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Natural Scientific Societies in the History of Science

Scientific societies, so called “invisible colleges”, have been an essential element in the scientific community since the beginning of organized science. Those organizations existed in the modern period were voluntary associations of scientists and amateurs, getting inspiration from the exchange of ideas. Both in the nature of their interests and in the form of organization, scientific societies reflected the level of development of science of that time and its structure. At the end of the 17th century, the activities of scientific societies expanded, as they began to publish their works and scientific journals. The tasks that societies set for themselves were extremely broad. They covered the most diverse issues of natural science, mechanics, mathematics, physiology, etc. Scientific societies were established in most of the European capitals’ cities and sometimes even in small province towns in the 18th century. The process of knowledge differentiation, which began in the late 18th and early 19th centuries, led to the flourishing of natural science and the creation of corresponding specialized scientific societies, and, in general, to the growth of the number of scientific societies. The system of organizing science during that period included universities, academies, laboratories, etc. Scientific societies in that system played the role of a place for communication and cooperation among scientists of one or several discipline who worked in various scientific institutions. The societies and their publications gave to science the enormous practical benefits. The scientific revolution, which began at the turn of the 19th and 20th centuries, caused significant changes in the structure of knowledge and created the preconditions for the emergence of the new organizational forms of research work such as research institutes. However, scientific societies continued to function, but gradually lost their importance in the scientists’ community and practice of science. Nevertheless, for the progress of science, its development in various forms is necessary. Scientific societies still exist that confirms the extreme stability and adaptability of that form of organization of science.

It is interesting that a serious imprint on the peculiarities of the existence and activities of scientific societies was imposed by the features of the national organization of science, since often scientific societies were and are precisely national associations. As a rule, most of the first scientific societies in different countries were precisely natural scientific societies.

One of the most famous scientific society of all time is Royal Society (Royal Society of London for Improving Natural Knowledge), founded in 1660. From the first day of its existence, the new private organization strove to focus its attention exclusively on the problems of natural science. The management of the society was carried out by a council of 21 scientists, which met three times a month. Council members, treasurer and secretaries

were elected by general vote. The composition of the council was re-elected a year later. The basis for the organization of society was the principle of electivity, which was strictly observed. In the 19th century, they were supplemented by the principle of accountability of the governing body and the publicity of its activities. At the beginning of the 20th century, the principle of equal representation in the council of all-natural sciences was clearly fixed. The principles of its organization formed the basis of all subsequent scientific societies. In the opinion of the founders of the society, its independence was best ensured by the patronage of the royal power. Since 1662, the society began to be called the Royal, although legally it had the status of a private independent organization.

The earliest form of self-organization of science in France was scientific societies, which in the first half of the 17th century united all famous scientists of that time. National academies — the French Academy, the Academy of Fine Arts, and the Royal Academy of Sciences — grew out of scientific societies later. The development of experimental sciences required large material expenditures, unbearable for the scientists themselves; therefore, they established payments for academicians, a special monetary fund for conducting physical experiments. However, the structure of the academies, which had been taking shape for a long time, retained some of the scientific societies features. Supported by government stipends, the Academy of Sciences was the center of scientific work for most of the eighteenth century and still one of the most famous scientific institutions in France, bringing together representatives of mathematical and physical, chemical, biological, geological and medical sciences.

In the German states and, later, in the German and Austro-Hungarian empires, scientific societies could not exist independently of the state, since the creation of each of them required the permission of the authorities. In the 18th century, German academies of sciences were created, the first of which arose in Berlin in the form of the Brandenburg Scientific Society, later renamed the Prussian Academy of Sciences. However, the leading role continued to be played by the universities. In the second half of the 19th century, research institutes began to appear. At the beginning of the 20th century, the Kaiser Wilhelm Society (1911) was created, since 1948 it has been the Max Planck Society, which today remains the leading private scientific organization in Europe. The Munich-based society includes more than 80 institutes and research centers.

The organization of its own scientific institutions in Japan began only in the last quarter of the 19th century, and the methods and forms of conducting research work were transferred to those that had previously developed in different European countries, mainly in the Netherlands, Denmark, England, Germany and France. In the middle of the last century, there were 1,061 scientific societies in Japan, of which 81 were engaged in natural sciences. The sizes of these scientific societies vary: from a few hundred members to several thousand.

In the USA, the first scientific and scientific-educational organizations began to emerge only in the 17th and early 18th centuries, and they were created according to the model and likeness of European institutions. The first scientific society in America was the Boston Philosophical Society, founded in 1683, but existed for a very short period. In 1743, on the initiative of B. Franklin, the American Philosophical Society was created in Philadelphia. Almost all branches of the science of that time, especially astronomy, medicine and astronomy, were included in the field of research of that society. The American Association for the Advancement of Science, founded in 1848, was a forum for scientists of discipline, and now it is the largest general scientific organization in the world.

In Russia, the first scientific society was created during the course of the enlightened absolutism of Empress Catherine II. It was the Russian Economic Society, founded in 1765. The first natural science societies began to be created from the beginning of the 19th century, most often at universities. They made a significant contribution to the development of natural science in Russia. Societies played an important role in the scientific community until the end of the 1920s. The rapid process of decline, both numerically and functionally, began at the turn of the 1920s–1930s, as there was a massive reorganization of all science at that time. All surviving scientific societies lost their autonomy. During their history scientific societies in Russia mostly concentrated in St. Petersburg and Moscow.

The history of natural scientific societies provides a valuable perspective to analysis of the importance of scientific societies in the system of science organizations and their place in the history of science, as for the long time period they were the primary communication networks for scientists and their work.

This issue consists of totally eight papers. Almost all of them give a validation of natural scientific societies merit, discussed features of their development in the history of science. The history of the Imperial Society of Friends of Natural Science, Anthropology and Ethnography ('IOLEAE') is well known. However, the paper by Ekaterina V. Minina and Maria M. Klavdieva shed the new light to the participation of the IOLEAE in the process of the creation of the Museum of Applied Knowledge (Polytechnic Museum) in Moscow. The authors analysis ideas of V.K. Della-Vos and A.P. Bogdanov (the IOLEAE members) on the creation and development of the museum. The relations between science and power in Russia always turned difficult, especially in turmoil periods like the 1920s. Elena F. Sinelnikova in her article considered the natural scientific societies relations with Soviet power in the initial period and tried to determine the place and importance of natural scientific societies in the system of science organizations in the first postrevolutionary years. By examining the history and main activities of the Russian Eugenic Society (1920–1929), Roman A. Fando points out that, in contrast to the eugenics societies in other countries, the Russian Eugenics Society was governed by strict scientific standards and skepticism towards pseudo-scientific utopias, as the late 1920s, the society provided the significant scientific and educational works, trying to solve the vital medical problems. James A. Pritchard presented a paper focused on the participation of the American Society for Mammalogy and the Ecological Society in one of the most famous episodes of wildlife conservation history in North America — the fight against federal predator control programs on public lands, which peaked in disputes during the late 1920s and 1930s, resurging again in the 1960s. Lourn Loison's paper aim is to show how a specific form of positivism was instrumental in shaping an epistemological attitude, shared by most scientists, that opposed any form of speculative theorization within biology. As a sample the author chose the France Society of Biology in 19th century. In his paper, Maxim V. Trushin described the material devoted to the issues of medical and general microbiology, which can be found in publications of different years in «Scientific Notes of the Kazan University», reflecting the activities of the Kazan Society of physicians. The paper Sergei A. Kozlov dedicated to the anniversary of one of the oldest scientific societies in Russia — the Moscow Society of Agriculture (1820–1930). Jerome Pierrel's article focuses on the Fifth International Congress of Biochemistry, which was hold in Moscow in 1961 and was the largest one which was held up to then (more than 5000 people have attended the Moscow congress).

An analysis of the processes of formation and development of the system of organizing scientific research allows us to draw a general conclusion that natural science societies have played an important role in the history of science.

Elena Sinelnikova, Roman Fando

ИССЛЕДОВАНИЯ

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The Imperial Society of Friends of Natural Science, Anthropology and Ethnography ('IOLEAE') and the creation of a general educational museum in Moscow

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This article reviews the activities of the Imperial Society of Friends of Natural Science, Anthropology and Ethnography ('IOLEAE'), associated with the creation of the Museum of Applied Knowledge (Polytechnic Museum) in Moscow. It was the first complex general educational museum created to demonstrate with the help of the systematised collections practical aspects of natural and technical sciences and how their accomplishments were used in everyday life. A.P. Bogdanov, Professor of Zoology at Moscow University and member of the IOLEAE, had an important role in the creation of this museum. He developed the concept for a museum of applied natural science and was closely involved both in the building of its collections and in its science education activities. The article also analyses the views of V.K. Della-Vos (also the IOLEAE member) on the creation and development of the museum. The Polytechnic Museum was distinguished for its extensive educational efforts. A.P. Bogdanov proposed a new form of educational work with museum visitors, the Sunday Explanations of the Museum collections, conducted in a specially equipped lecture-hall and accompanied by the demonstration of museum items, specimens and visual aids. Bogdanov's idea concerning the creation of natural-science division at the Museum could not be fully implemented due to the lack of exhibiting floor space. The Department of Applied Zoology, headed by A.P. Bogdanov and subsequently by his followers, also the IOLEAE members, was the most successful division of the Museum in regard to the demonstration of practical importance of natural science.

Keywords: Imperial Society of Friends of Natural Science, Anthropology and Ethnography, IOLEAE, Museum of Applied Knowledge, Polytechnic Museum.

“An educational museum is a new phenomenon which is contemporary to us. It could only have emerged when a conviction has permeated public consciousness that it is necessary not only to learn different things but also to not limit the years of learning to one’s early years only”

A.P. Bogdanov¹

The history of Russia’s scientific societies has been addressed in the works of Russian and international researchers², among which stands out a comprehensive collective work titled “Self-organisation of the Russian society in the last third of the 18th-early 20th century” (Tumanova, 2011).

The history of the Imperial Society of Friends of Natural Science, Anthropology and Ethnography per se is covered in the works devoted to the IOLEAE exhibition projects and various aspects of scientific activities of the Society and its individual members. Many of these works were authored by G.G. Krivosheina (IHST RAS)³. The historiography of the Polytechnic museum also comprises mostly the jubilee publications and a few articles⁴. One can only regret that the activities of these two organisations — the IOLEAE and the Polytechnic Museums, with all their significance for Russia — have not been the subjects of comprehensive historico-scientific studies. This article aims to review the role of the IOLEAE in the creation of the Museum of Applied Knowledge (Polytechnic Museum) and to analyse the views of the IOLEAE members on the organisation and thematic structure of a museum of science and technology (applied natural science), to assess the extent to which these ideas were implemented, and to elucidate the role of the IOLEAE members in the Polytechnic Museum’s collecting and educational activities. The sources used in this article included published materials concerned with the work of the IOLEAE and the Polytechnic Museum (the minutes of the meetings, reports, etc.) and documents deposited in the Archive of the Russian Academy of Sciences, Central State Archive of the City of Moscow, and the Polytechnic Museum’s Collection of Written Sources (“Fond pismennykh istochnikov”).

The second half of the 19th — early 20th century was marked by the emergence of a new type of museums — the museums of science and technology — created in different countries in response to society’s growing need in applied knowledge in the context of the Industrial Revolution. These included the South Kensington Museum in London, Technisches Museum in Vienna, Deutsches Museum von Meisterwerken der Naturwissenschaft und Technik in Munich, and many others.

The idea of setting up a national museum of technology in Moscow was first put forward by Academician (the title of Full Member of the St Petersburg Academy of Sciences) I.Kh. Gamel (Joseph Hamel) back in 1824. In a memorandum titled “The thoughts on the

¹ *Arkhiv Rossiiskoi akademii nauk* [Archive of the Russian Academy of Sciences] (ARAS). F. 446. Op. 1. D. 32a. L. 8.

² See: Bastrakova, 1968; Filippov, 1978; Bradley, 1979; Savchuk, 1994; Tumanova, 2000; Krivosheina, 2016; Valkova, 2018; Baum, Bogatova, 2019; Kolchinsky, Sinelnikova, 2020; etc.

³ See: Balakhonova, 2011, 2015a, 2015b; Bodrova, 2013; Efimova, 2009; Kerimova, 2007; Krivosheina, 2016a, 2018a, 2018b, 2018c, 2019; etc.

⁴ See: Presnyakov, 1972; Anisimov, 1983; Barskii, 1987; Bradley, 2005, 2008; *Sbornik rasporiaditel’nykh dokumentov...*, 2008; Grigoryan, 2009; Semenova, 2011; Adamovich A., et al, Morozova S. et al, 2012; Nudel, 2020.

organisation of institutions under the proposed Moscow Society for Agriculture [and for] Encouraging Manufactories and Trade,” J. Hamel proposed to organise a special Cabinet for storing and demonstrating the samples of articles produced at the plants and factories. At about the same time, the issue of creating a permanent depository for such articles and conducting industrial exhibitions was raised by Prince D.V. Golitsyn, President of the Moscow Society for Agriculture and Moscow Military Governor. The plans for organising a scientific and educational museum of applied natural science in Moscow were discussed at the Imperial Society of Friends of Natural Science, Anthropology and Ethnography (‘Imperatorskoye Obshchestvo lyubitelei estestvoznaniya, antropologii i etnografii’, ‘IOLEAE’).

The IOLEAE — initially, the Society of the Friends of Natural Science — was founded under the auspices of the Imperial Moscow University in 1863. The Society’s Presidents were the prominent scientists G.E. Shchurovskii (1863–1884), A.Yu. Davidov (1884–1885), A.P. Bogdanov (1886–1889), V.F. Miller (1889–1890), D.N. Anuchin (1890–1923), and A.N. Severtsov (1923–1931). However, it was Anatolii Petrovich Bogdanov, Professor of Zoology at Moscow University, who was the Society’s founder and chief scientific supervisor for 30 years even though he held the official position as its President for four years only. Beginning with the first idea and the draft of the Society’s first Constitution, Bogdanov had been the initiator of most of the Society’s projects, including the creation of a general educational museum in Moscow.

According to the first Society’s Constitution, it was established for “investigating the Governorates of the Moscow Educational Precinct⁵ in respect of natural history and for spreading natural science among the masses.”⁶ In 1867, the Society’s Constitution was reworked and amended, and the Society itself was renamed the Imperial Society of Friends of Natural Science, Anthropology and Ethnography (‘IOLEAE’). The Society’s goals were expanded to pursue “natural historical, anthropological and ethnographic studies in Russia, mainly in the governorates of the Moscow Educational Precinct, and for spreading scientific knowledge in these three subject areas among the public”⁷. It has also been noted there that “the Society’s activities consist in [conducting] meetings, organising public readings, assembling scientific collections, organising exhibitions, excursions, expeditions”⁸.

The Society’s first major project was the preparation and conducting of the Ethnographic Exhibition. According to the initial plans, discussed during the Society’s meeting on 9 December 1864, the exhibition was planned to include the anthropological and ethnographic sections. The Exhibition Rules were agreed upon, its cost was estimated at 20,000 rubles,

⁵ Some authors translate ‘obrazovatelnyĭ okrug’ as ‘educational district’, the term used in the USA, while ‘educational precinct’ is more common in the UK, Australia and Canada

⁶ Ustav Obshchestva liubitelei estestvoznaniia, sostoiaščego pri Moskovskom universitete, [utverzhdenyiĭ 14 marta 1864 goda] sbornik pozdneishikh ego postanovlenii i spisok chlenov. — Moskva, 1866 [The Constitution of the Society of Friends of Natural Science under Moscow University [approved on 14 March 1864], a collection of its latest resolutions and the list of members]. (1866). (pp. 3), Moscow. (in Russian).

⁷ Ustav Imperatorskogo obshchestva liubitelei estestvoznaniia, antropologii i etnografii: utverzhen g. Ministrom narodnogo prosveshcheniia 20 ianvaria 1868 goda [The Constitution of the Imperial Society of Friends of Natural Science, Anthropology and Ethnography: approved by Mr. Minister of Public Education on 20 January 1868]. (1893). (pp. 3), Moscow: Universitetskaia tipografiia. (in Russian).

⁸ Ibid.

the Exhibition Steering Committee was elected, and its expected content and theme range was agreed on⁹. During the meeting held on 14 May 1865, a letter from V.A. Dashkov, Assistant Director of the Rumyantsev Museum¹⁰ (since 1867, its Director), was presented, in which Dashkov appealed for help with organising a specialised ethnographic department at the Museum and assembling appropriate collections and materials for this department. Being aware of the Society's plans to organise an exhibition in Moscow that would include the ethnographic section, and believing that organising such an exhibition provided the best way for assembling collections needed for the Rumyantsev Museum, Dashkov proposed a loan for the organisation and convening of the exhibition on the condition that, after its closure, the ethnographic collections would be handed over to the Moscow Public Museum. V.A. Dashkov provided the loan and was elected as Chair of the Exhibition Steering Committee. It was also proposed to designate the ethnographic collection to be handed over to the Rumyantsev Museum "the Dashkov Ethnographic Museum, Organised with the Assistance of the Society of Friends of Natural Science"¹¹.

The Ethnographic Exhibition was held in Moscow from April 23 to June 19, 1867, and aroused much interest. After the end of the Exhibition, about 450 traditional regional costumes, 1,200 traditional household items, and 2,000 drawings and photographs were handed over to the Dashkov Ethnographic Museum (Miller, 1887). As a result, the latter became the first museum to hold a relatively comprehensive collection covering all regions of the Russian Empire (Fig. 1.). Therefore, the experience of assembling museum collections through the relevant exhibition proved to be successful.

Further on, IOLEAE continued to be involved in the Dashkov Museum's activities and contribute to its collections. The Ethnographic Museum had thus acquired the collections from A.P. Fedchenko's Turkestan Expedition (1871), N.K. Kertselli's (Kerzelli) expeditions to the Volga region (1886), N.L. Gondatti's collections on the peoples of Siberia and the Anadyr region, N.N. Kharuzin's collections on the ethnography of the northern peoples of Russia, as well as some collections from the Polytechnic and Anthropological Exhibitions that had also been organised by the IOLEAE (Miller, 1887–1895). Later on, several provincial ethnographic museums were created, modeled after the Dashkov Ethnographic Museum¹².

During a Society's meeting on 5 June 1867, after A.P. Bogdanov was awarded the gold medal and a letter of commendation for successfully conducting the Exhibition, he suggested to the Society to devote more attention to the popularisation of natural science. G.G. Krivosheina has described in detail how A.P. Bogdanov conceived the idea of an exhibition of applied natural science and how it morphed into the Polytechnic Exhibition (Krivosheina, 2012).

⁹ *Protokol 6-go zasedaniia 9 dekabria 1864 goda* [Minutes of the 6th meeting on 9 December 1864], *Izvestiia IOLEAE* [IOLEAE Bulletin], 1866, III(1), 76–94 (in Russian).

¹⁰ In 1861, the Rumyantsev Museum was moved from St. Petersburg to Moscow to be accommodated in the Pashkov House and merged with the Moscow Public Museum. The resulting Moscow Public and Rumyantsev Museum was created in 1862. Its collections comprised three departments: paintings, etchings, and the collections of Russian explorers, particularly those of I.F. Kruzenshtern (Adam Johann von Krusenstern) and Yu.F. Lisyansky (Urey Lisiansky).

