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## ІСТОРИЧНІ НАУКИ

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### FORMATION OF WORLD SCIENTIFIC PERIODICS IN THE FIELD OF HISTORY OF SCIENCE AND TECHNOLOGY

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**Abstract.** Scientific periodicals on the history of science and technology play a key role in the development of this sphere, formation of ideas and communication of scientists. The history of the origin and evolution of professional journals on the history of science and technology in the world is interesting and instructive, but insufficiently researched. Individual episodes about the stages of magazines formation are submitted mainly by participants of the publishing process. Given the importance of this block of scientific literature for understanding by experts of certain scientific and technical disciplines gained by previous generations of researchers, and understanding the logic of scientific and technical knowledge by historians of science and technology, the study of international scientific periodicals in the history of science and technology is extremely need nowadays. The purpose of the research is to deeply discuss the history of formation and development, tasks, structure and activities of some international scientific journals in the field of the history and philosophy of science and technology, including Isis, Annals of Science, The British Journal for the History of Science, ICON. The object of the study is a history and periods of evolution, results, membership and governance, national representation, publications of such world scientific periodicals on the history of science and technology, among which are Isis, Annals of Science, The British Journal for the History of Science, ICON. The tasks of the work are the following: to reveal the meaning of professional journals on the history of science and technology for effective scientific work, communication and professional support among scholars; to show a social, cultural, political and economic conditions, that led to the need for scientists to unite and cooperate; to discuss the results represented at these publications.

**Keywords:** scientific periodicals, the history of science and technology, Isis, Annals of Science, The British Journal for the History of Science, ICON.

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### ФОРМУВАННЯ СВІТОВОЇ НАУКОВОЇ ПЕРІОДИКИ В ГАЛУЗІ ІСТОРІЇ НАУКИ І ТЕХНІКИ

**Анотація.** Наукові періодичні видання з історії науки і техніки відіграють ключову роль у розвитку цієї сфери, формуванні ідей та спілкуванні вчених. Історія виникнення та

еволуції професійних журналів з історії науки та техніки у світі цікава та повчальна, але недостатньо досліджена. Окремі епізоди щодо етапів формування журналів подаються переважно учасниками видавничого процесу. Враховуючи важливість цього блоку наукової літератури для розуміння експертами здобутків науково-технічних дисциплін, отриманих попередніми поколіннями дослідників, та розуміння логіки науково-технічних знань істориками науки і техніки, вивчення міжнародної наукової періодики з історії науки і техніки вкрай необхідне нині. Мета дослідження – глибоко обговорити історію становлення та розвитку, завдання, структуру та діяльність деяких міжнародних наукових журналів у галузі історії та філософії науки та техніки, зокрема *Isis*, *Annals of Science*, *The British Journal for the History of Science*, *ICON*. Об'єктом дослідження є історія та періоди еволюції, результати, членство та управління, національне представництво, публікації таких світових наукових періодичних видань з історії науки та техніки, серед яких *Isis*, *Annals of Science*, *The British Journal for the History of Science*, *ICON*. Завданнями дослідження є такі: розкрити значення фахових журналів з історії науки і техніки для ефективної наукової роботи, спілкування та професійної підтримки серед науковців; показати соціальні, культурні, політичні та економічні умови, що спричинили необхідність об'єднання та співпраці вчених для обговорення результатів, представлених у цих публікаціях.

**Ключові слова:** наукова періодика, історія науки і техніки, *Isis*, *Annals of Science*, *The British Journal for the History of Science*, *ICON*.

**Introduction.** The history of science and technology is a field of history that examines how the understanding of the natural world and the ability to manipulate it have changed over the millennia and centuries. The cultural, economic, and political impacts of scientific innovation also have been studied in this scientific sphere.

Scientific periodicals on the history of science and technology play a key role in the development of this sphere, formation of ideas and communication of scientists. The history of the origin and evolution of professional journals on the history of science and technology in the world is interesting and instructive, but insufficiently researched. Individual episodes about the stages of magazines formation are submitted mainly by participants of the publishing process. Given the importance of this block of scientific literature for understanding by experts of certain scientific and technical disciplines gained by previous generations of researchers, and understanding the logic of scientific and technical knowledge by historians of science and technology, the study of international scientific periodicals in the history of science and technology is extremely need nowadays.

