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Congresses of natural scientists and mathematicians in the “Bulletin of experimental physics and elementary mathematics” (1886–1917): Analysis of publications

***Abstract.** The article presents the results of a study of publications in the “Bulletin of Experimental Physics and Elementary Mathematics”, about the organization, conduct and results of domestic and foreign congresses of mathematicians and natural scientists, published in Kyiv and Odesa during 1886–1917. The magazine was an unofficial periodical printed publication of the mathematical department of the Novorossiysk Society of Naturalists. The research was conducted with the aim of carrying out a meaningful and quantitative analysis of the texts of journal publications, which highlights the materials of such meetings of scientists and teachers. The authors used scientific methods for meaningful analysis of the research subject, and in the process of quantitative analysis – text quantification, collection of empirical data, their generalization and mathematical and statistical processing. As a result of the research of the magazine’s materials on congresses of mathematicians and natural researchers during the entire period of its publication, the authors came to the following*



conclusions. The magazine's materials on conventions and congresses for all the years of its publication accounted for slightly more than 4% of its total area. All National Congresses of Natural Scientists and Mathematicians, which met during the period of publication of the journal, were covered on its pages (this is almost 2/3 of the entire volume of information in the journal about such meetings of scientists and teachers). At the same time, the methods of presenting information and its volume differed significantly in different meetings, depending on the presence of motives of both members of the editorial board. The main motives for placing information were: a) the presence of a pedagogical component in the work of meetings; b) scientific (or pedagogical) significance of reports and meeting participants; c) availability of quality materials about meetings; d) availability of magazine space. International congresses were irregularly covered by the newspaper, the motives for placing information about such meetings in the magazine were similar. Starting in 1901, the editors of the Bulletin introduced the scheme developed during the previous years of the magazine's existence into the practice of presenting materials about scientific and pedagogical congresses: a) announcement of the event; b) publication of the regulation (statute, program) of the event; c) description of preparation for the event; d) overview of the features of the event; e) presentation of the texts of important speeches. Such a scheme of presentation of meetings was introduced for the first time in popular science and educational periodicals of the Russian Empire. The pedagogical component was the most important motive for both staffs of the Bulletin editorial board when deciding on the features and scope of coverage of materials on the work of domestic and foreign congresses. The materials of Bulletin (and other similar publications of that time) covering the work of domestic and foreign congresses of teachers and researchers of nature and mathematics, which reveal the content of the educational activities of famous scientists and teachers, are an important element of the source base of biographical studies, which conducted by historians of science.

Keywords: *educational and scientific periodicals; history of meetings of scientists; teachers; substantive analysis; quantitative analysis*

Introduction.

Popular scientific and educational periodicals of the late 19th and early 20th centuries took the first steps in mass distribution in the society of that time. It was private publications that faced special difficulties in preparation, printing and distribution. Only a few of them, due to various organizational irregularities, lack of funds, censorship, weak public interest, were able to remain islands of enlightenment. Such a publication was the "Bulletin of Experimental Physics and Elementary Mathematics" (hereinafter referred to as the "Bulletin"), which was founded for young people with the aim of "knowing more than is determined by the official program" and for teachers of physics and elementary mathematics to "unite pedagogical forces" (Editorial, 1886). During the entire period of publication of the Bulletin, in addition to theoretical and practical and educational materials on elementary mathematics, natural science and experimental physics, articles on didactics and biographical studies, and the "Tasks" section, materials from the chronicle of scientific events in which domestic

and foreign natural scientists and mathematicians participated were published here – congresses, scientific congresses and conferences, meetings of scientific societies and circles. The study of this direction of Bulletin’s publications can reveal the peculiarities and results of the integration of efforts in the educational activities of natural science and mathematics of teachers and researchers of that period.

Literature Review.

Researches of the development of Bulletin as a popular science and educational publication, its influence on the formation of natural and mathematical knowledge among young people, the implementation of the function of educating teachers, as well as the study of the peculiarities of holding natural and mathematical congresses were carried out by various scientists. Among the variety of works, various reports, diaries of congresses, collections of speeches of participants of scientific and pedagogical meetings, we will single out the general characteristics of the content of the Bulletin during the entire period of its existence, which was created by S. A. Dahiya (Dahiya, 1956), software monographs by V. S. Savchuk (Savchuk, 1994), Yu. V. Pavlenko, S. P. Ruda, S. A. Khorosheva, Yu. O. Khramov (Pavlenko, Ruda, Khorosheva, & Khramov, 2001) and M. Yu. Karavanska (Karavanska, 2006). The authors also participated in the development of this issue. In work (Pasichnyk, Rizhniak, & Deforz, 2022), the peculiarities of coverage of biographical materials about famous scientists and teachers in Bulletin were studied using descriptive and quantitative methods.

In this scientific investigation, we will use the listed developments and conduct an analysis of the publication in the Bulletin of the content of materials about domestic and foreign congresses of mathematicians and natural scientists.

Research Methods.

When organizing the research, the analysis of publication information and the synthesis of logical references and conclusions, as well as the generalization of the facts presented in the publications and the systematization of descriptions of scientific events were used for the meaningful analysis of its subject. Quantification of text, collection of empirical data, their generalization and mathematical and statistical processing were used in the process of quantitative analysis (Atteslander, 2003; Früh, 2003). At the stage of text quantification, the magazine issues were used as a unit of content, which were combined by the years of publication, and as a unit of account – the number of pages in a specific issue, on which the features of congresses of natural scientists and mathematicians were revealed (parts of the volume of pages were determined from the ratio of occupied space on the page).

Results.

Bulletin was one of the most authoritative journals among teachers and teachers of mathematics and physics in the late 19th and early 20th centuries, not only in the territory of modern Ukraine, but also in the territory of the entire Russian Empire. Since its foundation in 1886, the magazine was edited by *E. K. Shpachinskyi* (see (Pasichnyk, Rizhniak, & Deforz, 2022) for more details on the features of the magazine’s

foundation). In 1891, the editorial office moved to Odesa, and the fate of the Bulletin was connected with the members of the mathematical department of the Novorossiysk Society of Naturalists and the teachers of the Novorossiysk (Odesa) University (Pasichnyk, Rizhniak, & Deforz, 2022; Dahiya, 1956). Editing of the magazine after the retirement of *E. K. Shpachynskyi* since 1898 (after a short stay as the chief editor of Professor *V. Ya. Zimmerman*) and until the termination of its publication, private docent *V. F. Kagan*, and the publisher of the magazine during 1897–1917 (from No. 259) was *V. O. Gernet*. According to the changes in the editorship, historians divide the magazine’s existence into two periods: 1886–1897 and 1898–1917 (Pasichnyk, Rizhniak, & Deforz, 2022). Active contributors and members of the journal’s informal editorial staff were scientists from Kyiv, Kharkiv and Odesa: *S. M. Bernshtein*, *E. L. Bunytskyi*, *V. F. Kagan*, *D. M. Syntsov*, *I. Yu. Tymchenko*, *I. V. Sleshinsky*, *S. O. Shatunovskyi*, *V. Ya. Zimmerman* and others.

During the years 1886–1917, the editorial office published 674 issues of the magazine in 627 books with a total volume of 16,066 units of area (further on in the text – u.a.). The materials of the chronicle of scientific events were published in 232 books of the journal and accounted for slightly more than 8% (1.286 u.a.) of its total volume. Materials on congresses of naturalists and mathematicians occupied more than half of the coverage of scientific events in the magazine (in 110 books, 685.9 u.a.). The general distribution of the volume of magazine materials with reports on congresses of teachers and scientists by year is shown in fig. 1 (note that the journal did not publish materials about the specified forums in 1887, 1891–1893, and 1906; in 1899, the journal was not published).