¹¹ *Protokol 9-go zasedaniia 14 maia 1865 goda* [Minutes of the 9th meeting on 14 May 1865], *Izvestiia IOLEAE* [IOLEAE Bulletin], 1866, III(1), 116–136 (in Russian).

¹² *Protokoly zasedaniĭ Raspriaditel'nogo Komiteta po ustroĭstvu Russkoĭ ėtnograficheskoi vystavki Obshchestvom liubitelei estestvoznaniia* [Meeting Minutes of the Executive Committee for the Organisation of the Ethnographic Exhibition by the Society of Friends of Natural Science]. (1866). (pp. 13), Moscow. (in Russian).



Fig. 1. The exposition of the Dashkov Ethnographic Museum, early 20th century
Рис. 1. Экспозиция Дашковского этнографического музея, начало XX века

During the same period, Bogdanov was developing the main approaches to the creation of a complex general educational museum in Moscow, designed to introduce its visitors to the applied aspects of natural science. He saw very clearly that such museum would have a role in both the popularisation and advancement of natural science. A.P. Bogdanov wrote¹³:

For a philologist, jurist, mathematician, and philosopher, his own well-organised head and books are enough to embrace his entire science, to advance it infinitely, while a naturalist, physicist, chemist would produce little worthwhile and fundamental with these elements [*only*], as has been clearly shown by the *Naturphilosophie* school. They also need study objects, observations and comparisons; they need devices and tools, laboratories and museums.

He also wrote that, at the time, it was important for Russia to not only address the problem of obtaining specialised higher education in various disciplines (at the universities and other higher education institutions) but also to enhance the overall level of science and technology education and awareness. This extended-learning function could be successfully provided by the museums:

There must be the conductors designed <...> to supplement the impact of school on those who have been trained by it. For the humanities and historical sciences, such supplements are general educational books and, for these sciences, such additional tools for self-learning and self-education are sufficient. For technical and natural historical sciences, however, books and pictures are far from enough, even for extended learning. They require something else: an opportunity to see with one's own eyes and get familiar

¹³ ARAS. F. 446. Op. 1. D. 32a. L. 8.

with the objects to be studied by technical and natural historical sciences. The institutions that serve this purpose are publicly accessible museums, which are becoming increasingly more widespread these days¹⁴.

A.P. Bogdanov was probably one of the first Russian scientists to formulate the concept of general educational museum and what distinguished it from scientific and technical collections. He wrote:

The museums devoted to applied sciences are of two distinctly different types: some collect within their walls the latest improvements, the most advanced applications of technology, and serve a narrow circle of specialists. Others aim to spread basic knowledge in applied sciences and select their collections with a desire to provide an opportunity to study and assimilate the whole succession of basic underpinnings, on which some matter or other is based. The museums of the first type may be called technical and their place is at the specialised schools and specialised institutions. The other museums are educational <...>, and a perfect model for these has been employed by our museum right from the start, both in its collection and in its activities¹⁵.

It is obvious that this approach was used during the preparations for the Polytechnic Exhibition and creation of the Museum of Applied Knowledge in Moscow (Polytechnic Museum) that was based on the Exhibition's exhibits.

Bogdanov thus envisioned the structure of the would-be general educational museum¹⁶:

A. Department of Natural History:

- (1) Mineralogical and geological collection ['sobraniye'];
- (2) Botanical and horticultural collection (modeled after the Kew Museum in London);
- (3) Zoological collection (breeds of domesticated animals);

B. Department of Experimental Sciences:

- (4) Applied physics collection with a laboratory;
- (5) Applied chemistry collection with agricultural and technical laboratories;
- (6) Mechanics collection;
- (7) Collection of technology;
- (8) Agricultural collection;
- (9) Collection of arts and crafts;
- (10) Architectural and engineering collection.

C. Department of Teaching Aids.

A.P. Bogdanov also suggested to supplement such museum's zoological collection with aquariums that should be accommodated in the museum building.

Bogdanov's ideas concerning the design of the museum exposition sound very modern. Thus, he believed that the most important exhibits ought to be displayed in such a way so as to instantly attract the visitors' attention and that the museum collections ought to be

¹⁴ ARAS. F. 446. Op. 1. D. 32a. L. 8.

¹⁵ ARAS. F. 446. Op. 1. D. 32. L. 10.

¹⁶ ARAS. F. 446. Op. 1. D. 32a. L. 16.

systematic because “a dozen or two machines, even if exemplary but pulled out of different manufactures, may hardly be regarded as a general educational collection”¹⁷.

Victor Karlovich Della-Vos was another IOLEAE member who actively supported the idea of creating a general educational museum in Moscow. It was he who defined the main criteria for a general educational museum (Della-Voss V.K., 1874):

- (1) a museum must be located in, or close to, a city's centre;
- (2) a museum entrance fee must be small on weekdays and, on Sundays and holidays, admission must to be free for each visitor;
- (3) a museum's interior must to be attractive for poorly-educated population;
- (4) viewing different parts of the museum should be accompanied by the explanations provided by expressly appointed persons;
- (5) a museum ought to have a special library available to all visitors; and
- (6) a museum ought to have a comfortable lecture hall for public lectures.

Like Bogdanov, Della-Vos believed that there had to be a single general educational museum that would educate the visitors about natural sciences as well as about technology and machines. It was such polytechnic museums that Della-Vos referred to as “central museums.” He also substantiated his choice of Moscow for building the first polytechnic museum, as it was Moscow and Moscow region where Russian industry and Russian trade were concentrated at the time.

To build up the systematised collections for the museum of applied natural science, the IOLEAE decided to organise a Polytechnic Exhibition in Moscow.

Bogdanov thus defined the goals of the Exhibition:

First, to demonstrate, in the systematised collections, the application of natural science to industry, art, everyday life; second, to present the degree of perfection attained by science in its various applications; third, to present — in historical sequence, if possible — the development of industry in Russia, mostly from Peter the Great's time; fourth, to show, in particular, the stage where now are Russian industry, manufactures, trades and other practical endeavours that touch on natural science and are based on it; five, to present the samples of what is necessary for the development of technical education and training as well as for teaching natural science in general in different kinds of schools¹⁸.

In 1867, the IOLEAE set up a Commission headed by A.P. Bogdanov to organise and convene the Exhibition. During the Commission's meeting on 22 August 1868, the *Rules* for the design of the Exhibition, proposed by Bogdanov, were reviewed and the Steering Committee was elected. This Committee included: G.E. Shchurovskii (President); A.S. Vladimirskii, N.K. Zenger, and V.F. Oshanin (Secretaries); A.P. Bogdanov, D.A. Naumov, A.A. Rikhter, I.I. Vilkins, and P.P. Muromtsev (members). N.A. Popov suggested timing the Polytechnic Exhibition to coincide with the 200th anniversary of the birth of Peter I and his proposal was adopted at the IOLEAE meeting on 17 November 1869.

The Exhibition's objectives and purposes were reflected in the programmes developed for each of its sections. All of these programmes — from the choice, systematisation and

¹⁷ ARAS. F. 446. Op. 1. D. 32a. L. 16.

¹⁸ *Tsentrāl'nyi gosudarstvennyi arkhiv Moskvy* [Central State Archive of the City of Moscow]. (TsGAM). F. 227. Op. 2. D. 3. L. 100 ob.

placing of exhibits to mandatory inclusion of applied natural science visual teaching aids in the exposition — were fundamentally different from the approaches used when designing industrial and manufacturing exhibitions.

According to these programmes, each section was to be represented by displaying:

a collection of the most interesting instruments and machines from different applied sciences... and by putting them into operation so as to visually demonstrate how they are used in the industry; by a collection of samples of raw products of our industry and by assembling systematised collections from these, arranged in the order of their sequential technical processing (Della-Vos, 1870, p. 23).

Another aspect that distinguished the Polytechnic Exhibition from the previous industrial shows was the attitude towards the exhibitors who totaled 100,000. They were asked to assemble their collections in such way that, in accordance with the Exhibition's goals, they would demonstrate not only the products but also the relevant technologies and be graphic and easy to understand for general audience. To this end, the authorised representatives of the Exhibition Steering Committee were appointed across Russia and abroad.

A special role in the exposition was given to foreign exhibitors, selected to “primarily represent the manufactures that are not widespread in Russia.”¹⁹ Thus, the exhibitors from Sweden mostly participated in the expositions of the agricultural, educational, architectural, and zoological (fishing and fisheries) sections; the exhibitors from Germany, in the technical section expositions; and the exhibitors from the UK, in the expositions of the botanical section and the section of manufactories.

The Polytechnic Exhibition also had a long-term goal that was thus formulated by G.E. Shchurovskii: “When organising such an exhibition, the Society was pursuing its most heartfelt idea of creating a permanent institution in Moscow — the Polytechnic Museum. The Polytechnic Exhibition is, indeed, the temporary Polytechnic Museum” (Shchurovsky, 1874, p. 11). This goal was communicated to each of the invited exhibitors, many of whom agreed to hand over their exhibits to the future Museum.

In this paper, we will not dwell in detail on how the Exhibition was organised and how it operated, nor on the attitude of the Moscow and Russian public towards this event, as this has been covered in a number of works (Medved, Yudin, 2008; Krivosheina, 2012; Semenova, 2012). The Exhibition was launched on 30 May 1872 and remained open for three months. Its exposition occupied practically the entire central part of Moscow (the Manege, the Alexandre Garden, the Kremlin Embankment, and Varvaskaya Square) and comprised 24 sections hosted in 86 pavilions. The biological sciences were presented in the section of botany and horticulture, the section of game animals (applied zoology), and the veterinary, medical, forest, and agricultural sections.

The IOLEAE scientists' participation in developing section programmes and building up the collections provided the visitors with a general systemic idea of the practical role of biological sciences. Thus, the Chair of the Moscow Society of Friends of Horticulture A.I. Nikitin was sent to London to select the specimens for the botanical collection. Nikitin arranged for a collection of usable plants, formed from the duplicate specimens from the Royal Botanic Gardens, Kew, to be handed over to the Exhibition and the future museum²⁰.

¹⁹ TsGAM. F. 227. Op. 2. D. 70. L. 9 ob.

²⁰ ARAS. F. 446. Op. 1. D. 41a. L. 32.

With the help of James Murray, excellently attributed collections of taxidermied animals, assembled by a prominent English zoologist and the superintendent of the London Zoo Abraham Dee Bartlett, were obtained for the section of applied zoology²¹.

After the end of the Polytechnic Exhibition, all exhibits intended for the Museum were moved to a temporarily rented building on Prechistenka Street, where the first permanent exposition of the Museum of Applied Knowledge was opened on 30 November 1872 in the presence of the Honorary Chairman of the Museum Organisation Committee, Great Prince Alexei Alexandrovich. This exposition included the sections of sea and river shipbuilding, applied physics, and applied zoology, as well the postal, technical, educational, forest, agricultural, architectural and Turkestan sections.

According to its Constitution, the goal of the Museum of Applied Knowledge was “to help spreading applied knowledge in various sciences, to vividly demonstrate the achievements of these sciences, and to promote the newly invented tools, machines, instruments, and the newest methods and means of production so that they would be applied in practical life”²². To this end, the Museum could create various teaching collections and make them available for public viewing; organise free public explanations of its collections, lectures, readings, and systematic courses; and institute scientific societies in different fields of applied knowledge under the Museum’s auspices²³.

A special Committee chaired by Prince Konstantin Nikolayevich was set up to manage the Museum’s activities. Other members of this Committee included General N.V. Isakov and G.E. Shchurovskii (Vice Chairs of the Committee), Moscow Mayor I.A. Lyamin, Chair of the Stock Exchange Committee T.S. Morozov, as well as other prominent Moscow’s business people and community leaders. The Museum Committee members also included the IOLEAE Vice President A.Yu. Davidov and the IOLEAE members A.P. Bogdanov and V.K. Della-Vos²⁴. To manage the Museum’s day-to-day activities, the Commissions were created, comprising the scientists from the relevant fields, whose task was to produce development programmes for the respective Museum departments and seek possible ways for acquiring new items for their collections.

Initially, the exhibitions held in Russia and abroad were chosen as the main and currently traditional source for acquiring new collection materials. Participating in exhibitions allowed to more carefully select the items for the Museum, to get already formed collections donated or to purchase such collections at acceptable prices.

Thus, after the Museum participated in the 1873 Vienna World’s Fair, significant additions were made to its Technical Department’s collections. In 1874, the Museum Committee’s Academic Secretary V.D. Levinskii was seconded to the Agricultural Fair in

²¹ *Obshchee obozrenie Moskovskoi Politekhicheskoi vystavki Imperatorskogo obshchestva liubitelei estestvoznaniia, antropologii i étnografii pri Moskovskom universitete* [An overview of the Moscow Polytechnic Exhibition of the Imperial Society of Friends of Natural Science, Anthropology and Ethnography]. (1872). Moscow. (in Russian).

²² Polytechnic Museum’s Collection of Written Sources. F..100. Op.1. No. 27271/1.

²³ Polytechnic Museum’s Collection of Written Sources. F..100. Op.1. No. 27271/1.

²⁴ *Otkrytie Politekhicheskogo muzeia vo vremennom pomeshchenii 30 noiabria 1872 goda* [The opening of the Polytechnic Museum at the temporary location on 30 November 1872], *Materialy kasaiushchiesia ustroistva muzeia, rechi, proiznesennye pri ego otkrytii 30 noiabria 1872 goda i otchet Komiteta muzeia za pervyi god ego sushchestvovaniia* [Materials concerning the Museum organisation, speeches made during its opening on 30 November 1872, and the Museum Committee Report for the first year of its existence]. (1874). (pp. 51–53), Moscow. (in Russian).

Warsaw. After this trip, the collections of manual and horse-driven farming implements, crop plant diseases, fertilisers, etc., were donated to the Museum's Agricultural Department. A collection of polypore fungi growing on different wood species as well as a collection on dry wood distillation were donated to the Forestry Department by the Warsaw Fair participants (Levinsky, 1875).

In 1875, the Society decided to donate the collections amassed by it to the Museum. The conditions on which all collections of items donated by the exhibitors at the Polytechnic Exhibition or acquired by the Society were to be handed over to the Museum Committee were approved during the meeting on 13 June 1875. These conditions included the following: "Keeping forever in one of the Museum rooms the portraits of persons who participated in the organisation of the Museum, namely: Their Imperial Highnesses Great Princes Alexei Alexandrovich and Konstantin Nikolayevich; Vice Honorary Chairs N.V. and G.E. Shchurovskii; honorary members: Prince V.A. Dolgorukov, Pr. V.A. Cherkasskii, K.P. von Kaufman, I.A. Lyamin, S.M. Soloviev; permanent members: A.P. Bogdanov, A.Yu. Davidov, V.K. Della-Vos; full members I.P. Arkhipov, V.I. Akhsharumov, A.S. Vladimirkii, P.I. Gubonin, F.N. Korolyov, N.K. Milyaev, D.A. Naumov, N.V. Nikitin, S.S. Podgoretskii, I.N. Shatilov, N.A. Shokhin; associate members of the Society N.A. Popov, I.I. Vilkins, and Secretary of the Society and the Museum N.K. Zenger."²⁵ And: "Keeping inside the Museum the inscription 'Organised by the Imperial Society of Friends of Natural Science, Anthropology and Ethnography under the auspices of Moscow University' and the same designation of the Society's name on the labels of the collections that have come from the Society"²⁶.

The Museum of Applied Knowledge began to actively engage in educational work, while still accommodated in temporary premises on Prechistenka. The duties of curators of the Museum Departments included conducting the explanations of the respective items and thematic collections on weekdays. On Sundays and holidays when there were more visitors, it was decided to involve the IOLEAE members in working with the public²⁷.

Another line of the Museum's educational activities was conducting "public readings" (lectures) with the participation of the leading Russian scientists invited by the IOLEAE. Thus, a famous Russian historian S.M. Soloviev (also spelled Solovyov) agreed to prepare the readings in the history of Russia (Soloviev, 1908) and N.S. Tikhonravov, in Russian literature. Other lecturers at the Museum were Moscow University professors F.A. Bredikhin (astronomy), V.Ya. Tzinger (mathematics), A.Yu. Davidov (theory of probability), V.V. Markovnikov (chemistry)²⁸.

²⁵ Протокол 77-го заседания Императорского общества любителей естествознания 13 июня 1875 года. [Minutes of the 77th meeting of the Imperial Society of Friends of Natural Science, Anthropology and Ethnography of 13 June 1875], *Izvestiia IOLEAE* [IOLEAE Bulletin]. (1876). XXIV, (in Russian).

²⁶ Ibid

²⁷ Открытие Политехнического музея во временном помешчении 30 ноября 1872 года [The opening of the Polytechnic Museum at the temporary location on 30 November 1872], *Materialy kasaiushchiesia ustroistva muzeia, rechi, proiznesennye pri ego otkrytii 30 noiabria 1872 goda i otchet Komiteta muzeia za pervyi god ego sushchestvovaniia* [Materials concerning the Museum organisation, speeches made during its opening on 30 November 1872, and the Museum Committee Report for the first year of its existence]. (1874). (pp. 46), Moscow. (in Russian).

²⁸ Godichnyi otchet komiteta po ustroistvu Muzeia prikladnykh znaniĭ i zavedovaniu im za tretii god ot 30 noiabria 1847 g. po 30 noiabria 1875 g. [Annual Report of the Committee for the

In 1876, ten “popular lectures” on “The life of the plant” were delivered by K.A. Timiryazev. Later on these lectures formed the basis for his book “The life of the plant: Ten popular lectures,” several editions of which have been published since then both in Russian and in foreign languages (Timiryazev, 1878).

At the same time, the Museum Committee engaged in a difficult task of providing permanent premises for the Museum, which was absolutely necessary for its future development. There were two opinions on this issue among the IOLEAE members. A.P. Bogdanov was advocating the project of building a system of pavilions in the Alexandre Garden. V.K. Della-Vos was convinced that, due to the specifics of its exhibits (large weight and size), the Technical Department needed a permanent structure that could not be built in the Alexandre Garden because of the nature of rocks in that area. He suggested that the Technical Department should be accommodated in the building on Lubyanskaya Square (the plot for its construction was allocated by the municipal government) while the Natural History, Forest, and Agricultural Departments could be hosted in the pavilions in the Alexandre Garden that was also handed over to the Museum. After the discussion, the Museum Committee supported Della-Vos’ proposal. At the same time, taking into account the funds available to the Museum, it was deemed feasible, at the first stage, to limit the construction on Lubyanka to the central part of the building and, as regards the Alexandre Garden, to begin with erecting a pavilion for the Museum’s temporary expositions²⁹.

The thematic structure of the Museum divisions on Lubyanskaya Square and in the Alexandre Garden³⁰ was planned to be as follows:

The Natural Historical Division in the Alexandre Garden (the pavilion arrangement system, with total floor area of no less than 7,850 square metres) was planned to include:

- Educational section;
- Collections of teaching aids for studying natural history;
- Geological and mineralogical collections;

Organisation of the Museum of Applied Knowledge from November 30, 1874 to November 30, 1875], *Materialy dlia istorii ustroïstva muzeia i otchet vysochaïshe uchrezhdenного komiteta muzeia za tretii god ego sushchestvovaniia po 30 noiabria 1875 goda* [Materials concerning the Museum organisation and the Museum Committee Report for the third year of its existence]. (1876). (pp. 19–22). Moscow. (in Russian).