Those magazines are *Annals of Science*, *The British Journal for the History of Science*, *Centaurus*, *Dynamis*, *History and Technology* (magazine), *History of science and technology*, *History of Technology* (book series), *Historical Studies in the Physical and Biological Sciences*, *Historical Studies in the Natural Sciences*, *ICON*, *IEEE Annals of the History of Computing*, *Isis*, *Journal of the History of Biology*, *Journal of the History of Medicine and Allied Sciences*, *Notes and Records of the Royal Society*, *Osiris*, *Science & Technology Studies*, *Science in Context*, *Science, Technology, & Human Values*, *Social History of Medicine*, *Social Studies of Science, Technology and Culture*, *Transactions of the Newcomen Society*, *Historia Mathematica*, *Bulletin of the Scientific Instrument Society*, *Science and Science of Science*, *Studies in History and Philosophy of Science and Technology* etc.

Numerous journals arose in the process of the formation of the Scientific societies, being published by them. The history of the formation and development of the Scientific Societies on the history of science and technology has been investigated by author [1–3]

**The purpose of the research.** The purpose of the research is to deeply discuss the history of formation and development, tasks, structure and activities of some international scientific journals in the field of the history and philosophy of science and technology, including *Isis*, *Annals of Science*, *The British Journal for the History of Science*, *ICON*.

**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 periodicals on the history of science and technology, among which are *Isis*, *Annals of Science*, *The British Journal for the History of Science*, *ICON*.

**The tasks of the work.** The tasks of the work are the following: to reveal the meaning of professional journals on the history of science and technology for effective scientific work, communication and professional support among scholars; to show a social, cultural, political and economic conditions, that led to the need for scientists to unite and cooperate; to discuss the results represented at these publications.

**Methods of investigations.** The study is based on general scientific principles, as well as historical and interdisciplinary research methods. The application of the methodological principle of historicism made it possible to determine the priority of the scientific periodicals on the history of science and technology in scientific discurs. Using of bibliographic, archival, source methods and content analysis contributed to the search and systematization of primary information. Historical-chronological and subject-logical methods allowed to draw conclusions about the content of the scientific magazines.

### Content

*Isis*. *Isis* is the oldest English-language journal in the field of the history of science and technology [4]. The journal was established by George Sarton and the first issue appeared in March 1913. Since its inception, *Isis* has featured scholarly articles, research notes, and commentary on the history of science, medicine, and technology and their cultural influences. The journal is an official publication of the History of Science Society, which was founded by George Sarton and Lawrence Joseph Henderson in 1924 to secure the future of *Isis*.

Now it is a quarterly peer-reviewed academic journal published by the University of Chicago Press. It covers the history of science, history of medicine and the history of technology, as well as their cultural influences; contains original research articles and extensive book reviews and review essays on new contributions to the discipline. Furthermore, sections devoted to one particular topic are published in each issue in open access. These sections consist of the Focus section, the Viewpoint section and the Second Look section. The publication of the journal was interrupted in 1914 during World War I, and resumed in 1919. During World War II publication was interrupted again in 1940 and in 1945. Since then, each year four issues (sometimes double issues) of one volume have appeared in print, and since 2002 the journal has also been published in full-text electronic format.

Among the supporters of the Press are following: Mississippi State University, its College of Arts and Sciences and History Department, and the Consortium for the History of Science, Technology, and Medicine. Publication is partly supported by an endowment from the Dibner Fund.

Contributions were originally in any of four European languages (English, French, German, and Italian), but since the 1920s, only English has been used. Two associated publications are *Osiris* (established 1936 by Sarton) and the *Isis Current Bibliography*. The *Isis Current Bibliography* started as *Critical Bibliography* and was published from the very first volume onwards. Since 1969, the *Critical Bibliography* was published as the fifth issue to a volume. In 1989, the name was changed to *Isis Current Bibliography* to reflect that, since Sarton's retirement in 1953, the bibliography had not been truly critical in the sense that each citation was commented on by an expert. It then also became a separate publication from *Isis*. It includes citations to publications in the history of science and related fields, including books, book reviews, journal articles and more. The bibliography is the oldest and largest bibliography in the field, going back to the first issue of *Isis* in 1913. The *Isis Current Bibliography* is freely available at the website of University of Chicago Press and the IsisCB Explore website. Individual and student membership in the History of Science Society includes a subscription to both *Isis* and the annual thematic journal *Osiris*.