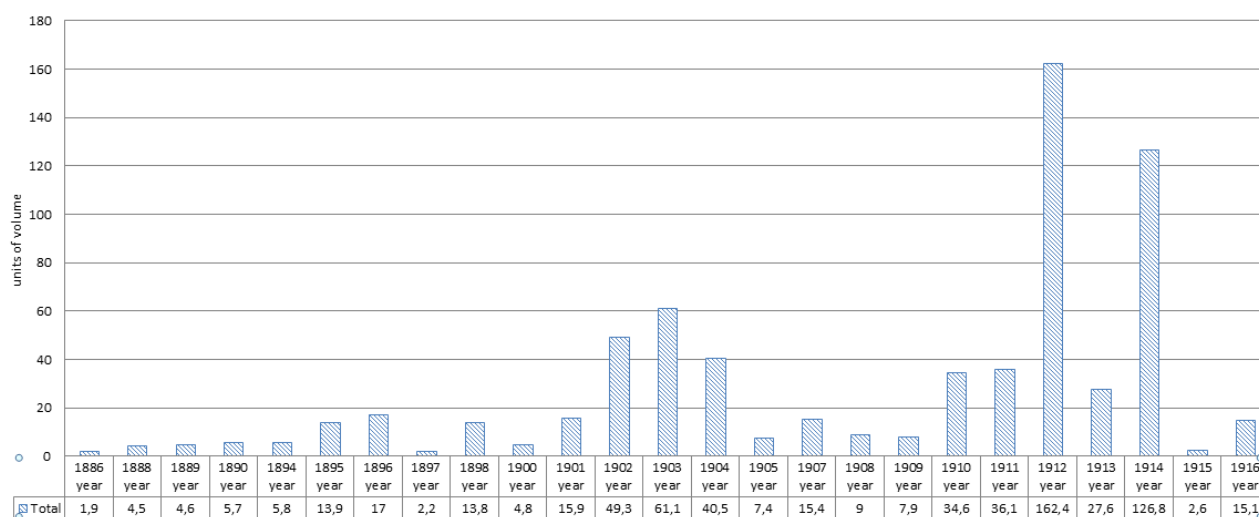


Figure 1. Distribution of volumes of Bulletin materials with information on congresses by year (Source: compiled by the authors).

The Bulletin covered the course of preparation and holding of congresses of teachers and scientists according to their organizational features:

A) national congresses of teachers of natural sciences and mathematics – the I Congress of 1889, the II Congress of 1895, the III Congress of 1903 of technical and professional education workers; The I Warsaw Congress of 1902 teachers of Physics

and Mathematics, the III Kyiv Congress of 1903 teachers of natural sciences, the I Congress of 1911, the II Congress of 1913 teachers of Mathematics; The I Congress of 1913 of teachers of Physics, Chemistry and Cosmography.

B) national congresses of naturalists – the VIII Congress of 1890, the IX Congress of 1894, the X Congress of 1898, the XI Congress of 1901, the XII Congress of 1910, the XIII Congress of 1913 of naturalists (and doctors); I Mendeleev’s in 1907, II Mendeleev’s in 1911 Congresses on general and applied chemistry.

C) international congresses of naturalists – LIX (1886) and LXXXVI (1916) Congresses of the British Association, LVI (1886), LXII (1889), LXVII (1895), LXXIII (1901), LXXIV (1902), LXXV (1903) and LXXXII (1910) Congresses of German Naturalists and Physicians, I (1902) Northern Congress of Naturalists and Physicians in Helsingfors, V (1912) Congress of the Italian Aid Society progress of science, Congress (1913) of naturalists in Vienna, Neperivsky (1914) Congress in Edinburgh.

D) international congresses – I (1905) Congress on Radiology and Ionization, I (1900) Paris Physical Congress, I (1897), II (1900), III (1904), IV (1908), V (1912) Mathematical Congresses, the Berlin (1903) Congress of Applied Chemistry, I (1914) Congress of the Philosophy of Mathematics.

The general distribution of the volume of materials of the magazine with publications on the holding of congresses of teachers and scientists by organizational features is shown in fig. 2.

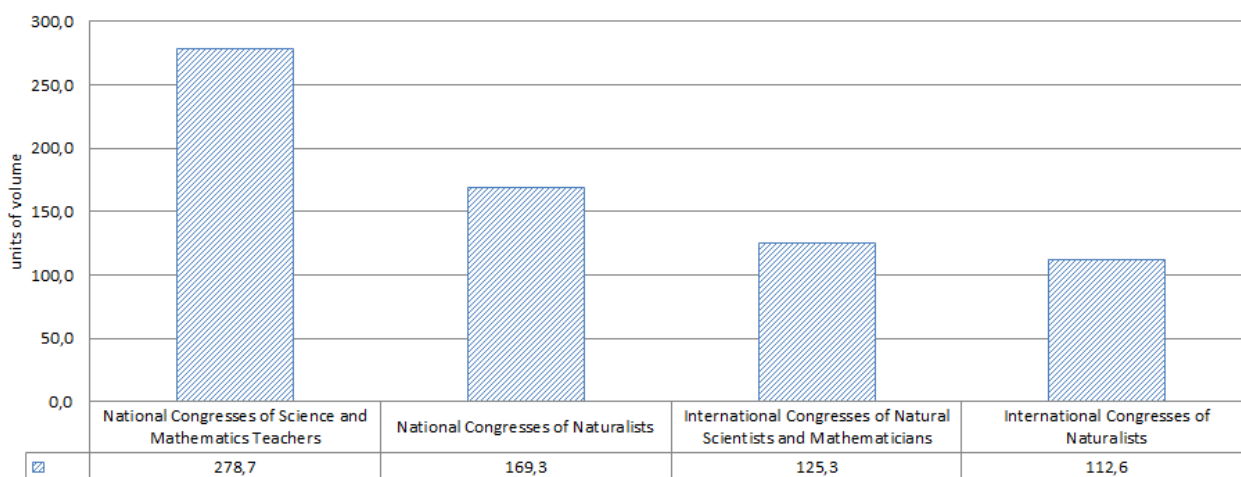


Figure 2. Distribution of volumes of Bulletin materials with information on Congresses by their organizational features (Source: compiled by the authors).

The features of submitting materials about the scientific events defined above are detailed as follows: information submission algorithm, volumes of information, contextual analysis of the disclosure of the content of the event. For compact placement of part of the information, we will use Table 1.

Table 1. Scheme of coverage by the Bulletin of Congresses of Domestic Natural Scientists and Mathematicians and Teachers (Source: compiled by the Author's).

