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INTERNATIONAL SCIENTIFIC ASSOCIATIONS ON THE HISTORY OF SCIENCE AND TECHNOLOGY: FORMATION AND DEVELOPMENT (PART II)

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Abstract. The activity of international organizations on the history of science and technology is a remarkable phenomenon in the world scientific and sociocultural sphere. Such centers influence and contribute to the scientific communication of scientists from different countries and the comprehensive development of numerous aspects of the history of science and technology, carry out scientific congresses. That is why the analysis of the acquired experience and the obtained results of these groups are important.

The history of the formation and development, task, structure, background and directions of the activities of some international organizations in the field of science and technology, including The History of Science Society (HSS), The European Society forthe History of Science (ESHS), The Society for the History of Technology (SHOT), The Newcomen Society, The Scientific Instrument Society (SIS) have been shown.

The History of Science Society (HSS) is the professional society for the academic study of the history of science. It is the world's largest society dedicated to understanding science, technology, medicine and their interactions with society within their historical context. HSS was founded in 1924 by G. Sarton and L. Henderson. The aim of European Society for the History of Science (ESHS), founded in 2003, is to promote the history of science, technology and medicine throughout Europe. The Society for the History of Technology (SHOT) is an international interdisciplinary organization concerned with the history of technological devices and processes and with technology in history — that is, the relationship of technology to politics, economics, science, arts and the organization of production, The Newcomen Society is an international society that studies and promotes the history of engineering and technology from ancient times to the present day. It disseminates historical information by publications, meetings, correspondence and internet forums. The Scientific Instrument Society (SIS) was formed in April 1983 to bring together people with a special interest in scientific instruments, ranging from

precious antiques to electronic devices only recently out of production. The Society aimed to contribute to historical knowledge and understanding through the collection, conservation and study of scientific artefacts.

Ecept for the organizations considered, there are many other scientific unions and societies in the field of history and phylosophy of science and engineering, whose activities require further study and synthesis.
***Keywords**:* history of science and technology, The History of Science Society, The European Society forthe History of Science, The Society for the History of Technology, The Newcomen Society, The Scientific Instrument Society.

Анотація. Діяльність міжнародних організацій з історії науки й техніки є яскравим явищем у світовій науковій і соціокультурній сфері. Такі центри сприяють науковому спілкуванню вчених різних країн і всебічному розвитку численних аспектів історії науки і техніки, проводять наукові конгреси. Тому важливим є аналіз набутого ними досвіду та отриманих результатів.

Висвітлено історію формування та розвитку, завдання, структуру та напрями діяльності низки міжнародних організацій у галузі історії науки і техніки, а саме Товариства історії науки (The History of Science Society, HSS), Європейського товариства історії науки (The European Society for the History of Science, ESHS), Товариства історії техніки (The Society for the History of Technology, SHOT), Товариства імені Т.Ньюкомена (The Newcomen Society), Товариства історії наукового приладобудування (The Scientific Instrument Society, SIS).

Незважаючи на те, що у статті розглянуто ці організації, існує багато інших наукових спілок і товариств з історії і філософії науки і техніки, діяльність яких потребує подальшого вивчення і синтезу.
Ключові слова: історія науки і техніки, Товариство історії науки, Європейське товариство історії науки, Товариство історії техніки, Товариство імені Т. Ньюкомена, Товариство історії наукового приладобудування.

Introduction and context

The activity of International organizations on the history of science and technology is a remarkable phenomenon in the world scientific and socio-cultural sphere. Such centers contribute to the scientific communication of scientists from different countries and the comprehensive development of numerous aspects of the history of science and technology. That is why the analysis of the acquired experience and the obtained results are important. An activity of international scientific organizations is reflected in the handbook published by G. V. Dobrov institute for scientific ang technological potentian and science history studies NAS of Ukraine [1]. It contains 60 references about international and national science research organizations which are divided into four chapters: UNESCO and international academic associations; history of science and technology; philosophy and sociology of science; science of science. Basic information about tasks of organizations, its structure and background information is shown.

The puppose of the research

The puppose of the research is to discuss more deeply than in book mentioned above, the history of formation and development, tasks, structure and activities of some international organizations in the field of the history of science and technology, including The History of Science Society (HSS), The European Society for the History of Science

(ESHS), The Society for the History of Technology (SHOT), The Newcomen Society, The Scientific Instrument Society (SIS).