The following people are or have been editors-in-chief: George Sarton (1913–1952), I. Bernard Cohen (1953–1958), Harry Woolf (1959–1963), Robert P. Multhauf (1964–1978), Arnold Thackray (1979–1985), Charles E. Rosenberg (1986–1988), Ronald L. Numbers (1989–1993), Margaret W. Rossiter (1994–2003), Bernard V. Lightman (2004–2014), H. Floris Cohen (2014–2019), Alexandra Hui and Matthew Lavine (2019–Present) [5].

The journal is abstracted and indexed in the following services: Arts & Humanities Citation Index, Social Sciences Citation Index, Web of Science, EBSCOhost, Scopus, General Science Index, Social Science Premium Collection etc.

***Annals of Science***. Later, in 1936 the journal *Annals of Science* covering the history of science and technology was established [6]. Its founding editor-in-chief was the Canadian historian of science Harcourt Brown. The journal was set up after he visited Britain for a year and discussed where he could publish work on the history of science with Henry Robinson of the library of the Royal Society of London. They decided that aside from the *Isis*, there were few outlets for such work, and so founded the *Annals of Science* with Douglas McKie (University College London), who was the main editor. The aim was to publish faster than *Isis* and with a focus on the modern period. The editors chose to have a bright orange cover to make it stand out against the usual blue or grey of periodicals at the time [7].

Now *Annals of Science* is a peer-reviewed academic journal publishes articles and reviews on the history of science, technology and medicine, including developments from classical antiquity to the late 20th century. It is published by Taylor & Francis. Around the time of World War II, only three volumes were published over a period of 12 years. From 1956–1958, the *Bulletin of the British Society for the History of Science* was published as part of the *Annals of Science*. In 1974, then editor Ivor Grattan-Guinness moved the journal from 4 to 6 issues per year; 100 issues were published from 1936–1969 and a further hundred by 1986. I. Grattan-Guinness also redesigned the cover and changed the tagline from «The History of Science and Technology since the Renaissance» to «The History of Science and Technology from the Thirteenth Century».

Professor of the History and Philosophy of Science at Durham University (Great Britain) David M. Knight has said that «The major event of the first phase of the development of British journals on the history of science is the founding of *Annals of Science* in 1936» [8] Professor of the History and Philosophy of Science at Seattle University (USA) Gordon L. Miller called it a «respected scholarly journal» [9]. A review in *Astrophysical Journal* from the year of the launch noted approvingly that the policy of studying the history of science from the renaissance was «liberally interpreted» to accept papers studying earlier periods [9].

Now Co-Editors of the *Annals of Science* are Jed Z. Buchwald and Mordechai Feingold (Division of the Humanities and Social Sciences, California Institute of Technology, USA). Among former editors were H. Brown (1936–1974), D. McKie (1936–1967), H. W. Robinson (1936–1960), N. H. de V. Heathcote (1952–1947), W. A. Smeaton (1960–1965), F. W. Gibbs, (1961–1965). T. I. Williams (1966–1973), R. E. W. Maddison (1966–1974), H. J. Sharlin (1969–1975), H. Kangro (1969–1972), I. Grattan-Guinness (1974–1981, book review editor until 1987), G. L. E. Turner (1981–1998), T. Levere (1999–2014), R. Iliffe (2011–2019) and D. Miller (2014–2019).

I. Grattan-Guinness described his experience in taking on the editorship in an article in the journal in 2010. He had published a biographical article on Georg Cantor in the journal in 1971. The editor V. Heathcote was overloaded with work because the journal seemed never to reject anything. He invited I. Grattan-Guinness to join the editorial board. He joined the board and met with the publishers in June 1974, when he told John Cheney, the house editor, that «the journal had acquired a poor reputation in recent years», which surprised J. Cheney. That same afternoon J. Cheney rang V. Heathcote only to find that he was in the process of writing his resignation letter recommending I. Grattan-Guinness as his successor – the younger man was immediately offered the post of editor. Taylor & Francis would otherwise have closed the journal [10].

*Annals of Science* is abstracted and indexed in: British Humanities Index, Bibliography of British and Irish History, Clarivate Analytics: Current Bibliography of the History of Science, EBSCO – Historical Abstracts, European Reference Index for the Humanities (ERIH), History of Science, Technology and Medicine Database, Publons, Scopus, Web of Science and many other bases.