²⁹ Godichnyi otchet komiteta po ustroïstvu Muzeia prikladnykh znaniï i zavedovaniiu im za tretii god ot 30 noiabria 1847 g. po 30 noiabria 1875 g. [Annual Report of the Museum of Applied Knowledge Committee for the third year of its existence from 30 November 1874 to 30 November 1875], *Materialy dlia istorii ustroïstva muzeia i otchet vysochaïshe uchrezhdenного komiteta muzeia za tretii god ego sushchestvovaniia po 30 noiabria 1875 goda* [Materials concerning the Museum organisation and the Museum Committee Report for the third year of its existence]. (1876). (pp. 3–9), Moscow. (in Russian).

³⁰ Godichnyi otchet komiteta po ustroïstvu Muzeia prikladnykh znaniï i zavedovaniiu im za tretii god ot 30 noiabria 1847 g. po 30 noiabria 1875 g. [Annual Report of the Committee for the Organisation of the Museum of Applied Knowledge from November 30, 1874 to November 30, 1875], *Materialy dlia istorii ustroïstva muzeia i otchet vysochaïshe uchrezhdenного komiteta muzeia za tretii god ego sushchestvovaniia po 30 noiabria 1875 goda* [Materials concerning the Museum organisation and the Museum Committee Report for the third year of its existence]. (1876). (pp. 84). Moscow. (in Russian).

- Collections on applied botany, horticulture, forestry;
- Agricultural section;
- Collection on livestock breeding;
- Section of “Promysly” (whaling, fishing and fish-farming, trapping, sericulture, apiculture, etc.);
- Turkestan section;
- Photographic pavilion;
- The room for systematic courses;
- Storerooms for storing and processing collections;
- IOLEAE meeting room;
- Museum hall and library;
- Secretary’s office and apartment;
- Five living quarters for the curators; and
- Service and utility spaces.

Technical Division in the building on Lubyanskaya Square (minimum floor space of about 9,800 square metres) was planned to include:

- Section of applied physics
- Physical and meteorological laboratory;
- Mechanical cabinet;
- Machines and implements in operation;
- Mechanical technology;
- Hydraulic division;
- Railroad division;
- Mining and metallurgical division, material processing;
- Construction division (architecture, including historical architecture and construction materials);
- Sea and river shipbuilding;
- Technology section;
- Chemical laboratory;
- Exhibition of new inventions;
- Postal section;
- Big lecture hall for public readings;
- Smaller lecture room;
- Curators’ apartments;
- Pattern shop and workshop;
- Storerooms for storing and processing collections;
- Library and drafting room;
- Museum hall and secretary’s office;
- Service and utility spaces.

Unfortunately, these plans have not been fully implemented.

On 30 May 1877, the Moscow Museum of Applied Knowledge opened in its permanent location on Lubyanskaya Square (Fig. 2). On the occasion of the Museum opening, A.P. Bogdanov made a speech “The future tasks for the Moscow Polytechnic Museum.” Having mentioned the achievements over the last 5 years in the development of the Polytechnic Museum and its collections, Bogdanov said that the IOLEAE, “above all and more than anything, has been thinking about, as a natural historical society, organising the departments that would be directly relevant to its goals, i.e. zoological, botanical, and

geological”³¹. Reviewing the specifics of developing collections for the natural history departments, Bogdanov said:

Everyone will understand the importance of machines but not everyone, not even the well-educated persons, will recognise general importance of natural historical collections whose general educational and practical importance has been far from sufficiently recognised and assessed accordingly to their actual significance in public life³².

Therefore, Bogdanov saw the Museum’s priority task as creating its natural history department in the Alexandre Garden, as, by that time, the construction of pavilions in the Alexandre Garden had not begun.



Fig. 2. The building of the Museum of Applied Knowledge (Polytechnic Museum) in Moscow, 1880s.

Рис. 2. Здание Музея прикладных знаний (Политехнический музей) в Москве, 1880-е гг.

As the first step on the road to creating the Museum of Applied Knowledge’s natural history department in the “Kremlin Gardems”³³, Bogdanov suggested to organise and convene the Anthropological Exhibition, relying on the IOLEAE resources. He believed that such exhibition would provide a good opportunity for developing systematic natural

³¹ ARAS. F. 446. Op. 1. D. 32. L. 10.

³² Ibid. L. 11.

³³ Today this is the territory of the Alexandre Garden.

historical collections: “The systematics and ethnography of tribes comprise an essential addition to the geographic division of our Museum’s educational collections. The questions of prehistoric man are closely related to geological and paleontological data — which is necessary for completing the general educational geological department”³⁴. Talking about the plans for convening the Anthropological Exhibition, A.P. Bogdanov rekindled the idea that had been put forward and discussed practically since the moment of the Society’s inception.

Yet, the history of our Society shows that, from the very beginning of its existence, it had set itself a goal of improving the possibilities for studying anthropology in Moscow. Therefore, with its exhibition, it is only completing what it has already accomplished with the collections it has already built up: the Public Museum’s ethnographic collection, the craniological one — at the University, at the department of anthropology³⁵ that has been organised by it [the Society]³⁶.

Initially, this exhibition was planned to be held in Alexandre Garden and Bogdanov saw it as a kind of testing ground for developing and testing the approaches to building the expositions of the Museum’s natural historical division in the Alexandre Garden³⁷. At the same time, being aware that the items for the future Museum at the department of anthropology could not be crammed into the premises of Moscow University due to the lack of available space, A.P. Bogdanov suggested to organise the Anthropological Museum as part of the Polytechnic Museum’s natural historical division in the Alexandre Garden³⁸. Later on, however, it was decided to hold the exhibition in the Manege³⁹ due to financial difficulties.

The Anthropological Exhibition was launched on 3 April 1879. The colorful exposition with numerous eye-catching dioramas designed to show the interiors and landscapes consisted of seven sections: antiquities (compiled by D.N. Anuchin); geological and palaeontological (N.Yu. Zograf and A.A. Tikhomirov); craniological (A.P. Bogdanov); photographic (A.I. Kelsiev); medico-anthropological (E.A. Pokrovskii); ethnographic (E.V. Barsov); and busts and masks (D.N. Anuchin) (Balakhonov, 2011).

Even though the exhibition was conceived as anthropological, the ethnographic materials comprised a large part of it. After the end of the exhibition, many of the ethnographic exhibits were handed over to the Museum of Applied Knowledge where they formed a specialised department devoted to the industry on the outskirts of Russia and the existing Turkestan department was merged into it (in May 1890, the whole Department was transferred to the Rumyantsev Museum). Some exhibits from the geological and paleontological section,

³⁴ Ibid. L. 11–12.

³⁵ Although A.P. Bogdanov mentions a “department of anthropology”, the first Department of Anthropology was actually established under the auspices of the Physico-mathematical Division of Moscow University in 1880, where it existed until 1884. The Department of Anthropology was re-established at Moscow University in 1919.

³⁶ ARAS. F. 446. Op. 1. D. 32. L. 11–12.

³⁷ *Antropologicheskaiia vystavka Imperatorskogo obshchestva liubitelei estestvoznaniia, antropologii i étnografii* [Anthropological Exhibition of the Imperial Society of Friends of Natural Science, Anthropology and Ethnography]. (1878). (Vol. 1, pp. 9), Moscow: Tip. M.N. Lavrova i Ko. (in Russian).

³⁸ Ibid. L. 229, 420.

³⁹ Ibid. L. 76.

including the model of the mammoth, the specimens of Carboniferous fossil plants, and the geological maps, were also handed over to the Museum of Applied Knowledge (Balakhonov, 2011) (Fig. 3). Therefore, the idea of adding new exhibits from the Anthropological Exhibition to natural historical collections of the Museum of Applied Knowledge failed.

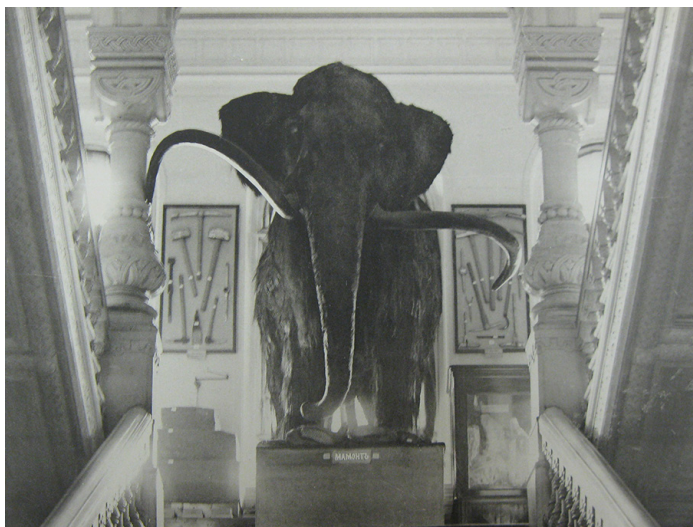


Fig. 3. The model of mammoth from the Anthropological Exhibition, exhibited at the Polytechnic Museum

Рис. 3. Макет мамонта с Антропологической выставки, представленной в Политехническом музее

After the Museum moved to its own building on Lubyanskaya Square, the number of visitors increased dramatically: from an average of 100,000 visitors attending the temporary exposition on Prechistenka each year, the number of visitors to the Museum on Lubyanka reached 5 to 6 thousands daily, especially on Sundays and holidays. The social composition of the audience changed too. While before the relocation it was mostly students of various educational institutions, the greater part of visitors to the new building comprised common people⁴⁰. Explaining the Museum collections to the visitors in the Museum rooms became a complicated task and A.P. Bogdanov proposed a new form of educational work: Sunday explanations of the collections conducted in a specially equipped lecture hall with lectures accompanied by the demonstrations of Museum exhibits, specimens, and visual aids, expressly selected for each lecture.

During the first six months, the Sunday Explanations covered the themes of four Museum departments: Technical, Agricultural, Applied Zoology, and Educational. In 1878, the Applied Physics Department joined this programme, followed by the rest of the departments in 1879.

The IOLEAE members were fully committed to preparing and conducting the Sunday Explanations for the Museum collections. The first three such events were⁴¹:

⁴⁰ ARAS. F. 446. Op. 1a. D. 69. L. 27 ob.

⁴¹ Ibid. L. 28.

- 2 October 1877: “Parasite worms” by A.P. Bogdanov and “Collection of animal foetuses” by A.A. Tikhomirov;
- 9 October 1877: “Helpful and harmful insects” by A.P. Bogdanov and “Mineral coal” by N.Yu. Zograf; and
- 16 October 1877: “Stone implements” by A.P. Bogdanov and “Lake salts” by N.Yu. Zograf.

Summarising the results of the first two years of conducting the Sunday explanations, A.P. Bogdanov wrote, “it is much easier to write a serious lecture than to muse over and conduct an explanation of particular specimens, taking into account that it must be comprehensible, simple, concise, and, at the same time, sensible” (Bogdanov, 1878: VI).

Professor K.A. Timiryazev had thus described his impressions from the Sunday Explanations at the Polytechnic Museum:

I dare say, neither in London's Kensington nor in Paris' Conservatoire have I seen a more comforting sight. You would behold there the most motley crowd <...> you could have imagined anywhere, but surely not in a lecture hall. This, however, is a fact: this crowd is the audience that intently and avidly devours every word not of a tale, not of a comic story, but of a scientific question that has become intelligible to them (Bogdanov, 1914).

Indeed, the Sunday Explanations of the Polytechnic Museum collections presented an innovative approach in the museums' science education activities. This form of working with museum visitors combined traditional explanations in museum rooms with a popular science lecture. Such form of educational work had not been practised in any foreign museum of science and technology.

The Sunday Explanations were extremely popular. Every Sunday there was a crowd of those who wanted to attend these lectures, waiting at the entrance. Usually, there were two Explanations delivered during the day, each gathering 500–600 attendees in the lecture hall. Delivering such “public lectures” required not only the extensive knowledge of subject area but also the talent of science communicator.

Should a lecturer indulge in intellectualising, imagine that he was delivering a lecture, fall into verbosity, the audience would instantly become agitated, the signs of boredom would appear, even the attempts to sneak out of the lecture hall. But the moment of the lecturer's getting carried away would pass, and he would come back down to earth and switch to a comprehensible and simple explanation using concrete specimens, and the very same audience would be all ears, — recalled an active participant in the Sunday Explanations, an IOLEAE member N.Yu. Zograf⁴².

From 1878 to 1908, 1704 Sunday Explanations were conducted. The Museum reports mention 571 Explanations, 158 of which dealt with applied zoology; 143, with technology, mechanics, and chemistry; and 138, with agriculture, forestry, and botany⁴³.

⁴² ARAS. F. 446. Op. 1a. D. 69. L 29.

⁴³ ARAS. F. 446. Op. 1a. D. 69. L 28 ob.

The Sunday Explanations were so popular that the Society decided to publish them as separate issues of *Izvestiia IOLEAE*, with the first such issue published as early as in 1879⁴⁴. A total of eleven issues containing 356 Explanations were released and circulated across the country. It was the programme of Sunday Explanations that gained the Polytechnic Museum the status of the “first Russian popular university that did a vast deal to help spreading educational information among the masses” (Bogdanov, 1914).

The main obstacle that hindered the Museum’s further development was the lack of exhibiting floor space. After the southern wing of the building on Lubyanka was completed, the floor spaces of the Technical, Manufacturing, Architectural, Educational, Applied Physics and Applied Zoology Departments were significantly expanded⁴⁵. The Forest and Agricultural Departments whose floor space remained the same since the Museum’s relocation to Lubyanka were badly space-constrained. For this reason, these Departments’ expositions changed very little over time and their newly acquired collections were stored in the back rooms⁴⁶.

As has been mentioned, it was initially planned for the Forest and Agricultural Departments’ exposition to be hosted in the pavilions erected in the Alexandre Garden. However, due to constant lack of funds, this part of the IOLEAE project of general educational museum failed to be implemented and, in 1889, the Alexandre Garden was returned to the Court Administration (Gladkikh, 2019).

Of natural historical departments whose creation and development was so ardently advocated by A.P. Bogdanov, the Department of Applied Zoology was the most successful in regard to the implementation of Bogdanov’s ideas about demonstrating practical importance of natural sciences. The Department of Applied Zoology existed in the Museum from its opening to 1928. Its first head was A.P. Bogdanov who was succeeded by his followers who were also the IOLEAE members: A.A. Tikhomirov (1896–1908), N.Yu. Zograf (1908–1919), and N.M. Kulagin (1919–1928). The Department’s core collections that had been handed over by the same name section of the Polytechnic Exhibition included S.A. Maslov’s unique collection on Russian sericulture, Wilhelm Gottlob Rosenhauer’s collection of harmful insects, and others.

The Department of Applied Zoology was one of the largest in regard to the number of exhibits and exhibiting floor space, and, in 1916, occupied eight rooms in the southern wing of the Museum⁴⁷. This department’s exposition and its collections covered the following areas devoted to different animals with a role in human life: sericulture, apiculture, applied entomology, fish-farming and fishing, fur-trapping and hunting, domestic animals (other than agricultural), and wild animals used by humans.

By the late 19th century, due to the collaboration with the Department of Ichthyology of the Imperial Society for the Acclimatisation of Animals and Plants (the Department of Ichthyology was chaired by N.Yu. Zograf who also headed the Fish-farming Commission at the Museum), the Museum’s Department of Applied Zoology amassed a unique

⁴⁴ Voskresnye ob”iasneniia kolleksiĭ Politekhnicheskogo muzeia (1878–1879) [The Sunday Explanations for the Polytechnic Museum collections (1878–1879)], *Izvestiia IOLEAE* [IOLEAE Bulletin]. (1879). XXXVI(1).

⁴⁵ *Dvadtsatipiatiletie Muzeia prikladnykh znaniĭ v Moskve* [25th anniversary of the Museum of Applied Knowledge in Moscow]. (1898). (pp. 19). Moscow: Russkaia tipolitografiia.

⁴⁶ Polytechnic Museum’s Collection of Written Sources. F. 100. Op. 2. No. 16534/104.

⁴⁷ *Kratkiĭ ukazatel’ kolleksiĭ muzeia* [A brief index to the Museum collections]. (1946). Moscow.

piscatory collection, which included collections on fish taxonomy and biology; collections demonstrating various fishing methods and equipment; collections on artificial fishery and fish product preservation technologies; and collections on oyster farming, crayfish farming, and malacology⁴⁸ (Fig. 4). In 1923–1924, the Department of Applied Zoology acquired new exhibits related to this line of work after the All-Russia Agricultural and Industrial Show⁴⁹.



Fig. 4. The hall of fish-farming and fishery at the Department of Applied Zoology of the Polytechnic Museum, the late 19th century

Рис. 4. Зал рыбоводства и рыболовства отдела прикладной зоологии Политехнического музея, конец XIX века

The Department's collections and exposition represented the whole range of applied aspects of zoology in a systemic way. They not only showed the animals per se (taxidermied animals, models, and alcohol-preserved specimens), their biology and behavioral patterns, but also demonstrated the entire technological chain of their utilisation by humans. This included the equipment for their capture and upkeep, devices and tools used to study these animals, as well as the types of animal products (fur, skin, feathers, meat, etc.) and relevant processing technologies. This was the realisation of A.P. Bogdanov's dream about museum exposition that "must serve as a kind of living and comprehensive book on applied science, in which the place of text and pictures is filled by objects themselves and by visual demonstrations of their characteristic features in specimens and models"⁵⁰. It had been in no small measure due to relentless guidance and support on the part of the IOLEAE. The Society members headed this department, curated its collections, conducted Sunday Explanations, and prepared popular science editions on applied zoology.

⁴⁸ *Dvadsatipiatiletie Muzeia prikladnykh znaniĭ v Moskve* [25th anniversary of the Museum of Applied Knowledge in Moscow]. (1889). (pp. 20), Moscow: Russkaia tipolitografiia.

⁴⁹ Polytechnic Museum's Collection of Written Sources. F. 100. Op. 7. No. 27915/12.

⁵⁰ ARAS. F. 446. Op. 1a. D. 69. L. 32 ob.

In 1927, a zoological laboratory was created at the Department, which had also been part of Bogdanov's plans. The laboratory carried out applied research on sericulture, apiculture, fish breeding, and fur trapping⁵¹. Until 1928, while Prof. P.P. Petrov remained the Museum's Director, the Department of Applied Zoology and its collections were actively developing, and its exposition was being constantly enhanced.

In 1928, the Museum exposition was completely reorganised to meet the new goal of promoting industrialisation of manufacturing and agriculture. The then main departments of the Museum (Technical, Agricultural, Architectural, Applied Physics, Applied Zoology, Forest, and Educational) were reorganised into three sectors — General, Factories & Plants, and Agricultural. The collections on applied zoology were handed over to the "Promyslovyi" Department (hunting, fishing, fur trapping) in the Factories and Plants Sector, i.e. the Department of Applied Zoology ceased to exist as the Museum's autonomous division. In 1931, the Society of Friends of Natural Science, Anthropology and Ethnography also lost its autonomy and was forcefully merged into the Moscow Society of Naturalists.