The object of the study

The object of the study is a history and periods of evolution, results, membership and governance, national representation, publications of such world scientific unisons of historians of science and technology: The History of Science Society (HSS), The European Society forthe History of Science (ESHS), The Society for the History of Technology (SHOT), The Newcomen Society, The Scientific Instrument Society (SIS)

The tasks of the work

The tasks of the work are the following: to reveal the meaning of professional unions of scientists for effective scientific work, communication and professional support among scolars; to show a social, cultural, political and economic conditions, that leed to the need for scientists to unite and cooperate; to discuss the results represented at the international congresses, organized by The History of Science Society (HSS), The European Society forthe History of Science (ESHS), The Society for the History of Technology (SHOT), The Newcomen Society, The Scientific Instrument Society (SIS) and published in their procedeengs.

Results and discussion

The logo of The History of Science Society (HSS) [www.hssonline.org]

Among unions of scientists from all over the world is **The History of Science Society (HSS)** – the professional society for the academic study of the history of science [2]. It is the world's largest society dedicated to understanding science, technology, medicine and their interactions with society within their historical context. HSS was founded in 1924 by G. Sarton and L. Henderson primarily to support the publication of «Isis», a journal of the history of science started by G. Sarton in 1912. Over 3,000 individual and institutional members across the world support the Society's mission to foster the interest in the history of science and its social and cultural aspects.

Several society-sponsored initiatives carry advanced knowledge about the history of science to the wider world. The Society's flagship publication, quarterly journal «Isis», is the widest circulation journal in the history of science. Another journal, the yearly «Osiris», produces annual thematic volumes devoted to a single topic of wide interest to the history of science community. HSS sponsors the Isis CB: History of Science Index built on 40-years of data in the Isis Bibliography of the History of Science.

The History of Science Society sponsors two special lectures annually: The George Sarton Memorial Lecture, delivered at the Annual Meeting of the American Association for the Advancement of Science since 1960 (with a break from 1973 to 1975) and The History of Science Society Distinguished Lecture (formerly the History of Science Society Lecture), delivered at a plenary session of the annual meeting of the HSS since 1981. The HSS awards a number of prizes: The Suzanne J. Levinson Prize, established in 2006, is awarded biennially for a book in the history of the life sciences and natural history; The Nathan Reingold Prize (formerly the Schuman Prize), established

in 1955, for an outstanding essay in the history of science written by a graduate student; The Derek Price/Rod Webster Prize (formerly the Zeitlin-Ver Brugge Prize), established in 1978, for an outstanding article in Isis; The Margaret W. Rossiter History of Women in Science Prize, first awarded in 1987, for an outstanding work on the subject of women in science (the prize alternates annually between books and journals); The Joseph H. Hazen Education Prize, established in 1998, for outstanding contributions to teaching history of science; The Watson Davis and Helen Miles Davis Prize, established in 1985, for a textbook or popular book on the history of science; The Pfizer Award, established in 1958, for an outstanding book in the history of science (a medal accompanies this award); The George Sarton Medal, first awarded in 1955, for lifetime achievement in the history of science.

Since 1995 the Society holds an annual meeting, at which several hundred scholars present and discuss cutting-edge research on the cultural relationships and historical development of scientific practices, theories, and technologies.

HSS is also making use of new technologies to stimulate interest in the history of science. The Guide to the History of Science is an extensive directory of graduate programs, organizations, journals, museums, and individuals studying the history of science worldwide. It uses relational databases to integrate job and grant listings, conference announcements, and news items into the Guide. The activities of the Society's bibliographer are also key moment to the History of Science, Technology, and Medicine database online. Free access to this valuable research tool is available as a benefit to members.

Among unions of scientists from all over the world is **The European Society for the History of Science (ESHS),** founded in 2003 [3]. The aim of the ESHS is to promote the history of science, technology and medicine throughout Europe. The purpose of the Society is also aimed to promotion the European cooperation in the field of the History of Science in the broadest sense, in particular providing a high-level interdisciplinary forums for the research on the History of Science; promoting cooperation between its members; providind the access to scientific heritage; assisting and advising on the teaching of the History of Science; advancing the education of the general public in the historical, cultural, and social aspects of science.

The logo of The European Society for the History of Science (ESHS), [http://www.eshs.org]

The first seat of the Society was the École Pratique des Hautes Études (Section des Sciences Historiques et Philologiques) in Paris. It has been organized as a non-profit making organisation governed by the French Law of July the 1st, 1901 and the Decree of August 16, 1901.