Congress number, place of departure, date of departure	Announcement of intentions, No. (amount in u.a.)	Regulation (rules), No. (amount in u.a.)	Preparation materials, No. (volume in u.a.)	Results reports, No. (amount in u.a.)	Publication of marked presentations, No. (volume in u.a.)	The total volume of publications (u.a.)
1. Congresses of National Figures of Technical and Professional Education						
I, St.P., 26.12.1889– 03.01.1890	№ 79 (0,8)	Is not published	Is not published	Is not published	Is not published	0,8
II, Moscow, 28.12.1895– 05.01.1896	Is not published	Is not published	Is not published	№ 232, 233 (12,4)	Is not published	12,4
III, St.P., 26.12.1903– 06.01.1904	Is not published	№ 352 (2,7)	№ 352 (1,3)	Is not published	Is not published	4,0
2. Warsaw Congress of Physics and Mathematics Teachers						
I, Warsaw, 27.12.1902– 30.12.1902	Is not published	Is not published	Is not published	№ 337 (6,4); 344, 345, 346 (19,7)	Is not published	26,1
3. Kyiv Congress of Teachers of Natural Sciences						
III, Kyiv, 28.12.1904– 31.12.1904	№ 359 (0,8)	№ 359 (1,2)	№ 381 (2,7)	Is not published	№ 385 (7,4)	12,1
4. Congresses of National Teachers of Mathematics						
I, St.P., 27.12.1911– 03.01.1912	№ 537 (1,9); 543 (0,4)	№ 538 (1,3)	№ 547 (5,0); 548 (0,8)	№ 553, 554, 556 (16,0)	№ 555 (5,0); 556 (7,3); 559 (7,2); 563-564 (9,4); 565 (9,6); 567 (5,8); 570, 572-573 (19,7)	89,4
II, Moscow, 27.12.1913– 03.01.1914	№ 580 (1,0)	№ 580 (0,9)	№ 592 (1,4); 595 (5,4); 604 (0,3)	№ 601 (0,5); 602 (1,7); 603 (10,9)	Is not published	22,1
5. Congress of National Teachers of Physics, Chemistry and Cosmography						
I, St.P., 27.12.1913– 06.01.1914	№ 576 (0,6)	№ 576 (0,5)	№ 594 (3,7)	№ 601 (0,6); 602, 605-606, 608, 609 (33,4)	№ 604, 605-606 (37,4); 607, 608 (29,1)	105,3
6. Congresses of National Natural Scientists and Doctors						
VIII, St.P., 28.12.1889– 07.01.1890	№ 40 (4,5); № 65 (0,1); № 73 (0,5)	№ 69 (2,8)	Is not published	№ 85, 87, 89 (5,0), № 86 (0,7)	Is not published	13,6
IX, Moscow, 04.01.1894– 11.01.1894	Is not published	Is not published	Is not published	№ 181 (0,2), № 183, 188 (5,6)	Is not published	5,8
X, Kyiv, 21.08.1898– 30.08.1898	№ 244 (0,1); № 255 (2,2)	№ 244 (4,5); № 265 (1,5)	№ 265 (12,3)	Is not published	Is not published	20,6
XI, St.P., 20.12.1901– 30.12.1901	№ 291 (0,6)	№ 291 (1,7); № 309 (1,9)	№ 310 (0,9)	№ 312 (2,0); № 313, 314 (12,5); № 315 (4,6); № 317 (7); № 319 (4,0)	№ 321 (14,4)	49,6
XII, Moscow, 28.12.1909– 06.01.1910	№ 490 (1,2)	№ 499 (1,5)	№ 499 (0,5)	№ 503–504 (0,3); № 505, 506 (16,9); № 508 (13,9);	№ 515 (4)	38,1
XIII, Tiflis, 16.06.1913– 24.06.1913	Is not published	Is not published	Is not published	№ 591 (6,2)	Is not published	6,2
7. Mendeleev Congresses of General and Applied Chemistry						
I, St.P., 20.12.1907– 30.12.1907	№ 445 (0,4)	№ 445 (0,8)	Is not published	Is not published	Is not published	1,2
II, St.P., 21.12.1911– 28.12.1911	№ 539 (0,8)	Is not published	№ 548 (0,7)	№ 553, 555 (23,3)	№ 576 (6,4)	34,2

The features of the Bulletin's coverage of the work of the first three congresses of national figures of technical and professional education were not characterized by regularity and systematicity (Table 1, Item 1). Before the I Congress, the editors published only an announcement in No. 79. Information about the II Congress was presented by the Bulletin in the form of "A Brief Report on the Activities of the 2nd Section (Section of Real Schools)..." (Mai, 1896a, 1896b) (author – from Odessa *K. V. Mai*). But qualitatively, the report did not look "short", as it contained a wide overview of both the reports at the general meetings of the congress and a detailed analysis of sectional reports on the problems of the structure of the educational process organization of real schools and the provision of textbooks and manuals, teacher training, curricula and programs individual disciplines, features of current and final assessment of students. The Bulletin's report on the III Congress was limited to the publication of the rules, program, features of the organization and composition of the congress committee. It should be noted that the congress was held in St. Petersburg, although according to the decisions of the II Congress it was supposed to meet in Odesa. And the congress committee consisted of St. Petersburg officials and functionaries and did not include a single representative from educators.

The I Warsaw Congress of Teachers of Physics and Mathematics was presented by Bulletin in the January issue of the magazine (Table 1, Item 2) with an editorial description of the work of the congress (with detailed hourly annotations of the speeches of the meeting participants), as well as the text of the speech by *E. K. Shpachinskyi* "On the question of the basic principles of electrostatics" (Shpachinskyi, 1903a, 1903b, 1903c).

Covering the work of the III Kyiv Congress of Natural Sciences Teachers was the magazine's first step towards using the future scheme of describing educational meetings. In the December issue of 1903 (Table 1, Item 3), the Bulletin contained an announcement about the congress and its program, later a description of the preparations for the congress and a questionnaire for the participants of the meeting (No. 381). And although a complete description of the events at the congress was not published, the speech (welcoming speech) of Professor *G. G. De-Metz* (De-Metz, 1905) basically made it possible to imagine the atmosphere among the participants and predict the main decisions of the congress. In his speech, the speaker mentioned the success of the first two Kyiv Congresses (1861 and 1862 – the first such Congresses in the History of the Russian Empire), which were inspired by Professor *K. F. Kessler*, and expressed confidence in the effectiveness of the hard work of the participants of the meeting regarding the creation of the secondary school reform project and the establishment of museums and natural science offices in schools.

The announcement of the First Congress of Mathematics Teachers appeared in Bulletin in May 1911 (No. 537, Table 1, Item 4). The draft regulation on the First Congress was already printed in the next issue of Bulletin. The project included the work of the congress in 8 directions: 1) psychological foundations of Mathematics learning, 2) content of the school Mathematics Course, 3) coordination of the high school Mathematics Program with the programs of higher and lower schools, 4) methodological issues, 5) textbooks and study materials, 6) historical and

philosophical elements in the high school Mathematics Course, 7) aids for teaching Mathematics, 8) teachers' training. In the next message (October 1911, No. 547), the contents of the preparatory work were highlighted: the definition of the organizing committee (the organizing committee included professor *D. M. Syntsov* from Kharkiv, *S. I. Shokhor-Trotsky*, a native of Kamianets-Podilskyi, and private associate professor *V. F. Kagan*) and the bureau of the congress, planning of reports and those responsible for the preparation of short reviews on individual issues of the program, which would establish the main motives for the "leading" reports (*S. I. Shokhor-Trotsky* was chosen as the person responsible for direction "1", "2" – *V. F. Garnet* and *S. O. Shatunovskiy* from Odesa, "3" – *D. M. Syntsov*, "7" – *V. F. Kagan*, "8" – *S. I. Shokhor-Trotsky*). Already in the January-February issues of Bulletin for 1912, a general review of *V. F. Kagan* (Kagan, 1912a) features of the congress according to the following scheme: a) organization; b) reports; c) reviews of participants; d) congress resolutions; e) review of resolutions. The author of the post summarized that the following were the main pedagogical ideas of the congress: the movement towards reform according to Klein's program, the implementation of experimental psychology trends, the practical direction according to Perry's English program, the logical direction according to the program of Italian geometers. The next stage of coverage of the congress was the publication of the most significant speeches of the congress participants: professor *K. O. Posse* (Posse, 1912), professor *V. B. Struve* (Struve, 1912), private associate professor *S. M. Bernshtein* (Bernshtein, 1912), professor *D. M. Syntsov* (Syntsov, 1912a), private associate professor *V. F. Kagan* (Kagan, 1912a, 1912b, 1912c, 1912d, 1912e, 1912f), *I. I. Chistyakov* (Chistyakov, 1912). Thus, the scheme of the Bulletin's coverage of the work of the First Congress of Mathematics Teachers was as follows: a) announcement of intentions; b) publication of the regulation (or its draft) on the convention; c) description of preparations for the organization of the congress; d) an overview of the features of the congress; e) publication of significant and important speeches of the congress participants (Table 1, Item 4).