The Polytechnic Museum in Moscow, which is justly believed to be founded by the Imperial Society of Friends of Natural Science, Anthropology and Ethnography, was the third oldest national museum of science and technology in the world. At the same time, with its systematised collections, assembled and further developed so as to demonstrate the practical role of natural and technical sciences, and with its extensive and largely innovative science-education efforts that spread beyond its walls as popular science editions, intended for the broadest audience, the Polytechnic Museum may be safely called the first complex general education museum, which it remained for the first 50 years of its history.

These accomplishments were made possible through the Museum's long-standing collaboration with the IOLEAE and other scientific societies. The IOLEAE members who made significant contributions to the making and development of the Polytechnic Museum included A.P. Bogdanov, G.E. Shchurovskii, V.K. Della-Vos, V.A. Cherkasskii, A.Yu. Davidov, N.K. Zenger, A.A. Tikhomirov, N.Yu. Zograf, N.M. Kulagin, and many others.

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⁵¹ Polytechnic Museum's Collection of Written Sources. F. 100. Op. 7. Historical information ("Istoricheskaiia spravka")

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Императорское общество любителей естествознания, антропологии и этнографии (ИОЛЕАЭ) и создание общеобразовательного музея в Москве

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В статье рассмотрена деятельность Императорского общества любителей естествознания, антропологии и этнографии по созданию в Москве Музея прикладных знаний (Политехнического музея). Это был первый комплексный общеобразовательный музей, в котором с помощью систематических коллекций планировалось показать прикладное значение естественных и технических наук, использование их достижений в повседневной жизни людей. Большую роль в создании музея сыграл член ИОЛЕАИ профессор зоологии Московского университета А.П. Богданов. Именно он разработал основы концепции музея прикладного естествознания, принимал активное участие в формировании его коллекций и научно-просветительской деятельности. В статье также проанализированы взгляды на создание музея и его развитие члена ИОЛЕАЭ В.К. Делла-Воса. Отличительной чертой Политехнического музея была масштабная просветительская деятельность. А.П. Богдановым была предложена новая форма просветительской работы с посетителями музея — воскресные объяснения коллекций, проходящие в специальной аудитории и сопровождавшиеся демонстрацией музейных предметов, образцов и наглядных материалов. Из-за нехватки экспозиционных площадей идею А.П. Богданова по созданию естественноисторического отделения музея не удалось реализовать в полном объеме. Наиболее успешным с точки зрения показа прикладного значения естественных наук стал отдел прикладной зоологии музея, который возглавлял А.П. Богданов и его ученики, члены ИОЛЕАЭ.

Ключевые слова: Императорское общество любителей естествознания антропологии и этнографии, Музей прикладных знаний, Политехнический музей.

Soviet Power and Natural Scientific Societies in the 1920s: Forms and Phases of the Interaction

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Scientific societies have traditionally played a very important role in the academic community. They contributed to the formation of civil society in Russia, determined the self-identification of young scientists and scholars, and were also particularly important as a platform for the presentation of new scientific information. The aim of this article is to discuss the place and role of natural scientific societies in the system of science organizations and their relations with Soviet power in the 1920s. The study is based on a variety of sources, primarily archival materials of natural scientific societies and governmental bodies that are stored in the State Archive of the Russian Federation, St. Petersburg Branch of the Archive of the Russian Academy of Sciences, the Central State Archive of St. Petersburg, etc. The article focuses on the legislative and regulatory framework for relations between Soviet power and natural scientific societies, the forms of control over their activities, and governmental support for their work. In general, the relationship between the Soviet authorities and natural scientific societies in the 1920s can be described as contradictory. On the one hand, the regime considered the work of natural scientific societies useful and supported it. In the system of scientific societies, natural scientific organizations occupied leading positions. The new regime intended to utilize the skills of natural scientists. On the other hand, the state's control over their functioning was tightening throughout the 1920s. In the late 1920s/early 1930s, the political changes in the country resulted in total control over scientific and public spheres.

Keywords: scientific societies, science and power, public organizations, social history of Russian science, the system of science organization.

Introduction

A number of books and papers addressed the history of the initial period of Soviet science. Since the Academy of Sciences has traditionally dominated Russian and Soviet science, encompassing all fields of knowledge, the history of its fate under the first decades

of the Bolsheviks regime is virtually general history of early Soviet science for most historians (Graham, 1967; Vucinich, 1984; Levin, 1988; Esakov, 1971; Belyaev, 1982; Perchenok, 1991). However, several studies devoted to some other scientific organizations such as scientific-research institute, an innovation adopted in the 1920s (Graham, 1975; Josephson, 1991) and universities (Kupaigorodskaya, 1984; Krivonozhenko, 2012; Kail', 2013). In contrast, the history of scientific societies and their struggle for a place in the new system of science organizations is a field of study that is underdeveloped. It may be explained by the fact that scientific societies were a specific form of science organizations, occupied an ambiguous position in the system of scientific institutions, since these associations, at the same time, were also specific public organizations of scientists. This duality has meant that societies have not been typical subjects of study for historians of science or for historians of Soviet voluntary associations.

Scientific societies have been passingly discussed in a few monographs and articles (Fitzpatrick, 1970; Kupaigorodskaya, Lebina, 1989; Read, 1990; Kurepin, 2003), although there are only a few special studies on scientific societies in the first period of Soviet Russia history (Swanson, 1968; Bradley, 2016; Krivosheina, 2019), apart from my own papers on scientific societies and their relations with Soviet power in the 1920s (Sinelnikova, 2015, 2016, 2019). Still, it seems fair to say that scientific societies need to be further researched.

The aim of this article is to discuss the place and importance of natural scientific societies in the system of science organizations and their relations with Soviet power in the 1920s.

Natural Scientific Societies before the October Revolution

Scientific societies have traditionally played a very important role in the academic community. They contributed to the formation of civil society in Russia, determined the self-identity of young scientists and scholars, and were also particularly important as a platform for the presentation of new scientific information. The first natural scientific society in Russia, the St. Petersburg Mineralogical Society, was founded in 1817. Such scientific organizations were actively created in the first half of the 19th century, and from the 1860s they began to hold All-Russian Congresses of Naturalists and Physicians.

The largest of natural scientific societies, such as the Moscow Society of Naturalists, the Imperial St. Petersburg Society of Naturalists, the Novorossiysk Society of Naturalists, existed at universities, and the main source of their budgets, especially in the province, remained subsidies from the central and local authorities. Financial support has always been received for specific projects: conducting expeditions, organizing museums, studying local flora and fauna, soil analysis, searching for deposits, etc.

With the outbreak of the First World War, natural scientific societies had to greatly reduce their activities, primarily publishing and expeditions. It especially affected the societies that located in the combat zone or in the front-line provinces.

Despite the war, the process of science institutionalization continued. New scientific societies were also formed, primarily in Petrograd, as the capital of the Russian Empire was called from 1914. In particular, at the end of 1915, the Russian Botanical Society was created "for the purpose of the scientific association of Russian botanists"¹. On February 9, 1916,

¹ *Gosudarstvennyi arkhiv Rossiiskoi Federatsii* [State Archive of Russian Federation] (GARF). F. 2306. Op. 2. D. 140. L. 2.; *Sankt-Peterburgskii Filial Arkhiva Rossiiskoi Akademii nauk* [St. Petersburg

the charter of the Russian Paleontological Society, consisting of geologists, paleontologists, zoologists and botanists, was registered.

After the February Revolution, scientific societies quickly admitted a new power, and even managed to get assurances of funding for their work from the Provisional Government. For instance, The Russian Paleontological Society was promised a subsidy of 5,000 rubles per year².

Despite all the financial support, one of the most characteristic and sad trends in the post-revolutionary life of scientific societies was a significant reduction in the number of organizations and the number of their members. The situation in the capital was especially desperate. The fact is that many scientists left hungry Petrograd for provincial cities, others perished in the midst of the revolutionary struggle, as well as due to hunger and disease.

The number of members of scientific societies of all-Russian scale was still significant. The most numerous of the natural scientific societies in 1917 were the Russian Geographical Society, which had 1,446 members. In other natural scientific societies of Petrograd there were also several hundred people: the Russian Physicochemical Society — 480, the Russian Society of Natural Science Amateurs³ — 401, the Russian Mineralogical Society included from 408 to 481 people during 1917, the Society of Naturalists at Petrograd University — 456, Russian Astronomical Society — 307⁴.

According to the Commission on Scientific Institutions and Organizations under the Ministry of Public Enlightenment, created in April 1917 by the Provisional Government, at that time 122 scientific societies were functioning in Russia. Natural scientific societies made up nearly 29 percent of this number. Besides, the Commission decided to organize a congress of representatives of scientific societies and institutions in Moscow. The representatives of scientific societies of Petrograd, Moscow, Kiev, Odessa, Kazan, Kharkov, Rostov-on-Don, and Yekaterinburg were supposed to become participants of the congress. It is noteworthy to mention that almost half of 34 invited scientific societies were natural scientific ones. This indicates the great importance of natural scientific societies in the system of scientific organizations. However, the congress was not held. A brief “springtime” of 1917 ended after the October Revolution. Scientific societies now had to establish relations with the new Soviet power.

Branch of the Archive of the Russian Academy of Sciences] (SPbF ARAN). F. 125. Op. 2. D. 65. L. 45.

² Obyknovennoe zasедanie 21-go dekabria 1917 g. v pomeshchenii Geologicheskogo Komiteta [Ordinary meeting on December 21, 1917 in the premises of the Geological Committee], *Ezhegodnik Russkogo paleontologicheskogo obshchestva* [Yearbook of the Russian Paleontological Society] (Vol. II. pp. 135), Petrograd, 1918.

³ *Russkoe obshchestvo liubitelei mirovedeniia* in Russian. The term “mirovedenie” has not analogies in English. The society was engaged with natural sciences and mathematical knowledge, carried out different kind of observations.

⁴ *Tsentral'nyi gosudarstvennyi arkhiv Sankt-Peterburga* [Central State Archives of St. Petersburg] (TsGA SPb). F. 2555. Op. 1. D. 272. L. 22, 29, 40, 49, 60, 74, 96, 120, 125, 133, 136, 140.

The Beginning of Cooperation with the Bolshevik Regime

Science in Russia has always considered by scientists and government officials to be close to politics. Indeed, according to Loren Graham, “the effects of science are often political, its philosophy may have political implications, its promotion is usually political, and it is, in turn, frequently affected by politics, but the practice of science is divisible from the practice of politics” (Graham, 1967, p. 193–194).

After the October Revolution the new Bolshevik government adopted a very positive attitude toward science but retained the view that science and politics are intertwined. But the influence of politics on science can be harmful as well as beneficial.

Scientific societies agreed to cooperate with the new political authority willingly, in contrast to the Academy of Sciences. Most scientific societies submitted their prerevolutionary charters for registration to the People’s Commissariat of Internal Affairs (the NKVD) and the People’s Commissariat of Public Enlightenment (Narkompros). But some societies (e.g., the Russian Society of Natural Science Amateurs) made adjustments to their charters “in accordance with the current situation”⁵.

Before the October Revolution all scientific societies possessed a small amount of capital, which, by law, they were obliged to keep in the form of interest-bearing securities as “government” and “guaranteed by the city council and zemstvo⁶ credit” institutions (Plato, 1903, p. 5). At the time of the revolution, for example, the Russian Society of Natural Science Amateurs had its money in both the State Savings Bank and in the Society of Mutual Credit of The Petrograd District Zemstvo. The All-Russian Central Executive Committee Decree “On the Nationalization of Banks”⁷ was adopted at a meeting on December 27, 1917, and the supplemental decree of the Council of the People’s Commissars “On Former Private Banks Joint-Stock Capital Confiscation”⁸, published on February 8, 1918, deprived societies of their capital. Membership dues could not be paid regularly and, in any event, they were not enough to cover the expenses of organizations.

As a result, the state became the only funding source for scientific societies in the new political and economic conditions. They received subsidies from Narkompros to rent meeting halls, pay for light and heat, and publish some their member’s papers and reward a few employees. However, financial support was differentiated. The authorities were subsidized only those scientific societies in whose activities they were interested. It depended on the study field of a particular scientific society, since the technical and natural sciences were in the foreground. The significance of them was especially great for the socialist reorganization of the national economy and the state defense.

For example, in November 1918, the Scientific Department in Petrograd reported to Narkompros regarding the allocations for the first half of 1919 that “the motives presented by the society seem, in the opinion of the department, to be sound and therefore the department asks to issue

⁵ TsGA SPb. F. 2555. Op. 1. D. 184. L. 28.

⁶ Zemstvos (zemstvo institutions) were elected bodies of self-government (zemstvo meetings, zemstvo councils) in the Russian Empire at the local and provincial level. They were created by the Zemstvo Reform in 1864.

⁷ *Sobranie uzakonenii i rasporiazhenii rabocheho i krest'ianskogo provitel'stva RSFSR* [Collection of Laws and Decrees of the Workers and Peasants Government of the RSFSR] (here SU). No. 10 (1917). Art. 150.

⁸ SU. No. 19 (1918). Art. 295.

the requested 3,000 rubles to the Paleontological Society”⁹. In the second half of 1919, the estimate of the Society of Naturalists at Petrograd University did not cause “any objections from the Scientific Department”¹⁰. The same society was denied funding for an auxiliary institution — the Murmansk Biological Station, “due to the finding ... [of it] in the hands of the imperialists”¹¹ during the foreign intervention.

Medical scientific societies, as well as technical and natural scientific societies, did not raise doubts among the authorities about funding. On the contrary, humanitarian societies had a harder time than others, as they had to prove their right to subsidies.

It should be noted that all the work of scientists in societies was voluntary and free of charge. Only a few people received salaries (most often librarians, messengers, clerks or secretaries), as a rule, the staff of paid employees of one scientific society did not exceed three people.

Of course, under the conditions of the Civil War, the activities of scientific societies could not be carried out on the same scale. The most accessible forms of work were public lectures and presenting papers on societies meetings. At the same time, some societies managed to continue the work of laboratories and biological stations, and even equip expeditions. As a rule, those expeditions covered the surrounding areas. All that work was also carried out with state support. The Russian Botanical Society, for example, in April 1919 received an appropriation for botanical and geographical research of the North of Russia and the Petrograd province¹².

After the October Revolution scientific societies had to make changes in their activities to correspond to the main directions of the Bolshevik scientific policy. In January 1918 the Division for the Mobilization of Scientific Forces for the Peasant and Workers Service in Russia was formed in Narkompros. The Division prepared “Memorandum for the Mobilizing Science Project for the State Construction Needs” — a document transmitted by L.G. Shapiro to the Academy of Sciences Permanent Secretary S.F. Oldenburg at the end of January 1918. The essence of the Bolsheviks’ scientific policy was proximity to the problems of production, collective forms of research, priority of applied science, and state centralization of scientific work. In this connection, scientific societies began with establishment of some new divisions — for example, the Applied Entomology Division appeared at the Russian Entomological Society,¹³ the Committee of the North, chaired by Y.M. Shokal’sky, was created at the Russian Geographical Society (Agafonov, 1995, p. 183). The applied nature was common for those structures.

Scientific societies communicated to other scientific institutions through these applied divisions. For example, the Meeting on the Study of the North was held at the Russian Geographical Society on May 16–24, 1920. Among the participating scientific institutions were the Russian Mineralogical Society, the Russian Geographical Society, and the Society of Naturalists at Petrograd University, along with the Russian Academy of Sciences Permanent Polar Commission, the Zoological Museum of the Academy of Sciences and

⁹ TsGA SPb. F. 2555. Op. 1. D. 64. L. 3.

¹⁰ TsGA SPb. F. 2555. Op. 1. D. 63. L. 4.

¹¹ Ibid. P. 6.

¹² TsGA SPb. F. 2555. Op. 1. D. 186. L. 8.

¹³ TsGA SPb. F. 2555. Op. 1. D. 180. L. 60 ob.

the Hydrological Institute¹⁴. Thus, scientific societies were recognized as an actual part of the system of science organization.

Natural Scientific Societies and the NEP

The transition to the New Economic Policy (NEP) in Soviet Russian began after the official end of the Civil War. According to the Russian historian L.G. Berlyavsky, “NEP foreshadowed the flowering of such a traditionally least bureaucratic element of the science system as scientific societies” (Berlyavsky, 1996, p. 18). But for the scientific societies themselves, it was not so obvious, because in 1921–1922 they were heavily criticized: “Organizations of private societies, and even more so of societies whose personnel have positions that are definitely class hostile to the proletariat, should not be allowed under any circumstances”¹⁵; “The October Revolution took place. What have the so-called lights of science done? Some of them fled abroad, and some locked themselves up, as in bastions, within the walls of their scientists and scientific institutions and societies”¹⁶. Indeed, under the conditions of the financial and economic crisis, the situation was uncertain and NEP seemed to most scientific societies “threatening”, as “the question of money was in the full sense open”¹⁷. Many scientific societies previously receiving subsidies were removed from government procurement at the beginning of 1922. They began to apply to Narkompros with a request to return the subsidies. For example, the Petrograd Society of Naturalists tried to return not only its subsidies but even its own capital, confiscated in 1918. However, “petition to Moscow to return the capital of society has not yet met with sympathy”¹⁸. At the end of 1922 the society, due to its “serious significance for the state”, was accepted by Narkompros, as an exception, for financial support¹⁹.

Archival data show that most scientific societies, deprived of state funding, from the middle of 1922, began to receive regular subsidies. In general, from July 1, 1922, 10 scientific societies of Petrograd were included in the number of subsidized ones (the Russian Archaeological Society, the Russian Botanical Society, the Petrograd Society of Naturalists, the Society of Ancient Writing Amateurs, the Russian Society of Natural Science Amateurs, the Scientific Society of Marxists, the Russian Mineralogical Society, the Russian Paleontological Society, the Petrograd Society of Physiologists, the Russian Entomological Society)²⁰. Perhaps this was a consequence of the greater interest of the authorities in their activities in comparison with other societies. It is also impossible to exclude the influence of personal ties between leaders and activists of societies with representatives of state and party bodies.

¹⁴ GARF. F. 2306. Op. 19. D. 174. L. 184 ob.

¹⁵ Dokladnaia zapiska SO VCHK v sekretno-operativnoe upravlenie VCHK ob obshchestvennykh organizatsiiakh pri Narkomatakh i drugikh tsentral'nykh uchrezhdeniiakh RSFSR (16 dekabria 1921 g.) [Report of the SB VCHK to the secret-operational management of the VCHK on public organizations at the People's Commissars and other central institutions of the RSFSR (December 16, 1921)], published in (Ochistim Rossiю nadolgo..., 2008, p. 22).

¹⁶ *Pravda*. 1922. 1 September. P. 1.

¹⁷ TsGA SPb. F. 2555. Op. 1. D. 545. L. 23 a.

¹⁸ Ibid. D. 546. L. 5.

¹⁹ Ibid. D. 357. L. 13.

