with the historical evolution of the so-called 'exact sciences' was conditioned by the expansion of the nineteenth-century scientific-technical revolution. The utilisation of life and science in the context of the Industrial Revolution gave

rise to the incorrect notion of the absolute power of the natural and mathematical branches of science and led to the illusion of their leading epistemological role and to the opposing of exact knowledge to humanistic learning.

The underrating of the humanities in the modern world gives rise to a situation in which their long and interesting history and the significant fact that philosophy is the 'mother of every science' are forgotten, regardless of the fact that for a well-educated historian of science it must be a truism that, as the history of ancient Greece demonstrated, the birth of the history of science is connected with the coming into being of the ancient history of philosophy as the oldest cultural form of composite knowledge, as it could be better expressed today.

The innovative way in which the humanities evolved in Bulgaria in the first decades of the twentieth century is an excellent illustration of their positive path of development. This is the period when, after the Academy of Science, the University of Sofia was officially founded as the first institution of higher education. The fact that it prospered was, interpreted in the same light, the prosperity of institutionalised science. But the humanities in Bulgaria were not born in the sterilised atmosphere of the field of academic research. They were called into being through the efforts made to build up a new Bulgarian Press, which at this period acquired the status of the most important social tribune and created at the same time its own public as the promising national cultural audience in the new democratic Bulgarian State.

The institution of critic found parallels in:

1. modern Bulgarian literary criticism as a synthesis of practical criticism, aesthetics, literary theory, and the history of literature, the philosophy of culture, sociology, psychology, and ethnography;

2. the strata of the intellectuals, responsible for the spirit of humanism, or for the lack of it, and for the progress of humankind - which means a realistic understanding of nature, the criteria for, the likenesses and differences between social progress and the evolution of mankind.

For the needs, tasks and functions of the 'science of science', and especially for the history of science, it is absolutely necessary to emphasise the mission of the humanist as a scientist and intellectual. He represents the "culture of critical discourse" (Norbert Frey) and that makes possible the expression of the opinions and problems of the whole of society, not only of a special part of it. His evaluative activity, together with his cultural pluralism, makes him a mediator between science and art, science and politics, science and society.

In the Bulgarian history of science, the critic as theoretician is a key figure, born out of and for DIALOGUE. His significance for the humanities is closely connected with the signifiance of literature and arts in their role as a cultural microcosm. This interpretation allows a better understanding of the meaning of scientific and cultural integration today, and of the interdisciplinary nature of modern (and Post-Modern) science as a gentle spiritual and cultural revolution.

In the chosn context of interpretation, the globalistic sense, characteristic of the cosmos of literature and art (created by Man as Artist or Homo Creator) is a demonstration of the great creative and epistemological potential of the humanities and determines their important position in a situation of paradigmatic changes in the cognitive and social functions of science.

The expansion of the humanities in Bulgaria in the first four decades of the last century (before the Socialist Revolution of 1944) and their unique manner of development is a decisive sign of the fabricated 'science-humanities' contradiction, typical of the Postivist and Post-Positivist attitude to cognition, and presupposes that the inequality between the two general branches of the universal system of knowledge is not legitimate.

In the spirit of "science as a human endeavour" (G. Kneller), Bulgarian humanist research work from the first half of the twentieth century, with its orientation towards the philosophy of culture as universal methodology and mode, helping to understand man's existence as an illustration of his active way of life, has shown to generations to come a brilliant example to be followed, with the accent on the problems of cultural identity, focusing attention on the question of the indigenous and foreign dialectic and conflict - and this in an era when, world-wide, the philosophy of culture, cultural anthropology, and the philosophy of communication were taking their first shy steps!

But these are only the first few arguments in the long discussion of the historical role, destiny and perspectives of the humanities in the Bulgarian cultural time-space in the first