Information about the II Congress of Mathematics teachers appeared in Bulletin in February 1913 (Table 1, Item 4). In the same issue, the regulation on the II Congress was published. It should be noted that compared to the provisions of the First Congress, the number of directions has changed – there are 5: 1) scientific questions of elementary mathematics (new); 2) teaching methods in educational institutions of various types, mainly secondary schools; 3) teaching of mathematical sciences (new); 4) methods of teaching mathematics and related sciences, methods of testing students' knowledge (new); 5) training of mathematics teachers. In the summer issue of 1913, the course of preparatory work for the organization of the congress was covered. And the November 595th issue of Bulletin contained a thorough review by *V. Kagan* (Kagan, 1913) of the problems facing the organizing committee of the congress in the context of implementing the resolution of the previous congress and preparing for the effective holding of the current one. The coverage of the features of the II Congress began with a short message by *D. Syntsov* (No. 601), continued with the coverage of the resolution of the congress (No. 602), and ended with a detailed review by

D. Syntsov of the reports of the participants of the congress according to the scheme: a) general meetings; b) joint meetings; c) meeting of sections (Syntsov, 1914). It should be noted that the scheme of the Bulletin's coverage of the work of the II Congress of Mathematics teachers differed from the previous congress by the lack of publication of the most important reports.

The III Congress of Mathematics Teachers was to be held in Kharkiv in the winter of 1917–1918. Bulletin's editors applied the tried-and-tested scheme of its presentation. The first message about the congress was published in May 1915 (No. 630, volume – 2.3 u.a.), the second message (beginning of 1916, No. 652, volume – 2.5 u.a.) highlighted directions, around which discussions will be organized: a) general basics of the mathematics course in high school; b) the structure of various sections of mathematics in secondary school; c) teacher training; d) knowledge test; e) the issue of teaching mathematics. In the third message (November 1916, No. 669–670, volume – 1.4 u.a) the work plan of the organizing committee of the congress was published. However, due to the revolutionary events of 1917, the III Congress of Mathematics Teachers was not destined to take place.

The Bulletin's coverage of the First Congress of Physics, Chemistry, and Cosmography Teachers took place according to the scenario of the First Congress of Mathematics Teachers (Table 1, Item 5). In the December 1912 issue of the magazine, announcements about the congress, its provisions and program were presented. In the October issue of 1913, there was information about the preparatory work carried out by the organizing committee (premises for the congress, distribution of commissions, planning of reports; invitations to participate in the congress were sent, including, to scientists and teachers from Kyiv, Odesa, Kharkiv, Poltava and Mykolaiv). Immediately after the end of the congress, Bulletin published two articles by I. Haber in several issues – a short report on the congress (No. 601) and a detailed description of all events (Gaber, 1914a, 1914b, 1914c, 1914d). In the detailed description, the content of the work of the congress was disclosed in the following sections: a) history of the congress; b) organization of the convention; c) general meetings; d) questionnaire; e) practical classes of students; e) teacher training; g) exhibition and excursions; g) final meeting and resolution of the congress; h) conclusion and wishes adopted by the general meeting and individual sections. The Bulletin editorial office also published some significant and important speeches of the participants of the congress: academician *P. I. Walden* “On the influence of physics on the development of Chemistry” (Walden, 1914a, 1914b) and professor *M. O. Umov* “Evolution of physical sciences and their ideological significance” (Umov, 1914a, 1914b).

The VIII Congress of National Natural Scientists (and Doctors) in 1890 became the first congress for this direction, the progress of which was covered by the Bulletin (the first 7 Congresses took place before the journal was founded). The presentation of the congress was preceded by an article by the editor *E. K. Shpachinskyi* (Shpachinskyi, 1888), which contained a critical assessment of the previous congresses of naturalists (lack of discussion of real problems of educational activity, exclusion of the pedagogic section from the program at the III Congress in Kyiv in 1871, neglect of serious preparations for the congress). The author expressed hope that the

VIII Congress, which was planned to be held in Kharkov in 1888, would become an effective platform for discussing the problems of teaching natural sciences and mathematics. However, the author's hopes were not fulfilled – firstly, the congress was postponed to the end of 1889 – the beginning of 1890 to St. Petersburg; secondly, the pedagogical section was created only in 1913 at the XIII Congress in Tiflis. The Bulletin's reports on the progress of the VIII Congress were limited only to short abstracts of the speeches that were announced at the meetings of the physical section, and information about the implementation of the decisions of the congress regarding the printing of its materials and the establishment of the journal "Bulletin of Natural Science" (Table 1, Item 6).

Reports on the progress of the IX Congress of natural scientists (and doctors) contained an overview of the general meetings of the Congress (on January 4, 1894, professors of Biology *K. A. Timiryazev*, *I. M. Sechenov*, *S. M. Vinogradskyi* and professor-physicist *M. O. Umov*; on 11.01.1894, academician, physic-chemist *M. M. Beketov* spoke at the general meeting), as well as brief annotations of the speeches of the participants of the Congress at the combined sections – agronomy and agriculture; natural sciences, anthropology and ethnography; physics, mathematics and chemistry; agronomy, mineralogy and geology (Table 1, Item 6). By tradition, the Bulletin presented a detailed review of the meetings of the physics section. However, the last review of the Congress's events contained the post "to be continued", although the magazine did not provide a continuation of the review.

Bulletin did not publish reports on the X Congress, which was held in Kyiv on the basis of St. Volodymyr University (Table 1, Item 6). But we can infer the events at the Congress from the detailed schedule of meetings and all the events prepared by the organizers. Professor-chemist spoke at the opening of the Congress (1st meeting) *D. I. Mendeleev* and professor-mathematician *M. V. Bugayev*, and at the 2nd general meeting of the congress – the creator of aerodynamics *M. E. Zhukovsky* and academician *M. M. Beketov*. Congress participants had the opportunity to attend meetings of 14 sections – agronomy, anatomy, physiology, botany, statistics, hygiene, zoology, mathematics, mechanics, etc. A special feature of the congress was the continuation of the competition to receive professor Kessler's prizes for the best essay on the description of the Crimean Peninsula in a geographical, zoological, botanical and medical sense, as well as the announcement of a new competition (sponsored by the Odesa resident – Privy Councilor *H. G. Marazli*) to receive two prizes of 500 rubles per problem, one of which was related to the study of the geology of Odesa and its surroundings, and the second to the study of the impact of Zemstvo institutions on improving the health of the population of Odesa, Mykolaiv Oblast, Kherson Oblast, and Crimea.

The work progress of the XI Congress was covered in sufficient detail by the Bulletin (Table 1, Item 6). It was to cover the events of this congress in 1901 that the Bulletin used the following scheme for the first time in its entirety: *announcement – publication of the regulations (statute) – description of preparation – overview of the specifics of the event – publication of significant and important speeches*. Among the most important reports at the general meetings, we note the speeches of professor

M. O. Umov “Physico-mathematical model of living matter”, *I. P. Pavlov* “On natural-scientific research of mental phenomena” and professor *D. O. Goldhammer* “Century of Physics” (exactly the text of the last speech was printed in No. 321 of Bulletin as one of the landmark reports at the Congress (Goldhammer, 1902). From the materials of the reports in the 13 sections of the congress, the Bulletin printed detailed reports on the work of 3: sections of pure mathematics and mechanics (Kagan, 1902a, 1902b) (author – private associate professor *V. Kagan*), physics section (Weinberg, 1902) (author – private associate professor *B. Weinberg*) and sections of meteorology and geophysics (Danilov, 1902) (author – private associate professor *L. Danilov*). In issue 319, the editors placed information on the creation and approval of the statute of the Association of Naturalists and Doctors at the XI Congress.

The XII Congress was covered by the Bulletin using the already “developed” editorial scheme (Table 1, Item 6). In the reports on the work of the Congress, the magazine limited itself to a detailed coverage of the work of two sections – the physics section (Iollos, 1910a, 1910b) and the pure mathematics section (Syntsov, 1910) (author professor *D. Syntsov*). As the most significant report, the Bulletin in No. 515 published the text of the speech of the historian of mathematics, private associate professor *V. Bobynin* “Natural and artificial ways of restoration of ancient proofs and conclusions by historians of mathematics” (*Bobynin*, 1910). Another text of the speech (*S. Vinogradov* “Development of the concept of number in its history and at school”) was printed by Bulletin as a report that was read at a meeting of the Moscow Mathematical Circle (Vinogradov, 1910).