Scientific Board of the ESHS consists of the Mitchell G. Ash (Austria), Dimitri Bayuk (Russia), Frank James (UK), Roberto Lalli (Italy/Germany), Elaine Leong (Germany), Qi Han (China), Clara Florensa (Spain) and Maria Paula Diogo (Portugal). It is responsible for the organisation of the scientific congresses, normally every two years; the publication of the proceedings of the congresses; the promotion of research initiatives and activities as the society decides to take.

The President of ESHS is Ana Simões. Past Presidents are: Claude Debru, 2004–2006; Robert Fox, 2004–2006; Eberhard Knobloch, 2006–2008; Helge Kragh, 2008–

2010; Sona Strbanova, 2010–2012; Fabio Bevilacqua, 2012–2014; Karine Chemla, 2014–2016, Antoni Malet, 2016-2018.

The official journal of the ESHS is «Centaurus», that is the international journal about the history of science and its cultural aspects, established in 1950 and published in English; «Centaurus» gives an international spectrum of original research papers, review articles, notes and commentaries on the history of science, mathematics, medicine, biomedical science, earth science and technology, and their social and cultural aspects. Book reviews and review essays of publications within the journal's scope are also included. Members pay annual dues, subscription to the on-line issues of the Society's official journal «Centaurus» is mandatory for all individual members. The subscription price is part of the annual dues and it is determined every two years by an agreement between the Society's council and the publishers.

The first ESHS international conference «Science in Europe and Europe in Science: 1500-2000» was held in Maastricht (the Netherlands) on November 4-6, 2004 to explore new European perspectives on the history and historiography of science. The second ESHS international conference «The Global and the Local: History of Science and Cultural Integration of Europe» was held in Cracow on September 6-9, 2006 to create an opportunity for a dialogue and an exchange of experiences among representatives of different countries of the European Union. The third ESHS international conference «Styles of Thinking in Science and Technology» was held on September 10-12, 2008 in Vienna (Austria) to study philosophical, cultural, religious, political, economic influences that led to certain styles of thinking in science and technology. The next conferences were held on November 18-20, 2010 in Barcelona (topic: «The circulation Science and Technology»); on November 1-3, 2012 in Athens (topic: «Scientific cosmopolitanism and local cultures: religions, ideologies, so-cieties»); on September 4-6, 2014 in Lisbon (topic: «Communicating Science, Technology and Medicine»); on September 22-24, 2016 in Prague (topic: «Science and Power, Science as Power»). Scientists from Ukraine, e.i. from G.M.Dobrov Institute for Scientific and Technological Potential and Science History Studies NAS of Ukraine, Kiev Polytechnic Institute and Dnipropetrovsk National University, participated in the conference which were held in 2010 in Barcelona and in 2008 in Vienna.

Members of the ESHS represent countries from over the world. The Society consists of individual, institutional and supporting members who share the purposes of the society. Residence or work in Europe is not a precondition for membership. Corporate bodies may join the society having applyed to the Council. In particular, Societies of history of science or related academic disciplines in natural or human sciences, as well as academies and academic institutions are welcomed for institutional membership. Those who wish to support the Society are admitted as supporting members. They have no voting rights, but may attend and be consulted in the meetings of the General Assembly.

The officers of ESHS are: The President, the Vice President, the President-elect, the Secretary, the Treasurer, «Centaurus» Editor, the Newsletter Editor, the PR officer and the Webmaster. The President, together with the Council organize the next regular scientific congress, serve until the next General Assembly and shall not be eligible for re-election.

The principal prize of the European Society for the History of Science is The Gustav Neuenschwander Prize that is awarded for outstanding lifelong achievements and major contributions to the discipline of the history of science. It was proposed by Professor Erwin Neuenschwander in 2011 in memory of his father Gustav Neuenschwander. The Prize, which currently amounts to 10,000 Euros is presented

biennially at the ESHS Conference during the General Assembly. It consists of a financial reward, a diploma, and the right to deliver a plenary lecture at the Conference. Any member of the ESHS is entitled to nominate a candidate. The first winners of the Gustav Neuenschwander Prize were Claude Debru (2012), Jürgen Renn (2014), Nancy Siraisi (2016) and Robert Fox (2018).