²⁰ Ibid. D. 418. L. 39.

In general, the monthly state subsidy of scientific societies consisted of money for the payment of staff positions and separate appropriations for operating expenses, and the sum of these receipts, for example, from the Russian Society of the Russian Society of Natural Science Amateurs in 1923 amounted to 75% of the total budget of the society, membership fees — 12 %, income from the sale of publications — 10%, the remaining 3% — donations from individuals²¹. The monthly state subsidy to the Russian Mineralogical Society in 1924 was 30 rubles²², and the Russian Paleontological Society in the same year received 15 rubles a month²³, as did the Russian Entomological Society²⁴.

In 1923 already 12 scientific societies of Petrograd “enjoyed the subsidy of Narkompros”²⁵, and these societies had “worldwide importance”²⁶.

State financial support for scientific societies was enshrined at the legislative level in 1925. On February 17, 1925 the RSFSR Council of People’s Commissars Decree approved a list of scientific, scholarly-art, museum and nature protection institutions and societies that were under the jurisdiction of the Main Directorate of Scientific, Artistic and Museum Institutions (Glavnauka) of Narkompros and dependent on the state budget. There were nine Leningrad and six Moscow scientific societies as well as 25 provincial scientific societies and 12 offices of the Russian Geographical Society²⁷. The word “state” was added in the title of six Leningrad scientific societies. Thus, the authorities additionally emphasized their importance for the country. There were the Russian Paleontological Society, the Russian Botanical Society and the four oldest scientific societies: the Russian Mineralogical Society (organized in 1817), the Russian Geographic Society (1845), the Russian Entomological Society (1859) and the Russian Physicochemical Society (1878). The other three societies from the list were the Leningrad Society of Naturalists, the Russian Society of Nature Science Amateurs, and the Scientific Society of Marxists. Except the latter all societies were natural scientific organizations. Also from six Moscow societies in that list four also were natural scientific societies: the Moscow Society of Naturalists, the Association of Physicists, the Moscow Protistological Society, the Society of Natural Science, Anthropology and Ethnography Amateurs at Moscow University. That testified to the special interest of Soviet power in certain scientific fields. They were also fully funded by the state and were under the ideological and administrative supervision of Glavnauka.

Scientific societies from that list received guarantees of funding and support. Determination of the status of scientific societies played a significant role in their relationship with the authorities in the first post-revolutionary decade.

²¹ Ibid. D. 720. L. 41, 67 ob.

²² Ibid. D. 722. L. 16.

²³ Ibid. D. 719. L. 13.

²⁴ Ibid. D. 727. L. 7.

²⁵ Ibid. D. 625. L. 32.

²⁶ Ibid. D. 667. L. 41.

²⁷ SU. No. 14 (1925). Art. 95.

Natural Scientific Societies and Re-registration Campaign

After the end of the Civil War, both local and central authorities turned their attention to the situation with public organizations. Despite the fact that in the first years after the revolution a number of Soviet decrees were issued, it was still necessary to create a comprehensive legislation on public organizations.

The decree of the All-Russian Central Executive Committee and the Council of People's Commissars of the RSFSR "On the procedure for approving and registering societies and unions that do not pursue the goal of making a profit, and the procedure for supervising them"²⁸, adopted on August 3, 1922, solved the task. The decree was important for the development of public organizations, since it formalized the foundations of their relationship with the Soviet government bodies.

The mass re-registration of scientific societies began after the decree publication: scientific societies submitted documents to the NKVD or to the Administrative Department of Provincial Executive Committee, and a copy of the charter was also sent to the local body of the Narkompros and Glavnauka in Moscow. So, the Petrograd Society of Naturalists on January 17, 1923 was registered by Gybispolkom²⁹.

The re-registration process of all-Russian societies assumed many difficulties as they had to register directly in the NKVD since it took much longer to receive a response from the center than from local authorities. The registration process was often complicated and delayed by the outdated charters of scientific societies, which they submitted to the authorities. The Russian Society of Natural Science Amateurs on September 7, 1922, submitted an application and all documents for re-registration in the NKVD, but received no response. Only on June 4, 1923, the society received a notification from the NKVD that "the independent work of the society is recognized as inexpedient, and it is invited to join one of the existing scientific societies, without specifying which one"³⁰. The society turned to the Glavnauka with a request for support in continuing its registration as an independent one, as well as the chairman of the society, famous revolutionary N.A. Morozov personally applied to the NKVD. As a result, the decision was canceled, "after which the society was asked to revise its charter in accordance with the Normal Charter"³¹. Thus, the interaction between the authorities and this natural scientific society developed in several spheres at once: administrative and personal.

Indeed, the "Normal Charter of Scientific, Literary and Art Societies, Managed by Glavnauka of Narkompros", published on July 15, 1923³² was undoubtedly aimed at expanding the social membership of scientific societies, which were obliged to revise their charters within three months in accordance to the Normal Charter. Scientific societies had to start the process of re-registration again with new charters.

Although a few months were given for re-registration and process was often delayed, failure to comply with the deadlines led to different consequences. The Russian Society of Natural Science Amateurs began to re-register in 1922. Its revised charter was submitted to the NKVD on August 4, 1923. Despite the fact that even in March 1924 the society was still

²⁸ SU. No. 49 (1922). Art. 622.

²⁹ TsGA SPb. F. 2555. Op. 1. D. 627. L. 13.

³⁰ Ibid. D. 539. L. 42.

³¹ Ibid. L. 76.

³² The NKVD Bulletin. No. 12 (1923). Art. 158.

not re-registered, its scientific work continued, as it received regularly government subsidies for the publication of its journal “Mirovedenie”³³.

It was noted in the Russian Geographical Society annual report of 1923 that the society registration, which began in 1922, “was delayed in connection with the development of a normal charter”³⁴. In that situation the Russian Geographical Society appealed to the Petrograd Department of Scientific Institutions with a request “to assist in accelerating the registration of the charter”³⁵. At the same time this request was also addressed to Glavnauka. The following answer was received from Moscow at the end of October 1923: “from direct negotiations with the chairman of the NKVD Administrative Department it turned out that the revised charter of the Russian Geographical Society had been reviewed and approved by the Department of Scientific Institutions of the NKVD”³⁶. The charter of the Russian Geographical Society was eventually registered on November 9, 1923³⁷.

The Russian Mineralogical Society pre-revolutionary charter was revised in accordance with the Normal one in the summer of 1923, and in September sent for registration³⁸. At the beginning of 1924, still not receiving an answer, the society, represented by senior geologist of the Geological Committee D.V. Sokolov, contacted the Department of the Central Administrative Department of the NKVD. The assistant to the head of this authority body said that the approval of the society charter was postponed. D.V. Sokolov noted that “the Russian Mineralogical Society is a scientific society approved by the Glavnauka”. But the assistant objected that “now every society should bring practical benefits to the country, and if a society deals only with scientific casuistry, then it is not needed”³⁹. This seemed to reflect the Bolsheviks view on soviet science in general. On November 30, 1924, the Mineralogical society applied to the Leningrad Department of Glavnauka (LOG) for assistance in the prompt approval of the charter and registration⁴⁰. In 1925 the society wrote in its annual report that “if from the fall of 1923 to the fall of 1924 fundamental disputes were concentrated around this charter, as well as around other similar charters, then over the past year the whole matter was apparently completely has died out, and society has no information about his position”⁴¹. Indeed, despite the fact that the Russian Mineralogical Society did not abandon its attempts to register the updated charter, making appropriate amendments to it, the society did not succeed in re-registering its new charter. But the existence of society was not prohibited by the authorities and it was even subsidies by the state. Meanwhile, the society continued to function until 1929 on the basis of its charter, approved back in 1920⁴².

A similar situation has developed with one of the oldest natural scientific societies — the Russian Botanical Society — began its re-registration on the basis of the new charter

³³ TsGA SPb. F. 2555. Op. 1. D. 720. L. 8.

³⁴ Ibid. D. 625. L. 135.

³⁵ Ibid. L. 157 ob.

³⁶ Ibid. L. 166.

³⁷ Ibid. L. 168, 196, 197.

³⁸ Ibid. D. 722. L. 20.

³⁹ Ibid.

⁴⁰ Ibid. L. 22.

⁴¹ Ibid. D. 791. L. 26 ob.

⁴² TsGA SPb. F. 2556. Op. 3. D. 93. L. 217 ob.

on September 17, 1923. However, even after two years it was still not re-registered⁴³, but continued to receive a state subsidy, as already mentioned, it was included in the number of “state” scientific societies in 1925.

Contrary to the Russian Mineralogical Society and the Russian Botanical Society re-registration experiences, the Russian Paleontological Society was under threat of closure due to impossibility of re-registration in the allotted time. The process of re-registration began with the new society charter submission to the LOG on October 9, 1923. It was sent to the NKVD on December 14. The charter was returned for revision, and after that, the revised charter was once again sent to the Glavnauka and the NKVD⁴⁴. But on June 19, 1924, a notification was received from the Administrative Department of the Provincial Executive Committee that, due to the non-approval of the charter by the NKVD, society “must be closed after three days”⁴⁵. The Russian Paleontological Society believed that on its part all the registration formalities had been complied and the charter could have been detained by the NKVD. The society appealed to the LOG on June 24, 1924 for help in solving this problem⁴⁶. The LOG, in turn, appealing to the Provincial Executive Committee, asked not to liquidate the society until the notification from the NKVD⁴⁷. As a result, the Russian Paleontological Society charter was approved on July 18, 1924⁴⁸.

Despite the difficulties of re-registration, the number of natural scientific societies grew steadily. For example, there were 12 natural scientific societies in Petrograd in 1922. But in 1926 there were already 13 of them. In 1930 there were 14 natural scientific societies. Thus, these societies, on average, accounted for more than 26 percent of the total number of scientific societies in Petrograd-Leningrad during the 1920s.

The studied material shows that re-registration for all types of scientific societies was difficult and lengthy, which was enhanced by the bureaucratization of the activities of the Glavnauka and the NKVD. Most of the societies liquidated during the campaign were humanitarian. This is another confirmation that the authorities supported primarily the natural science, technical and medical societies. Thus, the re-registration campaign was indicative, since the differentiated attitude of the authorities towards scientific societies was expressed in the permission or prohibition of registration.

Government Control over Scientific Societies

The scale of governmental control over scientific societies activities gradually increased during the 1920s.

The historian A.A. Kurepin correctly remarked that “one of the forms of bureaucratic management of science and political control over scientific and scientific-pedagogical workers was their quantitative and qualitative accounting control” (Kurepin, 2003, p. 44). That certainly was accurate regarding scientific societies. Since the early 1920s, the authorities required submission of

⁴³ TsGA SPb. F. 2555. Op. 1. D. 795. L. 2.

⁴⁴ Ibid. D. 723. L. 9.

⁴⁵ Ibid.

⁴⁶ Ibid.

⁴⁷ Ibid. L. 10.

⁴⁸ Ibid. L.15.

various questionnaires by all societies' members. The authorities were especially interested in the presence of party members in such associations, as including party members in scientific societies may be regarded as a way for the regime to control membership.

One of the most detailed questionnaires was sent by the NKVD to scientific reviews in 1925. In a short time, scientific societies were required to provide information on their executive bodies, founders and members according to the following form: 1) surname, first name, patronymic; 2) age; 3) residence; 4) occupation and place of work; 5) social situation prior to 1917 and social origin; 6) political convictions and membership; 7) occupation and place of work (under tsarism, during the period from February to October 1917, and from October to the present); 8) criminal convictions. In addition, it was necessary to report statistics "on numerical changes in membership for six-months periods, indicating the proportion of workers, employees, intellectuals, etc."⁴⁹. If a society evaded these orders or failed to provide the required information by the deadline, the associations' officers were subjected to administrative punishment. If the requirement was not being followed again, societies would be a subject to closure⁵⁰.

It was hardly feasible for large societies with a large number of members. For example, the Russian Society of Natural Science Amateurs consisted of 639 members; of 540 members of the Russian Geographic Society, only resided in Leningrad, while the rest lived in other cities — Barnaul, Chita, Irkutsk, Khabarovsk, Krasnoyarsk, Omsk, Semipalatinsk, Vladivostok, etc.⁵¹

The main difficulties for scientific societies were lack of an "administrative recourses that could fulfill this task" and "in the absence of the necessary funds for this, scientific societies have been already carrying out great accountability"⁵².

Despite the deadline was postponed several times, only a few scientific societies were able to provide the necessary information. The Russian Astronomical Society on March 8, 1926, sent a summary table with personal data. However, data were presented of only 122 members, 55.45% of the society's total members⁵³. After two weeks the Russian Paleontological Society reported data on 53 members (34.42%)⁵⁴. The Russian Mineralogical Society was able to gather information on only 28 members (9%)⁵⁵, and even these were submitted a month after the deadline. There were no Communist Party members in the Russian Paleontological and Mineralogical Societies, and all their members were classified according the social position as intellectuals⁵⁶. In the Russian Astronomical Society there were also no party members. The society included 5 workers, 15 peasants, 7 military, 19 intellectuals, 19 townspeople, 4 clergymen⁵⁷ by social origin, and 21 servicemen, 95 employees by occupation⁵⁸.

⁴⁹ TsGA SPb. F. 2555. Op. 1. D. 973. L. 67.

⁵⁰ Ibid. L. 67–67 ob.

⁵¹ TsGA SPb. F. 2555. Op. 1. D. 1080. L. 7.

⁵² Ibid. L. 65 ob.

⁵³ TsGA SPb. F. 1001. Op. 6. D. 283. L. 88–89.

⁵⁴ Ibid. D. 24a. L. 77–83.

⁵⁵ Ibid. D. 24d. L. 17–18.

⁵⁶ Ibid. D. 24a. L. 82 ob; D. 24d. L. 18.

⁵⁷ Ibid. D. 283. L. 99 ob.

⁵⁸ Ibid.

Even so, after the mid-1920s the presence of the party members in the societies have particularly attracted the attention of the Soviet authorities. Many societies had one- or two-party members but most of them had none, but they regularly had to report about it to the authorities. In the second half of the 1920s with rare exceptions, there were no more than 2% of Party and Komsomol members, and there were no Party members in the majority of scientific societies.

The objects of close authorities' attention were not only numeral and social composition of scientific societies, but also all types of their activities. It was shown by the increasingly complex and more frequent reporting, formalization has been consistently intensified. Throughout the 1920s control over scientific societies was carried out by three departments: the Narkompros, the NKVD and the People's Commissariat of Finance or their local authorities. Scientific societies activities were controlled in various forms: minutes of all meetings and sessions, as well as lists of officials, were delivered to the authorities, the directions of activity were monitored through regular reporting, including on the expenditure of estimated appropriations.

Since the mid-1920s in addition to the annual report, scientific societies were required to submit reports on their activities every quarter. This could not but cause indignation in scientific societies, since they were public organizations and did not have the necessary administrative staff to carry out such work. The speech of V.A. Kazitsyn, the Russian Nature Amateurs Society Secretary must have been presented on April 1, 1926 at the scientific institutions subordinate to LOG directors meeting. Its abstract was sent to LOG, and, as a result, it did not take place at the meeting. The Kazitsyn's speech title was: "On the Scientific Societies Reporting Forms to Administrative Oversight Bodies, Scientific-Administrative and Financial-Control Institutions". He noted that "scientific societies according to their charter, approved by the NKVD, are private associations, not state institutes", it was further emphasized that "bureaucracy and formalism should be excluded from the work of scientific organizations, as far as possible"⁵⁹. V.A. Kazitsyn said that reporting to the NKVD was especially burdensome, since some requirements were completely impracticable, technically inconvenient. Particularly harsh criticism in the paper was subjected to reporting to financial control authorities, which caused the need for accounting, correspondence, and required special paid workers, "which is hardly rational with relatively low cash turnover"⁶⁰. The conclusions of the speech outlined the ways to simplify the reporting that Kazitsyn proposed to the NKVD and Glavnauka. In particular, to shorten the annual reports, as well as to allow societies to freely dispose of subsidies, but, if possible, without reducing the amount of financial support⁶¹.

Thus, scientific societies were functioning on the basis of new legislative norms of 1922, which were strongly corrected by the real practice of relations between the authorities and societies. The controlling function of power in various forms manifested itself more and more clearly. According the historian L.G. Berlyavsky, "the legislation provided that the management of societies should be built on the basis of their initiative. However, in practice, their real independence was limited to interference in the internal affairs of societies by the authorities, not provided for by Soviet legislation and societies' charters" (Berlyavsky, 2003, p. 267).

⁵⁹ TsGA SPb. F. 2555. Op. 1. D. 1001. L. 49.

⁶⁰ Ibid. L. 49 ob.

⁶¹ Ibid.

Natural Scientific Societies at the turn of the 1920s–1930s

In the end of the 1920s for the authorities, the need to consolidate new requirements for charter documents and activities of public organizations became obvious. The All-Russia Central Executive Committee and the RSFSR Council of People's Commissars issued "the Regulation on Societies and Associations" on February 6, 1928⁶². There were also published the new "Model charters of scientific, literary and artistic, scientific and technical, etc. companies that have branch offices and do not have them"⁶³ on August 1, 1928. Scientific societies must to function on the basis of charters agreed with one of them. In general, the new regulation and model charters recorded many practices established by the end of the first post-revolutionary decade in the relations between the authorities and scientific societies: the expansion of the supervisory function of the authorities, detailed regulation of the internal life of societies, and the formalization of their activities.

The re-registration of existing societies began in connection with the new legislation, like the previous one in the early 1920s, proceeded very slowly. The Russian Paleontological Society report for 1929 stated that "despite the long period of time that has elapsed since the start of the campaign to re-register the charters of societies [...] we have not yet received official approval of our charter in one form or another"⁶⁴. Interesting, in contrast to the re-registration of the early 1920s scientific societies did not pay so much attention to this issue in correspondence with the governmental body. It can be assumed that, based on their previous experience, they did not hope that the authorities would strictly observe the time limit for considering their charters and other materials, therefore, the preparation of documents for re-registration and everything related to it did not cause the excitement and haste.

In 1929, Stalin's "the Year of the Great Break", a full-scale reorganization both of the entire system of science and of public organizations began. Scientific societies were fully involved in that processes. At the regional level the re-registration campaign was accompanied by examination of their activities from the spring of 1929 to the summer of 1930, eleven Leningrad societies of all scientific fields were subjected to investigation. Among them were 5 natural scientific societies: the Russian Astronomical Society, the Russian Botanical Society, the Russian Entomological Society, the Russian Geographical Society, and the Society of Naturalists at Leningrad State University. Thus, almost half of the surveyed societies were natural scientific ones.

Investigation conclusions on the Russian Mineralogical Society said that "in order to convey a general methodological materialistic attitude, as well as individual groups of Marxist geologists, sections of Marxist geologists should be organize from members of the society and work under the leadership and in contact with the Communist Academy"⁶⁵. The investigation commission recommended to the Russian Geographical Society to increase its members composition by "the adequate number of young workers with a modern ideological attitude"⁶⁶. A similar recommendation was received by the Russian Botanical Society, with the specification that "it is necessary to open

⁶² SU. No. 22 (1928). Art. 157.

⁶³ The NKVD Bulletin. No. 27 (1928). Art. 247.