The magazine published a report on the work of only certain sections of the XIII Congress in Tiflis (Table 1, Item 6). The Bulletin noted the most important feature of the meeting, which was the appearance of a section on pedagogical issues. As a result, a detailed analysis of reports on Mathematics and the peculiarities of teaching Mathematics and natural sciences appeared in the journal (Syntsov, 1913) (author professor *D. Syntsov*). These two sections were the most numerous and active at the congress. The new section of pedagogic issues consisted of two departments – physical-mathematical and natural-historical. In addition, the organizers of the Congress organized, among other events, a pedagogical exhibition for the first time. At the Congress, it was decided to hold the next meeting in 1916 in Kharkiv. But the XIV Congress of Naturalists and Doctors was never destined to take place.

According to a similar scheme, Bulletin revealed the features of the II Mendeleev Congress on General and Applied Chemistry (Table 1, Item 7). About the First Congress, only the announcement, regulations and a short program of the meeting were published in the magazine. The report on the results of the work of the II Congress was presented in the article by *M. Jacobson* (Jacobson, 1912), in which the author provided a detailed overview of all events and a summary of the reports that were presented at the meeting. The author divided the analysis of the speeches of the speakers into two parts: reports revealing the results of fundamental research in the field of Physics and Chemistry; reports on teaching Physics and Chemistry. The author paid special attention to the popularity at that time of the question of the principle of relativity (namely, its different interpretations by *Albert Einstein* and *Walter Ritz*), which was

presented in the speeches of *M. Umov*, *D. Goldhammer*, and *P. Ehrenfest*. Among the pedagogical reports, the author deleted the “Report of the Didactic Commission at the Physical Department of the Russian Physical and Chemical Society” (Editorial, 1912), which was later printed. The method of work of the didactic commission was the development of a Physics course program for secondary educational institutions. Another special feature of the presentation of material about the congress was the placement in the journal of the abstracts of the speeches of the authors of the pedagogical reports.

International congresses of scientists and teachers were covered by the Bulletin in the form of messages of various volumes or by placing the texts of the most significant reports on the pages of the magazine which are presented in Table 2.

In the Bulletin, attention is paid to only two Congresses of the British Association of Naturalists (Table 2, Item 1). The Congress of 1886 (No. 6 of the magazine) was marked by the speech of professor *George Darwin* (son of *Charles Robert Darwin*) with a report on the antiquity of the earth from an astronomical point of view, as well as the speeches of physicist professors *William Thomson (Baron Kelvin)* (theoretical studies of waves in water) and *A. U. Ricker* (study of interference of light in soap bubbles). And in number 652 of the magazine, the text of the speech at the 1916 Congress of the president of the British Astronomical Association, *F. W. Dyson* (Editorial, 1916) with a review of recent astronomical research.

More attention of the journal was paid to the congresses of German naturalists and doctors (Table 2, Item 2), which were held regularly. However, information about not all congresses was published in the Bulletin. A short report on the LIX Congress was already published in the 12th issue of the magazine with the aim of pointing out the main difference between the domestic and German congresses – the participants of the gatherings of German naturalists paid great attention to the discussion of the teaching of Natural Sciences and Mathematics (the authorship of the message probably belonged to *E. K. Shpachinskyi*). The report on the LXII Congress contained information on the radical reform of congresses in the context of streamlining their work in Germany. The author *Sh.* (probably *E. K. Shpachinskyi* again) expressed his regret that “our congresses ... will have to wait for such an arrangement for a long time”. Information about the LXVII Congress compared to the previous ones more fully described the features of this meeting – the note contained short annotations of speeches in the sections of mathematics and astronomy, physics and meteorology, chemistry, instruments. The author *V.H.* of the material is noted as the most interesting reports those prepared by the German Association of Mathematicians and the German Botanical Society. A feature of informing about the events at the LXVII Congress was the publication of a translation of professor *Wilhelm Friedrich Ostwald's* speech “Victory over Scientific Materialism” (Editorial, 1895a; 1895b), which caused a wave of discussion and criticism from scientists – *Marie Alfred Cornu* and *Louis Marcel Brillouin* from France, *Ludwig Eduard Boltzmann* from Austria and *Max Karl Ernst Ludwig Planck* from Germany, *George Francis Fitzgerald* from Ireland (Fitzgerald, 1896).

Table 2. Scheme of coverage by the Bulletin of Congresses of International Natural Scientists and Mathematicians (Source: compiled by the authors).

Congress number, venue, date of event	Publication of information about the congress, No. (volume in u.a.)	Publication of landmark performances, No. (volume in u.a.)	The total volume of publications (u.a.)
1. Congresses of the British Association of Naturalists			
LVI, Birmingham , 1886	№ 6 (1,1)	Is not published	1,1
LXXXVI, Manchester, 1916	Is not published	№ 652 (11,2)	11,2
2. Congresses of German Naturalists and Doctors			
LXI, Berlin, September 1886	№ 12 (0,8)	Is not published	0,8
LXII, Heidelberg, September 1889	№ 79 (0,4)	Is not published	0,4
LXVII, Lubeck, 16.09.1895-21.09.1895	№ 221 (1,4)	№ 227, 228 (12,5)	13,9
LXXIII, Hamburg, 22.09.1901-28.09.1901	№ 303 (0,3), 309 (0,1)	Is not published	0,4
LXXIV, Carlsbad, 22.09.1902-27.09.1902	Is not published	№ 332 (3,1)	3,1
LXXV, Kassel, 21.09.1903-26.09.1903	№ 350 (0,6)	№ 356, 357 (13,6), 370, 371 (11,5)	25,7
LXXXII, Koenigsberg, September 1910	Is not published	№ 534, 535 (24,6)	24,6
3. International Mathematical Congresses			
I, Zurich, 1897	Is not published	Is not published	0
II, Paris, 06.08.1900-12.08.1900	№ 291 (7,4)	№ 342, 343 (13,7)	21,1
III, Heidelberg, 08.08.1904-15.08.1904	№ 349 (1,1); 368 (3,8); 378 (7,0)	Is not published	11,9
IV, Rome, 06.04.1908-11.04.1908	№ 436 (1,0); 454 (2,4); 460 (9,0)	№ 488 (4,4)	16,8
V, Cambridge, 21.08.1912-28.08.1912	№ 543 (0,6); 560 (1,7); 569 (8,0)	№ 570, 572–573 (19,2); 581 (6,0)	35,5
4. International Physics Congress			
I, Paris, 1900	№ 283 (4,8); 289 (0,9)	Is not published	5,7
5. Northern Congress of Naturalists and Doctors			
I, Helsingfors, 24.06.1902-29.06.1902	№ 326 (3,7)	Is not published	3,7
6. International Congress of Applied Chemistry			
V, Berlin, June 1903	№ 303 (0,1)	№ 365, 366 (15,5)	15,6
7. International Congress on Radiology and Ionization			
I, Liège, 12.09.1905-14.09.1905	№443–444 (10,8)	Is not published	10,8
8. Congress of the Italian Society for the Advancement of Science			
V, 1912	Is not published	№ 570, 571 (19,7)	19,7
9. Vienna Congress of Naturalists			
Vienna, 1913	Is not published	№ 596 (3,0)	3,0
10. Congress on the Philosophy of Mathematics			
I, Paris, 06.04.1914-08.04.1914	№ 617 (7,9)	Is not published	7,9
11. Neperiv Congress			
Edinburgh, 11.07.1914-14.07.1914	№ 614–615 (5,0)	Is not published	5,0

The LXXIV Congress of German nature researchers and doctors was presented by Bulletin with a report on a topical topic at the time – electrical engineer *O. V. Miller* presented the abstract “Forces of nature at the service of electrical engineering”. The next, LXXV Congress, in addition to a brief report on the main events and speakers of the general meeting, was presented by the Bulletin with two reports – professor *William Ramsay* (Scotland) “On the periodic system of elements” (Ramsay, 1903a; 1903b) and professor *Karl Schwarzschild* (Göttingen) “On celestial mechanics” (Schwarzschild, 1904a, 1904b). And the speech of professor *Jonathan Zennek* “Utilization of atmospheric nitrogen with the help of a voltaic arc” (Zennek, 1911) (the author substantiated the solution to the practical problem of artificial production of saltpeter) became, according to the editors of Bulletin, a landmark for the LXXXII Congress of German natural researchers and doctors.