The logo of The Society

for the History of Tecnology (SHOT) [http://www.historyoftechnology.org]

The Society for the History of Technology (SHOT) (President for 2019–2020 – Tom Misa) is an international interdisciplinary organization concerned not only with the history of technological devices and processes but also with technology in history — that is, the relationship of technology to politics, economics, science, arts and the organization of production, with the role it plays in the differentiation of individuals in society [4]. SHOT actively works to foster a global community for the study of the history of technology and to support a worldwide network of scholars in this field.

SHOT was formed in 1958 in the United States to encourage the study of the development of technology and its relations with society and culture, and it has since become an international society with members from USA, Europe, Asia, and Africa. SHOT owes its existence largely to the efforts of Professor Melvin Kranzberg (1917–1995) and now numbers around 1500 members from thirty-five countries. The headquarters of the society is now located in Eindhoven University of Technology, the Netherlands.

SHOT meets annually in North America or Europe and also sponsors smaller conferences focused on specialized topics. Future Meetings are: Milan, Italy, 19–22 September 2019 and New Orleans, LA, 7–11 October, 2020.

The society's quarterly journal «Technology and Culture» is published by the Johns Hopkins University Press. SHOT also publishes a yearly newsletter and, jointly with the American Historical Association, a booklet series «Historical Perspectives on Technology, Society, and Culture».

The officers of the Society are a President, a Vice President, a Secretary Treasurer and an Editor. In 1992 the Society for the History of Technology inaugurated the International Scholars program: Melvin Kranzberg Dissertation Fellowship, awarded annually to a student preparing a dissertation in the broadly defined history of technology; Brooke Hindle Postdoctoral Fellowship, awarded in support of a scholar at the beginning of the career; SHOT-NASA Fellowship – a predoctoral or postdoctoral fellowship in the history of space technology.

Each year, the Society for the History of Technology offers a number of awards, grants, and prizes: Leonardo da Vinci Medal: The society's highest honor, presented to an individual who has greatly contributed to the history of technology through research, teaching, publications, and other activities; Sidney Edelstein Prize: Recognizing outstanding scholarly work in the history of technology; Sally Hacker Prize: Established in 1999 to honor exceptional scholarship that reaches beyond the academy toward a broad

audience; Abbot Payson Usher Prize: Awarded annually to honor the best scholarly work published under the auspices of SHOT; Joan Cahalin Robinson Prize: Awarded for the best-presented paper at the SHOT annual meeting by a scholar of any age presenting for the first time; Samuel Eleazar and Rose Tartakow Levinson Prize: For an original essay in the history of technology that examines technology within the framework of social or intellectual history; Bernard S. Finn IEEE History Prize for the best article in the history of electrotechnology—power, electronics, telecommunications and computer science; Dibner Award for Excellence in Museum Exhibits: Recognizing museums and exhibits that interpret the history of technology, industry and engineering to the general public; Eugene S. Ferguson Prize: For original reference works that support future scholarship in the history of technology.

The logo of The Newcomen Society [https://www.newcomen.com]

The Newcomen Society is an International society that studies and promotes the history of engineering and technology from ancient times to the present day. It disseminates historical information by publications, meetings, correspondence and internet forums [5].

The Administrator of the society is Sarah-Jane Stagg. The Society's interests are broad and international, embracing all aspects of engineering and the great inventions of the 18th and 19th centuries through to the sophisticated technologies of the 20th century and into the digital age. The Society is concerned with all branches of engineering: civil, mechanical, electrical, electronic, structural, aeronautical, marine, chemical and manufacturing as well as biography and invention.

The Newcomen Society was founded in London in 1920 and is the oldest society in the world specialising in the history of engineering and technology. The Society takes its name from Thomas Newcomen, who invented the first practical working steam engine in 1712, that led to the great industrial and technological achievements of the modern age. Thomas Newcomen is widely considered the «father of the Industrial Revolution».

The motto of the Society is the Latin actorum «memores simul affectamus agenda», meaning «mindful of things that have taken place, at the same time we strive after things yet to be done». The choice of a griffin regardant for the logo was to symbolise vigilance and looking backward while going forward. The Newcomen Society is based at the Science Museum in London. There are regional branches in England: Midlands (Birmingham), North West (Manchester), North East (Newcastle), Western (Bristol) and Southern (Portsmouth), and one in Scotland (Glasgow and Edinburgh). An American branch was established in 1923, but the Newcomen Society of the United States was entirely separate from its UK counterpart in 2007, when the chairman and trustees announced its closure.