⁶⁴ Otchet o deiatel'nosti Russkogo paleontologicheskogo obshchestva za 1929 g. [Report on the activities of the Russian Paleontological Society for 1929], *Ezhegodnik Russkogo paleontologicheskogo obshchestva* [Yearbook of the Russian Paleontological Society]. (1931). (Vol. IX, pp. 181), Leningrad.

⁶⁵ TsGA SPb. F. 2556. Op. 3. D. 93. L. 219.

⁶⁶ TsGA SPb. F. 2556. Op. 3. D. 93. L. 203.

access to the society membership for everyone interested in botany”⁶⁷. The Russian Astronomical Society was asked “to intensify its educational work not only in the area of anti-religious, but also in the area of popularizing publishing activities”⁶⁸. In the opinion of the commission, the Russian Society of Natural Science Amateurs was to “more closely link the work of the society with the economic tasks of Soviet construction and five-year plans”⁶⁹.

In a generalized form, the conclusions of the investigations were submitted to Glavnauka. All the societies investigated were accused of the absence of the CPSU members and of the insufficient involvement of the masses and young scientists in the societies’ structure. It was decided that societies had to become mass organizations, to link their work to the Red Corners, reading houses and simultaneously to economic and trade union organizations⁷⁰.

According to the decision of the All-Russian Central Executive Committee and the RSFSR Council of People’s Commissars, the re-registration of public organizations was extended until March 1, 1930⁷¹. The result was a reduction in the number of associations throughout the country. Many scientific societies were closed for being unable to pass the re-registration.

“The Regulation on Voluntary Societies and Associations”, approved by the All-Russian Central Executive Committee and the RSFSR the Council of People’s Commissars on August 30, 1930⁷², a few months after the re-registration had been completed, was the logical continuation. Soviet power used the 1930 Regulation as an instrument to adjust the public sphere. The Regulation differed fundamentally from all previous Soviet documents, which, after its publication, were nullified. The Regulation had a clearly expressed ideological character and raised the supervision of the activities of public organization to a new level.

On the whole, the 1930 Regulation was aimed at reorganizing the system of public associations. The societies’ activities became mass activities by “presenting the reports of these associations to broad assemblies of workers, peasants, farmers’ collectives, by examining their activities by workers’ brigades, and by establishing the patronage of individual enterprises over societies”⁷³.

“The Voluntary Societies Model Charters” were also approved. The goal of any society was declared to be “active participation in socialist construction of the USSR as well as assistance in strengthening the state defense”⁷⁴. The authorities’ representatives were admitted into the societies’ councils, which was a fundamentally new feature in the charters. This meant the total elimination of independence and the introduction of all-inclusive control over the activities of public organizations from within.

Another re-registration began after the new Regulation and the Model Charters were published. In Leningrad, the re-registration was accompanied by a “public review of scientific societies”, which took place in early November 1930. Sixty-one people were involved in this investigation and, for the first time, the primary party organizations of factories and plants

⁶⁷ Ibid. L. 172 ob.

⁶⁸ Ibid. L. 122.

⁶⁹ Ibid. D. 92. L. 211.

⁷⁰ Ibid. D. 93. L. 248 ob.

⁷¹ SU. No. 7 (1930). Art. 89.

⁷² SU. No. 44 (1930). Art. 527.

⁷³ Ibid.

⁷⁴ The NKVD Bulletin. No. 36a (1930). Art. 531.

were involved in that work. The investigation was completed by the beginning of December 1930⁷⁵.

In the conclusions it was said that, “societies unite the scientists of pre-revolutionary training from the nobility, the bourgeoisie and the intelligentsia” while “the Party-Komsomol element is absent”. It was also noted that “societies have not taken measures to attract proletarian students to their ranks, instead passively working behind closed doors”⁷⁶.

In the “Proposals on the basis the 1930 Investigations”, scientific societies were deemed expedient as they could conduct important scientific research. But entire societies had to be reorganized and their activities had to be completely subordinated to the tasks of socialist construction. To fulfill the tasks set by the CPSU, societies were divided into groups according to their scientific field and were attached to the relevant state institutions: the biological group of societies (the Leningrad Society of Naturalists, the Russian Biological Society, The Russian Botanical Societies, The Russian Entomological Society) shall be united in associations of voluntary societies and attached to Leningrad State University; Attach the Russian Mineralogical Society and the Russian Paleontological Society to Leningrad Geological Research Institute and create a geological association; the Russian Astronomical Society and the Russian Society for Natural Science Amateurs merge and attach to Leningrad State University⁷⁷.

The short but extremely active period of Soviet rule making on public organizations ended with the “the Law on Voluntary Associations and Unions” on July 10, 1932⁷⁸. The new Law did not differ significantly from the previous one, but it was of the utmost importance in securing the proclaimed regulatory norms. The Law was in force until the collapse of the USSR. The relationship between the Soviet government and public organizations fixed in it did not change.

Conclusion

Through the 1920s the relations between scientific societies and Soviet power developed dramatically. The material above demonstrated the degree to which natural scientific societies played a leading role in scientific societies system and they were able to maintain considerable high position in public sphere. Among the state scientific societies, the majority were also natural scientific societies thereby highlighting their importance and establishing government funding for it on a permanent basis. The new regime viewed natural scientific societies’ activity useful and intended to utilize the skills of natural scientists.

The government control over their functioning was increasing throughout the 1920s. At the turn of 1920–1930s the political changes taking place in the country led to total control over scientific and public spheres. Despite that natural scientific societies worked successfully with the support of the authorities in subsequent years. It must be assumed that those societies managed to survive not only because of the exceptional “necessity and usefulness” of their work for the state but also due to their unconditional subordination to Soviet power. Thus, Professor Y.S. Edelstein spoke at the Geographers Congress in

⁷⁵ TsGA SPb. F. 1000. Op. 48. D. 78. L. 31.

⁷⁶ Ibid. L. 22.

⁷⁷ Ibid. L. 20–21 ob.

⁷⁸ SU. No. 74 (1932). Art. 331.

1933 about the new tasks of the Russian Geographical Society: “The society should be a mass organization, attracting a large element of workers to research, mobilizing the masses to carry out the socialist construction work and uniting and coordinating their work with the work of other mass organizations” (Bradley, 1994, p. 42).

The transformation of scientific societies into controlled mass organizations was the result of the Great Break in science and the Cultural Revolution in the public sphere. A scientific creativity independence and freedom inherent in the nature of scientific societies was unacceptable to an emerging totalitarian regime. In the new socio-political realities of the 1930s, the existence of old-style scientific societies was impossible, and the adaptation of remaining scientific organizations became very painful experience.

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Советская власть и естественно-научные общества в 1920-е гг.: формы и стадии взаимодействия

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Научные общества традиционно играли очень важную роль в академическом сообществе. Они вносили свой вклад в формирование гражданского общества в России, определяли самоидентификацию учёных, а также были особенно важны в качестве платформы для презентации новой научной информации. Цель данной статьи — определить место и значение естественно-научных обществ в системе организации науки, а также проанализировать их

отношения с советской властью в 1920-е гг. В основе исследования лежат разнообразные источники, в первую очередь архивные материалы естественно-научных обществ и государственных структур, которые хранятся в Государственном архиве Российской Федерации, Санкт-Петербургском отделении Архива РАН, Центральном государственном архиве. Санкт-Петербурга и др. В статье рассматриваются законодательные и нормативные основы взаимоотношений советской власти с естественно-научными обществами, формы контроля за их деятельностью и государственной поддержки. В целом отношения советской власти с естественно-научными обществами в 1920-е гг. можно охарактеризовать как противоречивые. С одной стороны, власть считала деятельность естественно-научных обществ полезной и поддерживала её. В системе научных обществ лидирующие позиции занимали естественно-научные организации. С другой стороны, на протяжении 1920-х гг. государственный контроль над их функционированием усиливался, одновременно с этим, росла и регламентация их работы. На рубеже 1920–1930-х гг. политические изменения, происходящие в стране, обусловили переход к тотальному контролю над научной и общественной сферами жизни страны.

Ключевые слова: научные общества, наука и власть, общественные организации, социальная история российской науки, система организации науки.

The Russian Eugenics Society: history and scope of activities

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The history of the Russian Eugenics Society that was created in 1920 and existed till 1929 is reconstructed from the archival documents. The discussion of eugenic problems coincided in time with the development of genetics in Russia. It was no accident that fascination with genetics among the scientists who received their university education in natural science and began their scientific career in the traditional biological disciplines such as comparative morphology, entomology, hydrobiology, and anthropology (N.K. Koltsov, A.S. Serebrovsky, Yu.A. Filipchenko (J. Philipschenko), and V.V. Bunak) prompted them later to look into anthropogenetics. Classical scientific traditions facilitated the development of eugenics in Russia as a scientific discipline with its own methodological framework and advanced research techniques. By the late 1920s, the chapters of the Russian Eugenics Society were engaging in extensive scientific and educational work. While the Moscow Chapter explored the broadest range of research areas, the Leningrad Chapter mostly focused on sociodemographic studies, the Odessa eugenicists concentrated on promoting the ideas of the new science, and, in Saratov, the eugenics approach was used to address the vital medical problems such as the spread of various diseases and the elucidation of their causes, controlling abortions and sexually transmitted diseases, and prevention of hereditary anomalies. In contrast to the eugenics societies in other countries, the Russian Eugenics Society was governed by strict scientific standards and skepticism towards pseudo-scientific utopias. In the Russian tradition, eugenics was equaled with anthropogenetics. Therefore, the historical period of the formation of eugenics may be justly regarded as a stage in the history of human genetics in Russia.

Keywords: Russian Eugenics Society, Russian Journal of Eugenics (Russkii Evgenicheskii Zhurnal), human heredity research, science popularisation, science and power

The history of Russian eugenics is rooted in the 19th century when the ideas of bettering physical and mental traits of human beings by controlling heredity-tainting factors. The founder of eugenics, the doctrine of bettering human heredity, was Francis Galton (1822–1911). It was Galton who introduced the term “eugenics” (from Greek

εὖ- ‘good’ and γένος — ‘born’) in 1883. Galton’s ideas of regulating marriages in order to get the traits that are beneficial for the society fixed in the progeny began to spread across many countries of the world. Eugenics societies appeared in a number of countries in the first decades of the 20th century. A number of major works authored by the historians of science review the processes of formation of national eugenics societies and organisations in various countries. Thus, the works by G.R. Searle (Searle, 1976, 1998) and R.A. Soloway (Soloway, 1990) are devoted to the history of the eugenics movement in the UK; by A. McLaren (McLaren, 1990), in Canada; by D. Kevles (Kevles, 1995, 1998, 1999), N.H. Rafter (Rafter, 1988), I.R. Dowbiggin (Dowbiggin, 1997), E. Black (Black, 2003), and R. Marcattilio-McCracken (Marcattilio-McCracken, 2017), in the US; by Z. Suzuki (Suzuki, 1975), in Japan; M. Tydén (Tydén, 2000), in Sweden; by G. Broberg and N. Roll-Hansen (Broberg, Roll-Hansen, 1996; Roll-Hansen, 2017), in Denmark, Sweden, Norway, and Finland; and by R. Álvarez Peláez (Álvarez Peláez, 1988), in Spain. Various aspects of the eugenics movement in France were described by A. Carol (Carol, 1995), J.-P. Gaudilliere (Gaudilliere, 1997), A. Rosental (Rosental, 2012), P.-A. Taguieff (Taguieff, 1991), and L. Mucchielli (Mucchielli L., 2000).

Having originated in the US and Europe, the eugenics movement quickly spread to and across Russia. The Russian Eugenics Society (‘Russkoye evgenicheskoye obshchestvo, REO’) was organised in 1920. Although REO’s history, membership composition, and main lines of work are covered in the works by the Russian (Babkov, 2008, 2013; Pchelov, 2004, 2008) and international (Graham, 1977; Adams, 1989, 1990a, 1990b; Kremmentsov, 2011, 2014, 2015a, 2015b) historians of science, certain aspects of REO’s activities (financial, scientific, training, and educational) remained underexplored. We will attempt to fill the historical gaps and clarify some details of REO’s history and operations.

The eugenic ideas sparked interest in Russia back in the late 19th century. A translation of Galton’s “Hereditary Genius, its Laws and Consequences” was published in Russia by the publishing house of the journal “Znanie” in 1875 (Galton, 1875). However, eugenics as a research area only began to develop in the first decades of the Soviet era. V.V. Babkov wrote that “the mental context for the discussion of the ideas of eugenics” was rather peculiar: in Russia, it was medical professionals and biologists who became enthusiastic about eugenics in the 1910s and 1920s (Babkov, 2008, p. 27). They discussed the problem of the fatal degeneration of the population, the association of genius with physiognomic traits, and the possibility of manipulating physical and mental abilities. Russian eugenics movement, in a way, became a predecessor of a number of research areas such as medical genetics, behavioural genetics, and ethnogenetics, which is mentioned in the articles by different authors (Gershenzon, Buzhievskaya, 1996; Korochkin, 2004; Korochkin, Romanova, 2007; Babkov, 1998a, 1998b, 2001, 2006).

The first official eugenic laboratory was established in Russia at the Institute of Experimental Biology (‘IEB’), the country’s then leading scientific centre for experimental biology, in 1920. The Institute of Experimental Biology itself was organised in 1917, funded by the Moscow Society of Scientific Institutes, and its first director was Nikolai Konstantinovich Koltsov. Creation of IEB provided an opportunity for Koltsov to integrate a number of the latest research areas in biology so as to comprehensively explore various biological problems, using physicochemical research methods.

In the summer of 1920, Koltsov organised at the Institute of Experimental Biology a Eugenics Department with Yury Alexandrovich Filipchenko (also known in the literature as J. Philiptschenko) as its head. Filipchenko was hired on the IEB staff at the Board Meeting

of the State Scientific Institute of Public Health ('GINZ') under the People's Commissariat for Public Health on 30 June 1920¹. Initially the Eugenics Department was located in Petrograd (continued to be called Petersburg by the scientists in their publications), which complicated its work, as all organisational activities concerned with the Department's operations had to be carried out in Moscow. Thus, due to the difficulties with receiving advance salaries by the Eugenics Department's staff members, Koltsov had to issue one big paycheck to Filipchenko who, during his visits to Moscow, could receive a huge sum amounting to 100,000 rubles, intended for overhead costs and salaries of non-staff researchers².

In the late 1920, however, Filipchenko decided to quit IEB and Viktor Valerianovich Bunak was invited to head the Eugenics Department since 1 December 1920³. Quitting his job with the Eugenics Department allowed Filipchenko to plunge into science-organising work in Petrograd. The narrow limits of the Eugenics Department, however, precluded rapid expansion of the scientific and educational work in the field of eugenics, which necessitated involving in this work the professionals from different disciplines as well as everyone interested in the issues of human heredity. On the initiative of a meeting at the Biological Department of the Museum of Social Hygiene, a constituent meeting of those interested in eugenics was held in October 1920 and the Russian Eugenics Society was organised under the auspices of GINZ in November the same year. N.K. Koltsov became the Chairman of the new society.

The Russian Eugenics Society was formally established and its members were registered during its first meeting held at the Institute of Experimental Biology on 19 November 1920.

In addition to scientific studies in eugenics, the Society planned to expand the scope of its activities and open a special "Society for Eugenics Propaganda." Many scientific researchers in the field of biology, medicine, sociology, and psychology joined the Russian Eugenics Society. In 1921 only, 17 sessions were held, during which 24 papers on the issues of heredity, selection, and demography were heard. Those invited to the Society's meetings included scientists, students and everyone interested in human heredity and its regulation. Apart from discussing the papers presented at the meetings, the Society began to work to organise studies in the field of eugenics.

It was stipulated in the Constitution of the Russian Eugenics Society that it pursued the objective of uniting scientific researchers in the field of eugenics and race hygiene in Russia and conducting relevant scientific research, spreading the respective knowledge, and arousing interest for the Society's objectives among wider public.

To carry out the work in these areas, the Society planned the following: to hear and discuss papers and presentations devoted to eugenics; to organise public disputes; to open training courses; to organise scientific observations, collection of materials, scientific trips and expeditions; to set up laboratories, experiment stations, observation points, museums, and exhibitions; to create specialised libraries; to confer awards for the results of scientific research; to organise congresses; and to open the Society's chapters in various localities⁴.

¹ *Arkhir Rossiiskoi akademii nauk* [Archive of the Russian Academy of Sciences]. (ARAN).. F. 570. Op. 1. D. 1. L. 17.

² ARAN. F. 570. Op. 1. D. 1. L. 58.

³ ARAN. F. 570. Op. 1. D. 2. L. 42.

⁴ ARAN. F. 450. Op. 4. D. 62. L. 6.

The Membership in the Russian Eugenics Society was voluntary. The Society united everyone interested in eugenics and among its members were the representatives of different professions, which broadened the range of themes of scientific presentations and extended the scope of activities of the eugenics movement.

During the first year of its existence, the Society developed and disseminated the family questionnaires for everyone who wished to participate in the eugenic survey. In addition to this, special questionnaires were prepared for the studies on genetic genealogies and genealogy of hereditary physical and mental traits.

N.K. Koltsov remained the Society's Chairman throughout its entire history (from 1920 to 1929). The Society established a Bureau (1920) to perform administrative and management functions, with Koltsov as Chairman of the REO Bureau and V.V. Bunak as its Academic Secretary. Other members of the Bureau were T.I. Iudin, A.S. Serebrovskii (Serebrovsky), and N.V. Bogoyavlenskii (*Bogoiavlensky*). In 1923, M.V. Volotskoi joined the Bureau as the Society's Academic Secretary while Bunak remained a member of the Bureau. A.N. Sysin and V.V. Sakharov joined the Bureau in 1924.

The number of the Society's members was steadily growing from year to year. Thus, with 77 members in 1922 and 95 members in 1923 (*Iz otcheta...*, 1924, p. 66–67), the Society counted 129 members by the end of 1924 (*Otchet...*, 1925, p. 85).

Created in 1920 and located in Moscow, the Russian Eugenics Society was inseparable from the activities of the Eugenic Department of the Institute of Experimental Biology. After quitting the post as the Head of the Eugenic Department, Yu.A. Filipchenko set about organising the eugenic work in Petrograd.

The Bureau of Eugenics in Petrograd was set up under the Commission for the Study of Russia's Natural Productive Forces ('Komissiiia po izucheniiu estestvennykh proizvoditelnykh sil Rossii, KEPS') of the Russian Academy of Sciences ('RAN') in 1921. The Bureau was initially hosted in Filipchenko's apartment. This is how he describes the organisation of his brainchild:

[I] got involved with KEPS owing to A.E. Fersman's support and my modest flat is now dignified with a title of "KEPS Eugenics Bureau under RAN." It might help a little, as [I] did it rather out of the necessity to have a signboard and a flag; but [I] still work alone and, for a while, intend to do without coworkers, for it is hard to find the right ones and, with those who are not the right ones, there'd be too much fuss⁵.

Yu.A. Filipchenko soon invited T.K. Lepin and Ya.Ya. Lus, the first graduates from Petrograd's University's Department of Genetics, to work at the Bureau. Together with these young researchers, Yury Alexandrovich carried out a study of the inheritance of morphological traits and mental abilities in humans (Filipchenko, 1922a).