The first unsuccessful attempt to organize the International Mathematical Congress was in 1893, when the World Exhibition was held in Chicago (Syntsov, 1900). Only in 1897 in Zurich, the world mathematical community, with the active support of the German Association of Mathematicians, managed to jointly hold the first ever official meeting. The Bulletin did not cover the work of this Congress – mentions of its holding are contained in regular reports of professor *D. Syntsov* on subsequent congresses (see, for example, (Syntsov, 1900, 1908, 1912b). And already the II (Paris) Congress, which was held during the World Exhibition of 1900, the magazine paid significant attention (Table 2, Item 3). Professor *D. Syntsov*'s extensive material with a professional analysis of the speeches of the participants and the main events of the Congress revealed in detail the course of his work. The author of the article noted two important events at the Congress: *David Hilbert*'s future famous speech “On the future problems of mathematics” (23 important mathematical problems were formulated here, the solution of which, according to *D. Hilbert*, would contribute to the further development of mathematics) and professor *Henri Poincare* “The role of Intuition and Logic in Mathematics” (Editorial, 1903a, 1903b) (it was this speech that was printed in the journal as the text of one of the important reports of the Congress). The III International Mathematical Congress was organized by the German Association of Mathematicians in Heidelberg and was announced in summer and winter issues of the Bulletin. A detailed report (Editorial, 1904a) on the progress of the Congress contained emphasis on 3 of its features: 1) celebration of the 100th anniversary of the German physicist *Moritz Hermann von Jacobi*; 2) speech by *David Hilbert* with the report “Mathematical problems”; 3) presentation of the first volume of the “Encyclopedia of Mathematical Sciences” by professor *Felix Christian Klein* of Göttingen University. We should note one more feature of the congress, namely the participation in its work of the Ukrainian mathematician *H. F. Voronoi*. The IV Congress took place in Rome and was organized by the Roman Academy of Sciences at the University of Rome. Information about the meeting was presented by the Bulletin editors in the form of an analytical report by professor *D. Syntsov* (Syntsov, 1908), as well as the text of professor *John Perry*'s speech “Teaching Mathematics in connection with the teaching of natural sciences” (Perry, 1909) (the speaker proposed to build the teaching of Mathematics according to the scheme – from natural models to

Mathematics; the discussion of the report by the participants of the meeting was reduced to remarks about the individuality of learning mathematical material and the existence of another path – from Mathematics to the application of mathematical models in natural science). Information about the V International Mathematical Congress in Cambridge is presented by the Bulletin in the most comprehensive manner compared to the previous ones. In the summer issue of 1911, the magazine published an announcement about the meeting, in the spring of 1912 – an expanded schedule of work, and in one of the first autumn issues – a detailed report by professor *D. M. Syntsov* on the content of the speeches, the decisions of the congress and all stages of the implementation of its program (Syntsov, 1912b). In addition, as the most significant speeches, the editors published the texts of the report of professor *D. E. Smith* to the International Commission for Teaching Mathematics “Intuition and Experience in Teaching Mathematics in Secondary School” (Smith, 1912a, 1912b) and the report of professor *A. N. Whitehead* “Fundamentals of mathematics and elementary education” (Whitehead, 1913). A feature of the congress was a speech by the president of the Cambridge Philosophical Society, *George Darwin*, dedicated to the memory of the mathematician *Henri Poincare*. In addition to this speech, the increased attention of the meeting participants was focused on the report of the German mathematician and physicist *Carl David Tolme Runge* “Mathematical education of physicists at the university” (the speaker’s idea was that professors of Mathematics should understand the problems and needs of Physics).

The First International Physics Congress (as well as the II Mathematical Congress) was held as part of the World Exhibition in Paris in 1900. Immediately after the end of the meeting, the Bulletin presented information about the congress with an overview of the events of private docent *B. P. Weinberg* (Weinberg, 1900). The author gave short summaries of the speeches of the Congress participants and paid special attention to the significant events: 1) prompt publication of the Congress proceedings; 2) speech by *Henri Poincare* “Relation between experimental and mathematical physics”; 3) experiments with radioactive substances by *Antoine Henri Becquerel* and spouses *Marie Curie* and *Pierre Curie*. We note the participation in the work of the congress of professors *G. G. De-Metz* (Kyiv), *M. D. Pilchikova* and *F. N. Shvedova* (Odesa).

The First Northern Congress of Naturalists and Doctors in 1902, the progress of which was covered by Bulletin in a report with brief abstracts of the speeches and features of its organization, united scientists from Denmark, Norway, Sweden, Finland, and Russia (Table 2, Item 5). The Congress was hosted by Alexander University in Helsingfors.

The V Congress of Applied Chemistry, held in 1904 in Berlin (Table 2, Item 6), was documented in the Bulletin with the text of a speech by William Crookes, a member of the Royal Society of London, “The Modern Theory of Matter” (Editorial, 1904b; 1904c), in which the speaker attempted to substantiate the electronic nature of matter.

The course of work of the First International Congress on Radiology and Ionization (Table 2, Item 7) is covered by Bulletin in an abstract by *D. I. Fefelov*

(Fefelov, 1907), which contained an annotated overview of the congress participants' speeches. The author classified the materials of the congress according to the specialty of scientists who showed interest in radiology issues: Physics section – dielectric conductivity and electrification of bodies under the influence of radioactivity, X-rays, spectral analysis, nature of radioactivity; section of biology – methods of quantitative and qualitative metroradiography, use of X-rays and radium in medicine, the influence of radiation on the living organism. The author paid special attention to *Antoine Henri Becquerel's* speech “Analysis of radiation from radioactive bodies”, in which the scientist revealed the content of the photographic method for studying radioactivity.

The V Congress of the Italian Society for the Advancement of Science was covered by the Bulletin (Table 2, Item 8) with the speech of *Augusto Righi*, professor of the universities of Palermo, Padua and Bologna, “New Physics” (Righi, 1912a, 1912b), in which the speaker provided an analysis of the latest achievements of physicists in the field electricity and magnetism. The main idea of the speech of the Italian physicist was the assumption that three substances – electricity, matter and ether – can provide a basis for the general study of the phenomena of the physical world.

The Congress of Natural Researchers held in Vienna in 1913 was marked by the publication of a summary of *Albert Einstein's* speech “On the Problems of Gravitation” (Einstein, 1913) in Bulletin (Table 2, Item 9). The preparation and announcement of the report by a prominent scientist took place precisely during the period of his mathematical formulation of the ideas of the theory of relativity.

Bulletin paid attention to two more congresses on its pages – the First Paris Congress on the Philosophy of Mathematics (Raymond, 1914) (Table 2, Item 10, the author is professor *A. Raymond*) and the Neperiv Congress (K. M., 1914) (Table 2, Item 11, the author is *K. M.*). In both cases, the materials take the form of a detailed annotated account of the main events at the meetings. The Congress on the Philosophy of Mathematics was held under the patronage of the French Philosophical Society. And the conference in Edinburgh was dedicated to the 300th anniversary of the publication of the first logarithmic tables – “Description of a wonderful table of logarithms” – by the Scottish mathematician *John Napier*.

Discussions.

We will note in the form of comments a few special opinions regarding the Bulletin's coverage of national and foreign congresses and congresses of naturalists and mathematicians.