It publishes the International Journal for the History of Engineering and Technology (formerly the Transactions of the Newcomen Society) and Newcomen Links, a quarterly newsletter. An online archive of previous Transactions is also available to members of the Society. Since 1920 it has published over a 1000 papers, an extensive and

international range of which includ: Civil, mechanical, structural, chemical, aeronautical, electrical and marine engineering; Inland navigation, railways, roads, bridges

Water supply, dock and harbour engineering, lighthouses; Mills and millwork; Stationary engines, locomotives, turbines, piston engines, steam, oil, petroleum and gas engines; Metallurgy, manufacturing and industrial plant, textile machinery; Computer engineering; Gas and electric lighting, heating and ventilation, sewage and drainage, public health engineering. Newcomen also supports the collection and preservation of archival material and historical artefacts. The Newcomen Past Papers Archive is fully accessible on-line and free to members. Guests can preview the papers and purchase, for a small fee, if interested.

The logo of The Scientific Instrument Society (SIS) [http://www.scientificinstrumentsociety.org]

The Scientific Instrument Society (SIS), President – Paolo Brenni) was formed in April 1983 to bring together people with a special interest in scientific instruments, ranging from precious antiques to electronic devices only recently out of production [6]. The Society aimed to contribute to historical knowledge and understanding through the collection, conservation and study of scientific artefacts. Collectors, the antiques trade, museum staff, professional historians and amateur enthusiasts will all find the varied activities of the Society suited to their tastes.

The Society was formally constituted on 20 April 1983 in the course of a lively meeting at the Science Museum, South Kensington, when G. Turner was appointed Chairman, B. Brass Treasurer (he would serve in that role for the next eleven years) and the late J. Darius the first editor of the Bulletin.

The Bulletin is the Society's journal, published four times a year and sent free to members. It is attractively produced and illustrated, and contains information and articles about a wide range of instruments, as well as book and exhibition reviews, news of SIS activities, and meetings of related societies. Collectors may find the Bulletin a means of learning about upcoming sales and adding to their collections. Throughout its history the Bulletin has had only three editors and has grown into a respected publication, essential reading for serious scholars of the history of science and the material culture of scientific enquiry, experimentation, instruction and its industrial, medical or military applications. It has always been A4 format, was professionally typeset from issue no 2 and advertising has been carried since the beginning.

Members of the Society enjoy regular opportunities to meet each other and share their passion for scientific instruments old and new. The Society makes an annual 'overseas' trip, recent destinations having included Dresden, Florence, Utrecht and Paris. In addition there are occasional one-day and week-end meetings divided purposely between London and attractive provincial locations. Recent destinations have included Leicester, Derby, Birmingham, Norwich and Spalding. Speakers are usually experts in their field, but all members are welcome to give talks. Visits to museums are a particular feature of the annual programme.

The Scientific Instrument Society awards small grants, of up to £500 each, for research on the history of scientific instruments. Since September 2015, grants fund has

been supplemented by the Paul Bunge Prize, awarded to the Society for its role in publishing Brian Gee's book, Francis Watkins and Dollond telescope patent controversy, edited by Anita McConnell and Alison Morrison-Low. The Society is delighted to have received this award and the enhanced funds will greatly assist future researchers through the grants programme.

Conclusions and prospects

The history of scientific and technical societies as a form of research shows that the tendency of formation of professional communities of scientists has existed since ancient times. The societies for the history of science and technology, which were established in the XX-XXI centuries, were intended to unite researchers around specific tasks and to broad the community by generalizing various aspects of the subject. Characteristic was also the creation of societies by geographical principle - regional, continental, worldwide. For example, the oldest society for the study of the history of technological development (**The Newcomen Society**) emerged in 1920, in 1958 a need to bring these problems to the world level was realized and embodied in the organization of **The Society for the History of Technology (SHOT**). At the same time there was a detailization of the subject and in 1983 **The Scientific Instrument Society (SIS)** was created. Speaking about the development of the history of science, we note that the worldwide **The History of Science Society (HSS)** was created in 1924, and the unification of historians of science based on the principle of research on sectoral issues in Europe, took place in 2003 **at The European Society for the History of Science (ESHS).**

Ecept for the organizations considered, there are many other scientific unions and societies in the field of history and philosophy of science and engineering, whose activities require further study and synthesis. Those are: **The International Union of History and Philosophy of Science and Technology (IUHPST), The European Philosophy of Science Association (EPSA), The International Council for Philosophy and Human Sciences (ICPHS), The International Federation of Philosophical Societies (FISP), The International Society for The History of Philosophy of Science (HOPOS).**

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