***The British Journal for the History of Science*** [11] is a leading international academic journal published quarterly by Cambridge University Press in association with the British

Society for the History of Science. It was founded under its present title in 1962 but was preceded by the *Bulletin of the British Society for the History of Science* (1949–1961) which was itself founded in 1949. The journal publishes scholarly papers and reviews on all aspects of the history of science. History of science is interpreted widely to include medicine, technology and social studies of science. BJHS papers make important and lively contributions to scholarship and the journal has been an essential library resource for more than thirty years. It is also used extensively by historians and scholars in related fields. A substantial book review section is a central feature. There are four issues a year, comprising an annual volume of over 600 pages.

*JHS Themes* is a collaborative venture between the British Society for the History of Science and Cambridge University Press aimed at establishing the first fully open access journal for the history of science community. It aims to publish open access, scholarly and engaging collections of history of science papers, which address provocative themes, and which will be free for readers and offer no financial barrier to publication for authors. Like its sister publication, *British Journal for the History of Science*, *BJHS Themes* is a journal of the British Society for the History of Science, a major learned society for its subject.

The journal is Abstracting and indexing at the next services: Br. Hum.Ind., Bull.Signal., Chem.Abstr., Curr.Cont., Hist.Abstr., Hum.Ind., SSCI, Sci.Abstr., Sci.Cit.Ind., Amer. Hist. & Life, Arts & Hum.Cit.Ind., Br. Geol.Lit., GeoRef, Scopus, International Bibliography of the Social Sciences, European Reference Index for the Humanities and Social Sciences (ERIH PLUS).

The journal is currently edited by Doctor Amanda Rees, who works at York University. Previous editors of BJHS (2019-present) were Charlotte Sleight (2014–2019), Jon Agar (2009–2014), Simon Schaffer (2004–2009), Crosbie Smith (2000–2004), Janet Browne (1994–2000), John Hedley Brooke (1989–1994), David Knight (1982–1989), Nicholas W. Fisher (1977–1982), Robert Fox (1971–1977), Maurice P. Crosland (1966–1971), H. D. Anthony (1962–1966), N. H. de V. Heathcote (editor of predecessor journal, *Bulletin of the British Society for the History of Science*)

**ICON.** *ICON*, the bi-annual journal of The International Committee for the History of Technology (ICOHTEC) founded in 1995, publishes essays, research articles, research briefs, review essays and book reviews on all aspects and periods of technological history by members and non-members [12]. It devotes special attention to the discussion of contemporary problems of technology in their socio-economic and cultural settings. The journal's goal is to foster scholarship by providing timely review and circulation of ideas to an international audience.

*ICON* is available via JSTOR as well as ICOHTEC's website. Articles appearing in *ICON* are included in SCOPUS, America: History and Life, Current abstracts, Francis, Historical abstracts, PubMed, TOC premier, listed in the European Reference Index for the Humanities. Editorial office: Editor-in-Chief – Hermione Giffard, Technical University of Eindhoven, The Netherlands; Book Review Editor – Viktor Pál, University of Helsinki, Finland. Editorial Board: Hans-Joachim Braun, Jan Kunnas, Klaus Stauber, Jan Hadlaw, Tiago Saraiva, Waqar Zaidi, Artemis Yagou, Slawomir Lotysz.

*ICON* welcomes submissions of research articles of around 6,000–8,000 words; research briefs of 3,000–4,000 words; and particularly encourages submissions from authors for whom English is not their first language. Book reviews and essays are solicited. All papers are chosen by peer review, using a double-blind process, and authors will be given editorial assistance to improve clarity and vigor of written expression (especially if you are not a native English speaker).

A typical issue of the journal comprises: papers based on original research, specially invited papers on the history of technology and on interdisciplinary connections with other fields of research, book and journal reviews, evaluation of museum exhibits. ICOHTEC's principal activity has been an annual meeting, where scholars from many countries and from many disciplines gather and share their work. Papers presented at the meetings are usually published in the Committee's annual journal *ICON*.

**Conclusions and prospects.** The history of scientific periodicals as a form of research activity shows the tendency of formation of professional communities of scientists and intended to unite researchers around specific tasks. Characteristic was also the creation of journals by geographical principle – regional, continental, worldwide. Among reputable magazines from all over the world are *Isis*, *Annals of Science*, *The British Journal for the History of Science*, *ICON* etc., which were considered. Except for these journals, there are many national scientific magazines in the field of history and of science and engineering, whose activities requires further study and synthesis.

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