First of all, we were interested in the time it took the Bulletin editorial office to develop a simple (at first glance) coverage scheme for the specified events. Considering that for the first time the magazine applied the full scheme (namely, starting with the announcement, publication of the regulations (statute), description of preparation, overview of the specifics of the conduct and ending with the presentation of the texts of important speeches) in 1901 when covering the work of the XI Congress of Naturalists and Doctors, then it is obvious there is a 15-year period from the moment the journal was founded, which the editors needed to develop the specified scheme. Moreover, this scheme was fully applied at the next, XII Congress of natural scientists

and doctors, as well as at the first congresses of teachers of physics, chemistry and cosmography, and teachers of mathematics. An incomplete version of the scheme is used to cover the work of the III Kyiv Congress of Natural Sciences Teachers, the II Congress of Mathematics Teachers and the II Mendeleev Congress of General and Applied Chemistry. However, after 1901, the III Congress of national figures of technical and professional education, the I Warsaw Congress of teachers of physics and mathematics, the XIII Congress of natural scientists and doctors, and the I Mendeleev Congress of general and applied science were covered without the use of this applied chemistry. This may indicate: a) the influence of subjective factors – lack of editorial interest in covering the event, reluctance of Odesa, Kharkiv or Kyiv congress delegates to share information with the editorial board, etc.; b) the influence of objective factors – lack of editorial access to congress materials, lack of space in the magazine, consequences of censorship. The study of this problem can be the topic of future studies. However, the analysis of the “editor’s portfolio” of other contemporary publications on natural and mathematical topics leads to the conclusion that the described scheme was applied by the Bulletin for the first time for similar publications of the Russian Empire at the beginning of the 20th century.

Secondly, we analyzed the possible reasons for the presence (or absence) of publications about the work of conventions and congresses. Let’s name, in our opinion, the main one. The fact is that both editorial staffs of the magazine positioned the publication as popular science and educational, which existed for mathematics lovers, teachers and students. And therefore, all such gatherings were covered in the magazine, taking into account the presence of an educational (methodical) section (section, direction) in their work schedule. This can be confirmed by the magazine’s coverage of the VIII Congress of natural scientists and doctors in 1889, when on the eve of its holding *E. K. Shpachinskyi* in (*Shpachinskyi*, 1888) expressed the hope of resuming the work of the pedagogical section (as well as holding this Congress in Kharkiv). But the congress was not held in Kharkiv and without consideration of training issues at the relevant section. As a result, only short abstracts of the speeches of the participants of the meeting of the physical section of the congress were published in Bulletin. On the contrary, the journal materials of the XIII Congress of natural scientists and doctors in 1913 contained only information about the work of the mathematical section and the pedagogical section, which resumed its work at this congress. In addition, the reason for the coverage of events at separate congresses of German naturalists and doctors (for example, the LIX Congress of 1886) was the attention that German naturalists paid to the discussion of the issues of teaching natural sciences and mathematics. And when the Bulletin covered the work of five foreign mathematical congresses, the peculiarities of teaching mathematics in educational institutions of various levels were revealed both in the reports on the progress of the congresses (see (Editorial, 1904a; Syntsov, 1900, 1908, 1908)) and in the publication of the texts of the most important speeches in the opinion of the editors participants (Perry, 1909; Editorial, 1903a, 1903b; Smith, 1912; Whitehead, 1913).

Thirdly, the priorities of the Bulletin editorial office in covering the work of conventions and congresses can be determined by analyzing the volume of information presented (fig. 3).

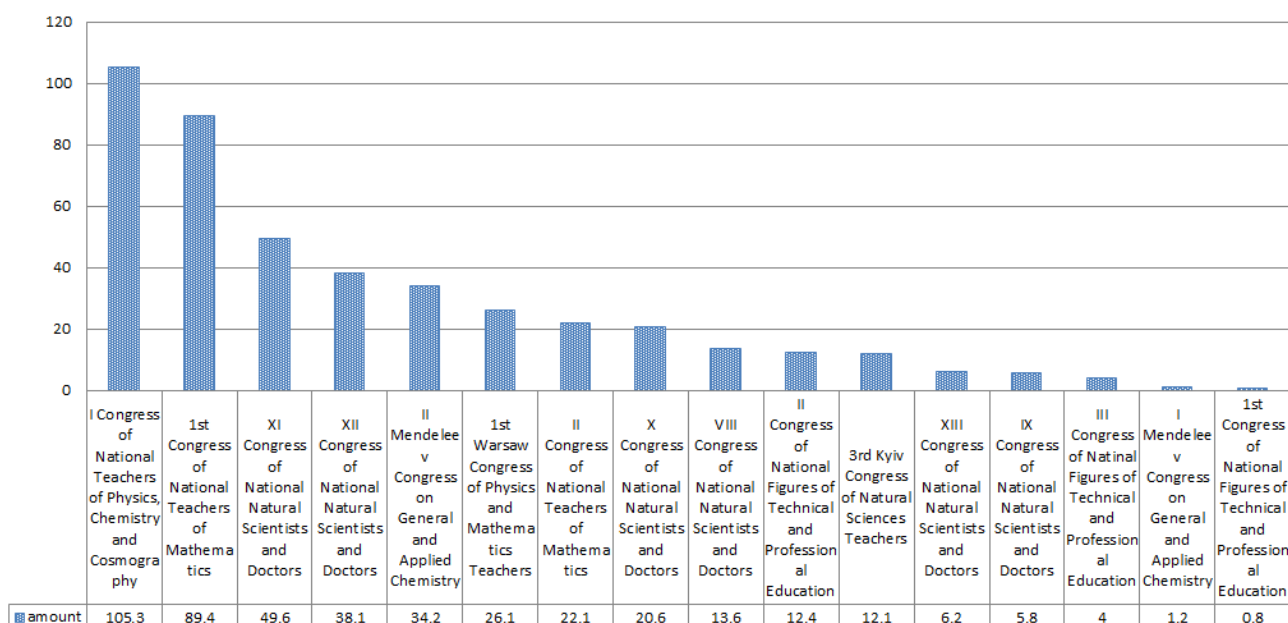


Figure 3. Volumes of submission of information about Congresses of National Teachers and Researchers of Natural Sciences and Mathematics (Source: compiled by the Author's).

The Bulletin paid the most attention to the coverage of the First Congress of Physics, Chemistry, and Cosmography Teachers and the First Congress of Mathematics Teachers from the point of view of the editor's use of the information presentation scheme and the largest volume allocated. The journal publications noted the active role of representatives of Kharkiv, Kyiv and Novorossiysk (Odesa) universities, as well as teachers from Kharkiv, Kyiv, Odesa, Mykolaiv, and Poltava in the work of both congresses. The broad format of the disclosure of the events of the XI and XII Congresses of natural scientists and doctors and the II Mendeleev Congress on general and applied chemistry can be understood based on the names of authoritative scientists and practitioners who participated in the meetings – *I. Pavlov*, *M. Umov*, *D. Goldhammer* and *P. Ehrenfest*.

The ratio of volumes of information about the work of foreign congresses is shown in fig. 4.

The broad representation of the work of mathematical congresses in the materials of the Bulletin can be explained by the readers' interest in the content of *David Hilbert's* report, in which the scientist formulated 23 important mathematical problems, the solution of which would contribute to the further development of mathematics; to the speeches of professor *Henri Poincare* (as an unqualified world authority among mathematicians and philosophers); to the presentation by *Felix Christian Klein*, professor of the University of Göttingen, of the features of the reform of mathematics education.