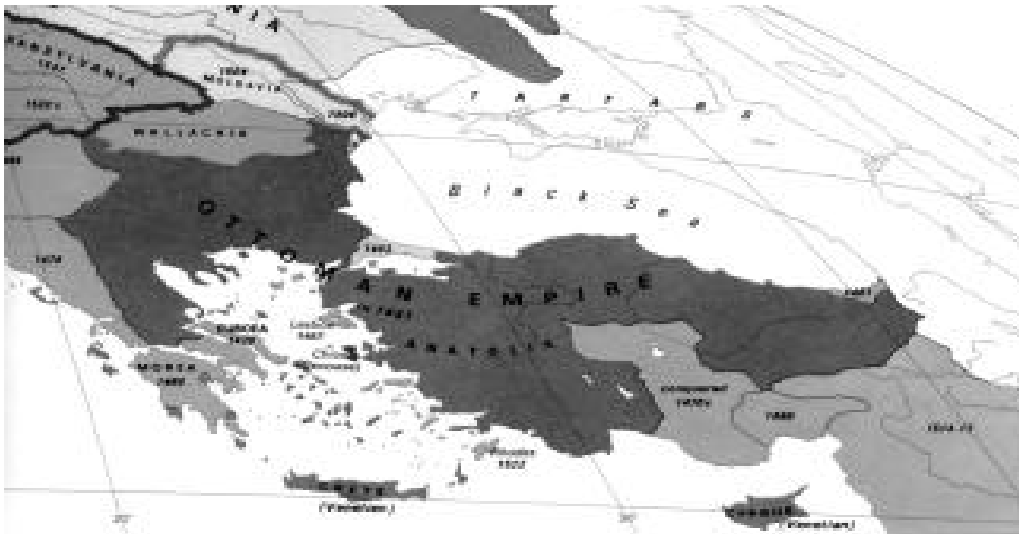
half of the last century. To continue the topic means continuing this fruitful main line of the Bulgarian scientific tradition and interpreting the humanities as the key to the complex understanding of man, contemporary life, the future, and history.

Erica Lazarova

SYMPOSIUM ON "SCIENCE, TECHNOLOGY AND CULTURAL DIVERSITY: FROM THE OTTOMAN EMPIRE TO THE NATIONAL STATES" Mexico City, 8-14 July 2001

The Symposium is organised by Ekmeleddin Ihsanoglu (Turkey), Efthymios Nicolaïdis (Greece) and Konsantinos Chatzis (France) within the XXIth International Congress of History of Science (see Newsletter 3, p. 16). The provisional program is as follows:

Gabor Agoston (USA), «Ottoman and European Military Technology, 1450-1800: a comparison», Michael Assimacopoulos - Yannis Antoniou (Greece), «State and professional identity: the rising of the engineers in the new Greek State», Fotini Assimacopoulou (Greece) - Konstantinos Chatzis (France), «Les élèves grecs dans les Grandes Ecoles en France au XIXe siècle», Salim Aydüz (Turkey), «The Development of the Ottoman Artillery during the Reign of Sultan Selim I (1512-1520)», Cemil Aydin (USA), «Historiography on Ottoman Science and the Ideology of Turkish Modernization: an overview of the History of Science Literature in Turkey», Yakup Bektas (USA), «Technology and Cultural Diversity in the 19th Century Ottoman Empire», Atilla Bir (Turkey), «The Work on Vertical Sundials of Mehmed Said Efendi (1737)», Sonja Brentjes (Germany), «Renegates and Missionaries as minorities in the transfer of knowledge between Western and the Ottoman Empire in the 16th and 17th Centuries», Patrice Bret (France), « Transfer et adaptation: Les origines du télégraphe optique en Egypte, de Bonaparte a Mehmet Ali (1798-1828)», Ekmeleddin Ihsanoglu (Turkey), «The problematique of teaching rational sciences in Ottoman Madrassas», Mustafa Kaçar (Turkey) «The Work on a Geodesical Instrument of Mehmet Said Efendi», Sevtap Kadoglu (Turkey) «Institutionalisation of Science Education and Scientific Research in Turkey in the 20th Century», Peter Mentzel (USA), «Unity and Diversity on Ottoman Railways», Nathalie Montel (France), «La dimension culturelle des objets techniques : les brouettes sur le chantier du canal de Suez, 1859-1869», Efthymios Nicolaidis (Greece), «L'organisation de l' enseignement des sciences chez les peuples chretiens de l'Empire ottoman», Antoine Picon (France), «Les saint-simoniens et l'Orient», Yakov Rabkin (Kanada), «Science in the Post-Ottoman Realm: Congruence and Diversity», Maria Terdimou (Greece), «The teaching of Mathematics and Greek Orthodox Church, 18th-19th c.», Voula Tsinorema (Greece), «The structural under-development of philosophy in the new Greek State», Ioli Vingopoulou (Greece) «Un alchimiste vagabond en Europe et le Proche Orient le XVIIe siècle», George Vlahakis (Greece), «The teaching of science in the Greek community of Constantinople during the 18th and 19th centuries »



Part of the Ottoman Empire at the 15th c. The Times Atlas of World History