The autonomy of the Bureau of Eugenics in Petrograd was strengthening from year to year due to deteriorating communications between Filipchenko and Koltsov. In 1922, Yury Alexandrovich wrote to his Moscow colleague and head of the Russian Eugenics Society:

Allow me just to say a few words concerning a rebuke for breaking up our forces and the absence of connections with each other, which I sensed addressed at me in your letter and which seems not quite fair to me. I am guilty of only one thing: namely, of having resigned from your Department two years ago and setting to work independently. However, looking back, I believe that it has been a quite right thing to do. My

⁵ ARAN. F. 450. Op. 3. D. 153. L. 5.

absence did not prevent you and your coworkers from quite productively working in Moscow while I and my assistants succeeded in doing something here⁶.

The lack of proper communications with Koltsov worried Filipchenko a lot. In February 1921, Filipchenko received a draft questionnaire developed by the IEB researches. He wrote a long letter about the content of this questionnaire, in which he expressed his wishes concerning its improvement. In this letter, he also asked to send him the agendas of the Eugenics Society's meeting so as to be aware of what was going on in Moscow. Yury Alexandrovich repeated his request in his letter of 9 December 1921 when he sent his pamphlets to Koltsov. However, no meeting agenda has been sent to him. In the meantime, Yu.A. received from Nikolai Konstantinovich a news of the preparation for publication of "Russkii evgenicheskii zhurnal"; however, this letter only contained one phrase inviting Filipchenko to collaborate with the journal without an express proposal to join its editorial board. In his letter to Koltsov, Yu.A. wrote:

Had I known about the latter [«Russkii evgenicheskii zhurnal»] in time, I would have, first, been obliged to participate more actively and, perhaps, would not have thought about my own journal but, I repeat, I have only learned about it from your letter and have not even seen my name in [the issue] No. 1 of «Russkii evgenicheskii zhurnal», even though I have read it very carefully. I will be honest with you, I have become convinced that both I and my Bureau are of no worth for you. I have found in the bibliographical section of [the issue] No. 1 of your journal the reviews of rather minor articles from "Lancet" but no mention whatsoever of my pamphlets, which are, after all, the first attempt at this kind of publications in Russia, and which I am actively disseminating everywhere possible, for we have no other publications of this kind. I hope you won't see in this comment the results of wounded author's pride since, if I do have it, then it is not in relation to these brochures⁷.

Having become the head of the REO Petrograd Chapter in 1924, Filipchenko tried to set about a larger-scale work to study heritable traits in humans. In his opinion, the eugenic studies in Petrograd/Leningrad were organised much less efficiently than in Moscow for a number of reasons. In his letter to Koltsov, he wrote with regret:

Working in Moscow, you are probably in a somewhat better situation than we are here. You have even managed to purchase literature and so on while we here only have what our foreign colleagues will send us as hand-outs. Most of the costs have to be paid from our own pockets and, in such situation, ordering books is out of question⁸.

In the first years of its existence, the Society's membership grew significantly, with new members attracted from across Russia. In 1924, REO achieved the status of the all-union society. Subsequently REO comprised four chapters in Moscow, Petrograd, Saratov and Odessa. While the work of the Moscow and Petrograd/Leningrad chapters is reflected in some archival documents and articles published in specialised journals, it has been extremely difficult to find any records and documents concerned with the organisation and activities of the Saratov and Odessa Chapters.

⁶ ARAN. F. 450. Op. 3. D. 153. L. 6.

⁷ ARAN. F. 450. Op. 3. D. 153. L. 6.

⁸ ARAN. F. 450. Op. 3. D. 153. L. 6.

The collection of documents related to N.K. Koltsov at the Archive of the Russian Academy of Sciences contains a letter from the Chairman of the Odessa Chapter of the Russian Eugenics Society, Professor Nikolai Nikolaevich Kostyamin of 28 June 1923. Prof. Kostyamin, a graduate from the Military Medical Academy in St. Petersburg, specialised in hygiene. In the 1920s, Kostyamin worked at the Institute of Hygiene (located at 4 Olgievskaya ulitsa in Odessa), of the Medical Academy that was founded in 1920 as a result of reorganisation of the Medical Faculty of the New Russian University, and reorganised into the Odessa Medical Institute in 1921.

It follows from Kostyamin's letter to the Chairman of the Russian Eugenics Society that the Odessa Chapter had very few contacts with the Moscow Chapter and had neither administrative support from the local authorities nor an official status. The Chairman of the Odessa Chapter wrote:

The Odessa Chapter deeply believes and hopes that, with your further assistance and owing to your valuable instructions, it will germinate and, being closely connected to REO in your charge, develop its work to broaden the tasks of both profound scientific interest and large nationwide practical importance for the country's culture and progress. We kindly ask you to send us <...> a copy of a resolution by the REO Board or by Glavnauka [Principal Administration for Scientific, Art and Museum Institutions], concerned with the creation of the REO Chapter in Odessa. This is necessary for formalising the existence of our Chapter, for registering locally with the local administrative bodies, which will give us an opportunity to convene public sessions as well as to recruit new members ⁹.

In another letter Kostyamin writes, "Here, in Odessa, the understanding of the scientific discipline of eugenics is too vague and impossibly primitive." ¹⁰ In the same letter he provides an example of how, in 1920, he spoke on the issues of higher medical education at a scientific collegium in the presence of scientists of different specialities: physiologists, surgeons, histologists, and embryologists. In his presentation Kostyamin pointed out to the necessity of establishing chairs for the preventive medicine disciplines such as social hygiene and occupational hygiene, including the chair of eugenics. The professors responded with derision and began to ask what practical classes were proposed to be conducted at the chair of eugenics. Nikolai Nikolaevich wrote with regret:

Of course, my idea has not met with success. We have no literature at all. At the same time, it is absolutely necessary to foster large-scale propaganda of eugenics, for the new Russia needs new people, needs betterment (physical, spiritual, and moral) of the growing generation, this mainstay of our race; the cadre of professionals in this area ought to be trained. <...> I am appealing to you as a representative of a highly competent scientific organisation <...> for your assistance in the matter of educating the Odessa Society. How can our Institute obtain all the literature from recent years? My request for providing funds has not been granted to this day and we are sitting in the dark¹¹.

Nikolai Nikolaevich Kostyamin met a tragic fate. The 1930s saw the mass arrests of the intelligentsia across the Ukrainian SSR. V.A. Smirnov described how Vladimir Petrovich Filatov (1875–1956), Professor at the Medical Faculty of the Imperial New

⁹ ARAN. F. 450. Op. 4. D. 62. L. 9.

¹⁰ ARAN. F. 450. Op. 4. D. 48. L. 1.

¹¹ ARAN. F. 450. Op. 4. D. 48. L. 2.

Russian University (in 1921, reorganised into the Odessa Medical Institute) since 1911, Chair of the Department of Eye Diseases, was arrested by the OGPU (Joint State Political Directorate) in February 1931. He was accused of being involved in a secret White Guard organisation. The membership lists of a fictional anti-Soviet organisation were beaten out of Filatov and N.N. Kostyamin undeservingly happened to be on one of these lists (Smirnov, 2005). Based on the documents from the KGB Archive, V.R. Faitelberg-Blank and V.A. Savchenko established that N.N. Kostyamin was arrested in 1931 and his further fate remains unknown — like the fates of many other wrongfully convicted citizens (Faitelberg-Blank, Savchenko, 2001, p. 4).

The reports on the activities of the Russian Eugenics Society, prepared by Professor M.P. Kutanin and published in “*Russkii evgenicheskii zhurnal* (Russian Journal of Eugenics)”, helped to reconstruct the history of the Saratov Chapter (Kutanin, 1927, 1928). The idea of creating such chapter in Saratov emerged in 1923. An initiative group consisting of Dr. P.P. Pod'yapolskii, Prof. M.P. Kutanin, and Dr. A.N. Nikolskii prepared an appeal to the scientists and general public of the city of Saratov with a request to partake in new initiatives. This appeal was signed by the following Saratov scientists: Professors V.S. Elpatievskii, N.M. Kakushkin, A.A. Bogomolets, and V.V. Golubev; Drs. P.N. Solov, I.V. Vyazemskii, A.I. Kovalev, S.M. Zhelikhovskii, A.I. Domracheva, A.B. Rabinovich, M.N. Solovieva, and A.M. Kantorovich.

During the first meeting of the initiative group on 29 December 1923, its Constitution and petition were prepared. These documents were submitted for approval to the Saratov administration (Executive Committee of the Saratov Soviet of People's Deputies). The first session of the Saratov Eugenics Society was held on 18 May 1924. In 1925, the Saratov Eugenics Society became a Chapter of the Russian Eugenics Society.

The Board of the Saratov Chapter included Professors M.P. Kutanin, A.A. Bogomolets, N.M. Kakushkin, and G.K. Meister, and Drs. M.M. Generozova, A.B. Rabinovich, and M.V. Soloviev (Kutanin, 1927).

The Saratov Society was chaired by Mikhail Pavlovich Kutanin (1883–1976), a prominent Russian psychiatrist, the father of the Russian school of hypnosis and the founder of the Department of Psychiatry at the Saratov Medical Institute where, in the Soviet era, the works by the western classics of psychoanalysis were studied despite prohibitions. M.P. was the first to use bibliotherapy, i.e. extensive reading, as a method for treating psychiatric disorders. A pupil of S.S. Korsakov, Kutanin followed in the footsteps of his teacher in the field of psychiatry, studying mental disorders among the population. A large mass of collected data allowed him to establish the annual increase in psychiatric disorders, which later influenced the formation of his eugenic outlook.

For Kutanin, the main objective of eugenics was promoting medical and biological knowledge among the population. In 1925, he traveled to several Russian cities (Nizhny Novgorod, Penza, Astrakhan, and other cities of the Volga Basin) to deliver public lectures.

A number of scientific studies of inherited human traits were carried out with the assistance of the Saratov Chapter of the Russian Eugenics Society. The R-6742 fonds of the M. Gorky All-Union Institute of Experimental Medicine at the State Archive of the Russian Federation (“GARF”) holds an unpublished work of P.V. Zabolotnikov, titled “Clinico-genetic studies of polydactyly and syndactyly,” that was conducted on the initiative of the Saratov Chapter¹².

¹² GARF. F. P-6742. Op. 1. D. 261.

Zabolotnikov began his research at the Saratov Medical Institute. He conducted a clinico-genetic study of syndactyly and polydactyly, which included the reconstruction of genealogies with detailed descriptions of identified anomalies. He analysed a total of 35 family genealogies, covering 2304 individuals.

To determine the frequency of polydactyly, he examined the records of maternity ward at the Saratov Municipal Hospital No. 1 as well as of the Saratov Medical Institute's clinic of obstetrics and gynaecology. He found that, from 1925 to 1932, the frequency of birth of children with polydactyly comprised 0.034 percent.

Zabolotnikov's studies on polydactyly were not limited to the Saratov region. In 1936, he went to a Tatar village of Demerdzi on the south coast of Crimea, which was rumoured to be a place where many local inhabitants had this anomaly. Having reconstructed the genealogies of the inhabitants of Demerdzhi, the scientist concluded that polydactyly is inherited in a dominant manner. He identified six different types of polydactyly, each determined by a dominant gene with different phenotypic expressions. P.V. Zabolotnikov wrote that, in different geographic populations, the same gene of polydactyly is expressed to a different degree¹³.

The Society's Chapters shared the Bureau (Presidium) of the Russian Eugenics Society, which was in charge of exchanging scientific publications, conducted joint meetings, sessions, and conferences, and helped young scientists with scientific internships. The Society's Chapters were able to make significant contributions to the development of human genetics and popularisation of scientific knowledge due to a large number of professionals in different areas, attracted by these Chapters, the extensive efforts of some leaders of the eugenics movement, and the interest in the eugenics problems among wider public.

The Russian Eugenics Society needed sufficient funding for its day-to-day activities. Although its members mostly worked from sheer enthusiasm, money was needed for the Society's publishing activities, for purchasing specialist literature, and for organising the research and educational work. The money partly came from the Academic Centre of the People's Commissariat for Education and the People's Commissariat for Public Health, partly from private donations, and partly from the proceeds of public lectures.

N.K. Koltsov was an excellent manager, able to extract money for the studies on human heredity. During the first year of REO's operations, he managed to secure funding for the development of special eugenic questionnaires from GINZ. For this work, T.I. Iudin, V.V. Bunak, and N.K. Koltsov were paid 15,000 rubles each and A.S. Serebrovsky received 7,500 rubles¹⁴. For comparison, Koltsov's monthly salary as director of the Institute comprised 4,800 rubles.

Being a talented organiser, Koltsov was able to see eye to eye with the Party leaders, Presidium of the USSR Academy of Sciences, People's Commissariat for Public Health ('Narkomzdrav'), and public organisations. He was in correspondence with N.A. Semashko and A.M. Gorky, gave lectures on the radio, and participated in the international eugenics congresses and meetings. The REO Chairman's extensive efforts, patronage on the part of the Party leadership, large-scale propaganda of the eugenic knowledge — all of this helped to attract public and private funds to the Society's treasury.

The Society's meetings were held quite often, sometimes up to three times a month. With most of the REO members being on staff at the Institute of Experimental

¹³ Ibid. I. 65.

¹⁴ ARAN. F. 570. Op. 1. D.2 L. 36.

Biology, and N.K. Koltsov also being in charge of both the Society and the Institute, the Society's meetings were mostly held at the Institute. Sometimes public sessions were held at the House of Scientists at 14 Prechistenka.

After the REO Chapters were organised, the regional meetings pursuing the education and training goals began to be held in Petrograd/Leningrad, Saratov and Odessa.

The Society's permanent printed mouthpiece was "Russkii evgenicheskii zhurnal", REZh ("Russian Journal of Eugenics"). Seven volumes (25 issues) of REZh were published from 1922 to 1929. The Petrograd Bureau of Eugenics also began to publish its own journal, "Izvestiya Byuro po evgenike," in 1922.

N.K. Koltsov was against simultaneously publishing two eugenic journals in Russia, which is obvious from a letter written to him by Yu.A. Filipchenko on 8 October 1922:

As regards your general opinion that two eugenic journals are an unnecessary luxury for Russia, you are right, of course, and it's worth thinking about. However, essentially, if "Russkii evgenicheskii zhurnal" remains of the same character as its [issue] No. 1 (which I have read with a keen interest), our publications will be rather dissimilar to each other. While broad, general articles prevail in your journal, for which [the issue] No. 1 reminded me of "The Eugenics Review," which is comprehensible for a wide audience, we will offer in our No. 1 something like Davenport's "Bulletins," a rather crude account of the results obtained by us, that will be of interest mainly for specialists ¹⁵.

Soviet scientific periodicals devoted to eugenics that began to be simultaneously published in 1922 had a huge role in the propaganda of eugenic ideas. In addition to original articles, one could find there critical reviews, brief communications, reports on the Society's activities, critique and bibliographies, as well as the reviews of Russian and international publications. Both of these journals, "Russkii evgenicheskii zhurnal" and "Izvestiya Byuro po evgenike", were distinguished for the diversity of the authors' scientific positions, discussions of topical issues in anthropogenetics and anthropotechnics, and inviting prominent Russian and international scientists to publish their works in these journals.

Presently, these journals provide a most valuable source for reconstructing the history of Russian eugenics. Examining the content of their issues allows to elucidate how new ideas about human genetics penetrated the Russian scientific tradition.

Russian eugenicists regarded the studies on human heredity with the participation of as many different professionals (geneticists, cytologists, biochemists, anthropologists, medical professionals, psychologists, etc.) as possible as one of their high priority lines of work.

Many REO members, inspired by the far-reaching ideas of improving the species of *Homo sapiens* were promoting research projects on the studies of inherited human traits. The Head of REO N.K. Koltsov acknowledged the existence of huge reserves of hereditary variation among humans. Some people possess considerable physical strength and robust physique while others may be physically weak but intellectually advanced. Mental and physical traits inherited from parents may be extremely diverse. All these traits can be passed on from parents to children more or less independently, in accordance with certain Mendelian laws.

Koltsov was aware that the studies of inherited potential abilities in humans was complicated by the impossibility of experimental works. He regarded the method of observation as the most suitable for this purpose despite its many limitations. Besides, in

¹⁵ ARAN. F. 450. Op. 3. D. 153. p. 6.

Koltsov's opinion, for many human traits, it would be difficult to compare the roles of nature and environment in their formation. Therefore the researchers into human genetics seldom focused their attention on the traits such as musical or mathematical abilities. The traits that were analysed most often were those unaffected by living conditions, environment and nurture (Koltsov, 1924).

Like many eugenists of the first half of the 20th century, Koltsov was interested in the heritability of mental and psychic traits in humans and perused the literature on psychology and physiology of higher nervous activity. He attached great importance to the studies of chemical, or rather hormonal, regulation of various behaviours. Although Koltsov acknowledged I.P. Pavlov's concept of nervous reflexes, he believed that substances released into human blood play a no less important role in the organism. Koltsov believed that ability to produce certain substances is also transmitted genetically. He concluded that many psychic characteristics such as temperament, emotionality, and drives are a product of inherited potential (Koltsov, 1924).

The analysis of the heritability of complicated characteristics such as psychic features remained a stumbling block for the eugenists. These characteristics did not easily fit into the simple scheme of Mendelian heredity. A more detailed study of the genetics of psychic features required time. Having taken interest in this problem, Koltsov attempted to analyse the transmission of psychic characteristics, using the genealogical method. He initiated a series of research works, carried out by the researchers from the Institute of Experimental Biology, in which they reconstructed the genealogies of different people (including the IEB stuff), capturing individual personal qualities of each proband and their relatives. Koltsov believed that this work would shed light on the mechanism of inheriting different traits of character.

Koltsov regarded the studies of geniuses as one of the most important areas in eugenics. He hoped that science would thus be able to understand the mechanism of the emergence of talents, manifested by prominent individuals. He was convinced that personality can develop in very diverse types of environment. Both extraordinary and very ordinary people can be simultaneously raised in the presence of the same external factors. He believed it to be the result of varying inherited potential. His first article on the genealogies of geniuses was devoted to those of Charles Darwin and Francis Galton (Koltsov, 1922). For Koltsov, the fact of these scientists being related to each other (they shared the common grandparent Erasmus Darwin) was a proof of hereditary transmission of outstanding abilities.

N.K. Koltsov's next work on this topic was titled "The genealogies of our *vydvizhentsy*" (Koltsov, 1926). He became interested in this problem, as, for the so-called *vydvizhentsy* (self-made men), the role of environment in the making of a talent was eliminated. While the great writers, scientists, and artists in pre-revolutionary Russia were usually those who received an all-around education since early childhood, many of the *vydvizhentsy* of the Soviet era had grown up without proper upbringing and education and no favourable conditions, conducive to the development of their talents, had been available to them.

In his study Koltsov attempted to prove that many of the prominent individuals' qualities were inherited. For instance, Maxim Gorky inherited his propensity for literary narrative from his grandmother who was a natural storyteller. The genealogies of F.I. Shalyapin, N.P. Kravkov, and L.M. Leonov allowed Koltsov to conclude that the genotype composition of common Russian people was very rich. Geniuses can emerge from among the popular masses; they only need proper conditions for this.