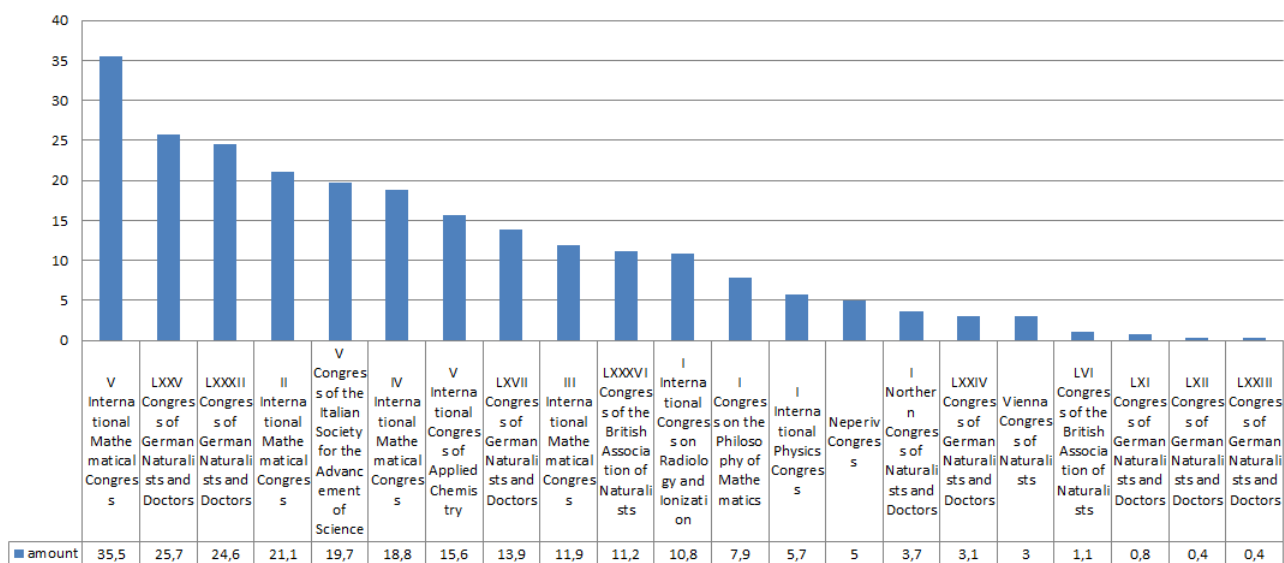


Figure 4. Volumes of submission of information about Foreign Congresses of Mathematicians and Natural Researchers (Source: compiled by the Author’s).

Fourthly, the Bulletin’s coverage of individual conventions and congresses was obviously also motivated by the presence of domestic and international celebrities among the participants. The names of *D. Mendeleev*, *H. Voronoi*, *I. Pavlov*, *M. Umov*, *D. Goldhammer*, *K. Timiryazev*, *I. Sechenov*, *M. Zhukovsky*, *M. Beketov*, and *P. Ehrenfest* at that time attracted the attention of the public, symbolizing advanced domestic science. Even greater attention of the educated public was focused on world scientific celebrities – *George Darwin* (son of *Charles Robert Darwin*), *William Thomson (Baron Kelvin)*, *Ludwig Eduard Boltzmann*, *Max Karl Ernst Ludwig Planck*, *George Francis Fitzgerald*, *David Hilbert*, *Henri Poincare*, *Felix Christian Klein*, *Carl David Tolme Runge*, *Antoine Henri Becquerel*, *Marie Curie and Pierre Curie*, *Augusto Righi*, *Albert Einstein* – active participants in scientific meetings at that time. On the other hand, the materials of Bulletin about Congresses of Natural Scientists and Mathematicians described important pages of scientific biographies of prominent researchers and teachers. Moreover, these publications revealed the content of educational activities of scientists, which did not so often become a source for biographical materials. And that is why it is expedient for historians of science to consider such publications as an element of the source base of their own research.

Conclusions.

The study of Bulletin materials on the work of Domestic and Foreign Congresses of Natural Science and Mathematics Teachers and Researchers gives us the opportunity to formulate the following conclusions.

1. The journal’s materials on congresses for all the years of its publication accounted for slightly more than 4% of its total area. During the more than 30 years of its publication, the magazine provided information on exclusively All National Congresses of Natural Scientists and Mathematicians that met during the specified period (this accounted for almost 2/3 of the magazine’s total volume of information on

such gatherings of scientists and teachers). At the same time, the methods of presenting information and its volume differed significantly in different meetings, depending on the presence of motives of both members of the editorial board. And the editorship of *E. K. Shpachinskyi*, and the editorship of *V. F. Kagan* made decisions regarding the amount of placement of such materials based on: a) the presence of a pedagogical component in them; b) scientific (or pedagogical) significance of reports and meeting participants; c) availability of quality materials about meetings; d) availability of magazine space. In contrast to domestic international conventions and congresses, *Bulletin* covered them irregularly. However, the motives for posting information about foreign meetings in the magazine were the same as those listed above.

2. It took 15 years for the editors of the collection to work out and implement the scheme of presenting materials about scientific and pedagogical congresses into practice: a) announcement of the event; b) publication of the regulation (statute, program) of the event; c) description of preparation for the event; d) overview of the features of the event; e) presentation of the texts of important speeches. It was precisely the second (*V. F. Kagan*) editorial team that managed to do this. However, such a scheme of presentation of meetings was introduced for the first time in popular science and educational periodicals of the Russian Empire.

3. The educational (pedagogical, methodical) component was the most important motive for both members of the *Bulletin* editorial board when deciding on the features and scope of coverage of materials on the work of domestic and foreign congresses.

4. The materials of *Bulletin* (and other similar publications of that time) covering the work of domestic and foreign congresses of teachers and researchers of nature and mathematics, which covered the educational activities of famous scientists and teachers, are an important element of the source base of biographical studies, which conducted by historians of science.

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Conflicts of interest.

The authors declare no conflict of interest.

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З'їзди й конгреси природознавців і математиків у «Віснику дослідної фізики та елементарної математики» (1886–1917 рр.): Аналіз публікацій

Анотація. У статті представлені результати дослідження публікацій у «Віснику дослідної фізики та елементарної математики», що видавався в Києві та Одесі протягом 1886–1917 рр., про організацію, проведення та результати вітчизняних і закордонних з'їздів та конгресів математиків і природознавців. Журнал був неофіційним періодичним друкованим виданням математичного відділення Новоросійського товариства дослідників природи. Дослідження проведене з метою здійснення змістовного та кількісного аналізу текстів публікацій журналу, в яких висвітлюються матеріали таких зібрань науковців та педагогів. Авторами для змістовного аналізу предмету дослідження використовувалися наукові методи, а в процесі кількісного аналізу – квантифікація тексту, збирання емпіричних даних, їхнє узагальнення та

математико-статистична обробка. У результаті проведеного дослідження матеріалів журналу про з'їзди та конгреси математиків і дослідників природи протягом всього періоду його видання автори дійшли таких висновків. Матеріали журналу про з'їзди та конгреси за всі роки його видання становили трохи більше 4 % його загальної площі. Усі вітчизняні з'їзди природодослідників та математиків, які збиралися протягом періоду видання журналу, були висвітлені на його сторінках (це майже 2/3 від всього обсягу інформації журналу про такі зібрання науковців та педагогів). При цьому способи подання інформації та її обсяг суттєво відрізнялися за різними зібраннями в залежності від наявності мотивів обох складів редакційної колегії. Мотивами розміщення інформації були: а) наявність в роботі зібрань педагогічної складової; б) наукова (або педагогічна) значимість доповідей та учасників зібрання; в) доступність якісних матеріалів про зібрання; г) наявність журнального місця. Міжнародні з'їзди та конгреси висвітлювалися вісником нерегулярно, мотиви для розміщення в журналі інформації про такі зібрання були аналогічними. Починаючи з 1901 року редакція збірника впровадила до практики представлення матеріалів про наукові й педагогічні з'їзди та конгреси відпрацьовану протягом попередніх років існування журналу схему: а) оголошення про подію; б) публікація положення (статуту, програми) події; в) опис підготовки до події; г) огляду особливостей проведення події; д) презентація текстів важливих виступів. Така схема презентації зібрань була запроваджена вперше в науково-популярній та навчальній періодиці Російської імперії. Педагогічна складова була найбільш вагомим мотивом для обох складів редакції Вісника при прийнятті рішення щодо особливостей та обсягів висвітлення матеріалів про роботу вітчизняних та закордонних з'їздів і конгресів. Матеріали Вісника (та інших подібних видань того часу) про висвітлення роботи вітчизняних та закордонних з'їздів і конгресів викладачів та дослідників природи і математики, у яких розкривається зміст просвітницької діяльності знаменитих вчених та педагогів, є важливим елементом джерельної бази біографічних досліджень, які проводять історики науки.

Ключові слова: навчально-наукова періодика; історія зібрань науковців; викладачі; змістовний аналіз; кількісний аналіз

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