N.K. Koltsov did not deny the role of the external factors in the manifestation of traits. He used a new concept of "euthenics" to designate external conditions, conducive to the

activation (manifestation) of inherited germs¹⁶. At the time, genetics operated the concepts of “genes (determiners)” and “phenes.” Genes were understood as hereditary germs innate in the gametes and phenes, as external characters of the organism that depended on certain genes and conditions for their manifestation.

In regard to genes, N.K. Koltsov emphasised that they possess great endurance that is difficult to change of one’s own volition — at the best, this might be achieved by inducing artificial mutations. Therefore practical eugenic measures only came down to artificial selection for a purpose of propagation of valuable genotypes and preventing the propagation of genotypes that are regarded as bad¹⁷.

In Koltsov’s opinion, eugenics had a particularly important role in the improvement of physical traits and capacities in humans. He believed that in humans, more than in any other animal and plant species, the phenotype is determined by the external conditions. An example of this could be children, raised in the conditions of poor hygiene and nutrition, which, to a great extent weakened their natural ability to resist infections. On the contrary, both the upbringing and living in good conditions enhances the child’s innate strengths and resistance to some diseases. Hygiene, particularly social hygiene, physical culture, and maternal and child welfare, is a powerful instrument of eugenics.

Koltsov wrote:

Man is born without a single conditioned reflex while the reserve of his innate unconditioned reflexes is absolutely insufficient for sustaining his existence, because in this respect Man is less endowed by nature than other animal species (especially insects) that possess inborn instincts that sufficiently regulate all of their behaviour. Moreover, Man is a gregarious organism whose existence is probably impossible without social environment. It is only in a fictional or poorly conceived piece of writing that baby Tarzan managed to grow up and even learn language without seeing a single human being. In reality, it is obvious that only the abilities for spoken language are innate in human genotype while speech itself, as well as the rest of the system of conditioned reflexes, is bestowed by the external social environment with the great wealth, accumulated by the humanity and passed on from generation to generation. Therefore the entire child-rearing system belongs to the realm of eugenics¹⁸.

Koltsov admitted that genetic traits could not be always easily determined from the observed external phenotype. If a person grew up in good hygienic conditions and received a good upbringing and education, and still remained physically weak and feeble-minded, one may conclude, fairly enough, about this person’s physical and mental inferiority. However, such conclusion may not be made about an individual who developed in an unfavourable environment: a sickly worker, lead-poisoned since childhood, could have actually been endowed by nature with good health and physical strength that he may pass to his offspring. “A shepherd playing his own compositions on a reed pipe may turn out to be a more gifted musician than some untalented piano player who has been trained in music since childhood”¹⁹.

Most of the Russian eugenists were the proponents of positive eugenics whose purpose was spreading among the population the ‘good’ genes responsible for the formation of talent in various areas: intellectual, musical, artistic, or sporting. To implement practical measures

¹⁶ ARAN. F. 450. Op. 1. D. 58. L. 1.

¹⁷ ARAN. F. 450. Op. 1. D. 58. L. 12.

¹⁸ ARAN. F. 450. Op. 1. D. 58. L. 14.

¹⁹ ARAN. F. 450. Op. 1. D. 58. L. 17.

intended to improve the human species, the inheritance of particular abilities had to be studied first. The scientists were aware that they were dealing with complex characteristics that defied simple mathematical analysis. Moreover, valuable innate capacities often do not manifest themselves visibly or are not provided with the possibilities for their full realisation. Physically feeble children often begin to show marked abilities later on and go down in history as geniuses.

For instance, T.I. Iudin wrote:

One must not forget that individual traits are inherited independently of each other, and the hereditary mass often contains, say, the germs of physical feebleness, the germs of diseases, in addition to quite valuable germs, the talents. Quite a number of the greatest thinkers — Kant, Copernicus, Alexander von Humboldt, Descartes, Leibnitz and many others — had been very weak children. Newton and Kepler were prematurely born. J.J. Rousseau was a very weak child until the age of ten. Victor Hugo was born almost dead and Goethe, asphyxiated. Quite a number of great individuals — in addition to their genius — had the germs of mental diseases. Dostoevsky was an epileptic; Walter Scott and Byron suffered from infantile paralysis (Yudin, 1925, p. 238).

Iudin emphasised that physically handicapped people may have many positive traits, needed by the humankind.

Yury Alexandrovich Filipchenko, Professor at Petrograd University, was one of the pioneers in the studies on the inheritance of talent, using the method of questionnaires and statistical methods. Filipchenko's eugenic studies were distinguished for their thoroughness and purely scientific approach, relying on nothing but strictly scientific facts. In eugenics, naturally, experimenting was out of question but Filipchenko accumulated, integrated and analysed an impressive material from the questionnaires. The questionnaire used in these surveys was expressly developed for these studies and spread among different categories of the Petrograd population. "We regard all of our conclusions as the first and the crudest approximation to truth," he wrote, "the mean of ten observations is much more valuable than a one and only observation or a complete lack of observations although, certainly, it is even better to make a thousand observations" (Medvedev, 1978, p. 46). "However, if this is impossible, any number is better than a total lack of it." A series of works was published based on these findings (Filipchenko, 1921a, 1921b, 1921c, 1922b, 1922c, 1925; Lepin, Lus, Filipchenko, 1925).

Filipchenko's first eugenic study was devoted to the inheritance of giftedness or, in modern phrasing, a socio-demographic study of Petrograd's scientific community of the early 1920s, based on the answers of the reference groups of scientists to the questions in a special questionnaire developed by himself. This study was complicated as much by its huge volume of work as by some of the respondents' lack of understanding of its importance.

In his letter to N.K. Koltsov of 28 February 1921, Yury Alexandrovich wrote:

I have encountered an unpleasant attitude: some have no time for it <...>, others regard it as gross intrusion in their life, and still others (among them a number of famous names that are, indeed, *sunt odiosa*; they are the ones who do the most harm) call it anti-scientific. Then again, someone has said long ago that, with things like this, they first say that nothing will come of this, then that it's unscientific, and finally, that all of this has been known long ago. The things I have done! I have put, and still am putting, notices everywhere; I have spoken, and still am speaking, at the sessions; and I have written appeals to various institutions — and here's the result: over 2 months, of 2,000 scientists, only 250 responded! <...> I hope that the House of Scientists would yield about 150 responses (even though I am very far from being sure of it); besides, with

Gorky's support, I am spreading the same questionnaire to the House of Arts and, in summer, I will survey the employees at the Petersburg station. If I could manage to collect 1,000 responses, an interesting work would come up but I don't know if I will manage it ²⁰.

Filipchenko was collecting his questionnaires throughout entire 1921 and processing the data in the winter of 1921/1922. He presented his findings at the House of Scientists and published a brief communication in the journal "Nauka i ee rabotniki (Science and its workers)" (Filipchenko, 1922a). Meanwhile the Bureau staff began to distribute and collect the questionnaires among the artistic community (through the House of Arts) and students. Filipchenko wanted to perform comparative analysis of the data obtained from the scientists and representatives of the artistic community, which, naturally, aroused much interest, as the aim of his study was a generalising analysis of the inheritance of intellectual capabilities and giftedness among the intelligentsia. The Bureau was extensively involved in the promotional and consultancy activities although the requests for such consultancy were very few. The Bureau was establishing contacts with foreign colleagues. The results of the Bureau's efforts during the first year and a half of its existence were presented in the first issue (No. 1) of "Izvestiya Byuro po evgenike" that was released in 1922 and is a bibliographic rarity nowadays.

The questionnaire distributed by the Bureau of Eugenics comprised a large Main Sheet with the questions that may be called socio-demographic. The so-called Minor Sheet contained the questions about who of those listed on the main sheet have had inborn anatomical and functional anomalies and hereditary diseases (tuberculosis, deaf-mutism, epilepsy, and mental disorders including alcoholism). There was space left for information on other relatives in the case of inheritance of interesting genetic traits and for the respondent's address. The sheet with the explanatory notes emphasised the importance of the questionnaire survey and provided explanations for individual items.

The main items in the questionnaire provided the answers to the following questions: age and gender distribution of scientists and their spouses; year of birth; place of birth and place of origin (place of birth of the scientist's father) of the scientists and their spouses; ethnicity and profession of the fathers of scientists and their spouses; profession of scientists' spouses; number, gender and years of birth of scientists' offspring; professions of scientists' offspring; diseases frequently occurring in the families of scientists and their spouses; correlation between the diseases and ethnicity.

Filipchenko had also conducted a similar survey among the "prominent scientists" many of whom were still alive and remained in Petrograd at the time. It must have been interesting to try to identify the traits and qualities that distinguish an extraordinary talent from an average one. In addition to the items in the questionnaire intended for the rest of the scientists, the questionnaire for the prominent scientists also included the following items: the estate ('soslovie') the scientist belonged to by birth; how many children the scientist's brothers and sisters had; prominent relatives; defective relatives (low intellectual endowment, mental diseases, alcoholism); special capacities (this section included capacities that were not associated with the scientist's core professional activities (e.g. organisational, linguistic, literary, musical, poetical).

As may be seen from these additional items in the questionnaire for the prominent scientists, particular attention was given to their genealogy, i.e. an attempt was made to

²⁰ ARAN. F. 450. Op. 3. D. 153. L. 5.

clarify certain hereditary, genetic patterns associated with the emergence of an extraordinary scientific talent.

The first survey conducted in 1921 allowed to analyse 330 questionnaires that contained detailed information about 510 families of the scientists and their spouses and 166 families of the scientists' offspring. The total of 676 questionnaires enables Filipchenko to conduct a statistically valid analysis. Even the answers to the first two questions in the questionnaire produced interesting results. Firstly, the percentage of women scientists among the respondents was found to be rather high, a little more than 1/3 of the respondents. The age of Petrograd's scientists at the time was found to be between 37 and 62, i.e. those born from 1860 to 1885. Therefore, the mean age of the scientific community members was 45–50 years.

As regards the scientists' place of birth, St. Petersburg occupied the first place, followed by the central part of Russia and the Volga Region, the Western Krai (9 westernmost governorates), and the south of Russia. As regards the scientists' place of origin (place of birth of a scientist's father and grandfather), the central part and the Volga Region ranked first, followed by the Western Krai and Petersburg. Filipchenko believed that this distribution was not accidental as it was found to be exactly the same for the scientists' spouses (Filipchenko, 1922c, p. 10).

The issue of the scientists' origin would not have been fully addressed without determining what social strata they came from. Filipchenko divided all professions into two groups of "higher and lower qualification (in a sense of education and talent)." The resulting tables allowed to expressly conclude that most of the scientists (about two thirds) as well as their spouses came from the intelligentsia. Their fathers tended to be teachers, doctors, lawyers, military officers, public officials, and clergy. Many came from the merchants and industrialists.

As regards the distribution of certain diseases (tuberculosis, cancer, mental diseases, and alcoholism) among the respondents and the correlation of the occurrence of these diseases with ethnicity, Filipchenko considered the results of the survey to be quite informative:

The scourge of purely Russian families is alcoholism which is mentioned almost 1.5 times as often as could be expected: 70 percent instead of 51 percent. The rest is quite close to the norm, although [the occurrence of] tuberculosis is somewhat higher than expected and that of mental diseases, somewhat lower but not so much as to attach special importance to it. On the contrary, among the foreigners [non-Russians], alcoholism occurs about three times less often than expected and all other diseases, especially tuberculosis, are somewhat lower than the norm. The situation in the families of mixed origin is the worst: tuberculosis, cancer and alcoholism significantly exceed the expected figures while mental diseases occur even more often (more than 1.5 times as often as expected) than alcoholism among purely Russian elements. One cannot help seeing in the latter fact a certain confirmation of the idea of the undesirability of mixed marriages from the eugenic standpoint (Filipchenko, 1922c, p. 19).

In concluding his article, Yu.A. Filipchenko made a very important conclusion that many of the observed traits were typical not only for Petrograd's scientists — this conclusion was probably applicable to the entire intelligentsia of the time, although this conclusion was formulated by Filipchenko later, in the article titled "Intelligentsia and talents" (Filipchenko, 1925), in which he compared the data of the surveys of scientific and artistic (writers, artists, actors) communities.

The survey of prominent scientists became a logical continuation of the survey of scientific community. Filipchenko wrote, "If from the standpoint of eugenics, a group of scientists as one of the typical representatives of our intelligentsia is of particular interest, the same is even truer for those few chosen of the talent, who may be called prominent scientists" (Filipchenko, 1922b, p. 22). Filipchenko categorised as prominent scientists the founders of the most important Russian scientific schools and research areas, the scientists of world-wide repute. He excluded from this group all medical professionals and engineers as "the representatives of applied rather than theoretical knowledge who, because of this, in my opinion, could not be directly compared to the representatives of other specialities" (Filipchenko, 1922b, p. 23).

The list compiled by Filipchenko contained 80 names of the representatives of "theoretical knowledge." The questionnaires distributed among them contained a number of questions about themselves, their ancestors, spouses, and children. Many of these questions were absent from the previous questionnaire for the scientists at large. The question about ethnicity ('national origin') turned out to be the most interesting of general questions. The percentage of 'pure Russians' was the same as among the entire scientific community while, "on the contrary, there were noticeably more persons of mixed origin and noticeably less pure foreigners than among the general population of the House of Scientists. Therefore, a somewhat smaller proportion of foreign element has to be noted; as regards the latter's nature, it is mostly German or Jewish among the persons of mixed origin, and Jewish among pure foreigners" (Filipchenko, 1922b, p. 27).

As for the estate ('soslovie') the scientist belonged to by birth ('estate origin'), having compared the survey results with the well-known statistical data obtained by Alphonse de Candolle (1806–1893) for the foreign members of the Paris Academy of Sciences (De Candolle, 1911), Filipchenko concluded that the prominent scientists in Petrograd came from a much more democratic milieu, from practically all of the estates: nobility, clergy, merchants, townspeople, and peasants, although the biggest number of the prominent scientists came from the first two.

The question about a prominent scientist's number in order of birth was not accidental in this survey. Karl Pearson and Ilya Metchnikoff, both of them being respected scientists, shared a belief that the first-borns were of low quality. Filipchenko's survey allowed him to make a definite opposite conclusion: "the first-borns have considerably more chances to become prominent scientists — at least, almost half of our prominent scientists are the first-borns" (Filipchenko, 1922b, p. 33).

As regards the prominent and defective (mostly mentally ill) relatives, the limited data obtained by Filipchenko suggested that both the giftedness and psychic anomalies were mostly passed on through the female lineage. This allowed Filipchenko to raise the next question: "Perhaps, in the transmission of psychic deviations from the norm, both positive and negative, sexually limited inheritance does indeed exist. This question, naturally, may only be raised by us purely tentatively" (Filipchenko, 1922b, p. 35).

The distribution of "special" abilities (unrelated to a scientist's core research work) among the prominent scientists appears to be interesting. The organising ability ranked first, followed by the linguistic, literary, musical, oratory, and drawing abilities. I.e. a large proportion of prominent scientists were, above all, good organisers and possessed literary and artistic gifts.

Filipchenko identified five main differences between scientists in general and prominent scientists. First, there were no women among the surveyed prominent scientists. Second, the mean age of prominent scientists considerably exceeded that of the scientists in general (60 vs. 50). Third, the number of pure Russians among the prominent scientists

was significantly higher than among the general sample. Four, prominent scientists were found to have significantly more prominent and mentally-ill relatives, and in both cases the maternal lineage was more significant than the paternal lineage. Filipchenko wrote, "These latter findings convince us yet again that the persons who may be recognised as prominent scientists become such not under the influence of their own efforts or some accidental circumstances but under the influence of a force that, more than anything else, makes us what we are, i.e. under the influence of heredity. Like many other things, prominent scientists are born rather than created" (Filipchenko, 1922b, p. 37).

Filipchenko emphasised that this fact needed to be especially remembered in Russia. During ten months after the completion of the list of prominent scientists, seven of them were "taken away by death" and three left Russia. During four postrevolutionary years, Russia lost a large part of its scientific community. Filipchenko wrote, "No natural increase, for certain, can make up for these losses and, should these latter continue in the same proportion further, we may very soon come down to such lack of talented people in our milieu that Pearson profoundly fairly regards as the 'worst evil that may befall the nation'" (Filipchenko, 1922b, p. 38). This doubtless truth that was fair for many periods in the Russian history prompted Filipchenko to epigraph his article titled "Our prominent scientists" with a quotation from Fritz Lenz that reflected his own vision of the focus of eugenic studies: "Der Schutz der geistigen Arbeiter, und speziell der hochbegabten, ist eine Hauptaufgabe der Rassenhygiene" ("Protection of intellectual workers, especially the most talented of them, is one of the main goals of racial hygiene").

Filipchenko's work on the reconstruction of genealogies of prominent people was the first of its kind in Russia; no such thorough and large-scale socio-demographic survey of the scientific community has been conducted so far. This study was interesting for its time because it employed a scientifically-grounded statistical approach in the analysis of demographic parameters. The issues of the inheritance of intellectual abilities remained relevant for a long time (Korochkin, 1989; Efromson, 1998; Ridley, 2010). Today, of course, many of the conclusions from Filipchenko's eugenic studies are considered to be one-sided. Nevertheless, his ideas about creating favourable living conditions for the country's intellectual elite have not lost their relevance even today. Providing intellectually gifted children with the opportunities for meeting their cognitive needs as a most important means for their personal growth is particularly important in this day and age.

The works of Russian eugenicists devoted to the study of the families of prominent individuals were numerous and not always inclined towards the Mendelian interpretation of the transmission of different abilities. The studies of giftedness encountered many difficulties associated with the uncertainty of this concept, the diversity of the types of giftedness as well as of approaches and methods for analysing it, and a small number of specialists trained for this work.

Thus, both Filipchenko and Koltsov recognised genetic determination of intellectual and creative abilities. This opinion, however, was not unanimously shared by the Russian scientific community. The leaders of the Russian Eugenics Society, too, had opponents who promoted their own hypotheses to explain the occurrence of geniuses. On the one hand, these were the proponents of the key role of nurture and environment in the formation of personality; on the other hand, the scientists, convinced of the priority of physiological and biochemical factors in the realisation of human abilities. One of Filipchenko's opponents was a psychiatrist G.D. Yaroshenko.

Yaroshenko believed that being a genius is associated with the functioning of endocrine glands and very often with anomalies in the sexual system²¹. He reduced genius to the growth of one trait at the expense of atrophy of another. Thus, for instance, an outstanding intellectual ability could result from the excessive “one-sided” (unbalanced) activity of the brain. In his opinion, most geniuses suffer from anemia, poor sexual potency, physical feebleness, and neurasthenia, resulting from an unharmonious, “one-sided” activity of the organism. To explain the fact of negative traits in an intellectual genius not being always clearly manifested, Yaroshenko maintained that these person’s health capacities are bigger than those of an average person, and the genius can channel the excess of his health into the development of his intellect, without taking the strength away from other organs.

He adduces an interesting example of how, in relation to an artistic genius, the opposing art movements unanimously agreed that his creativity was a result of his low libido. G.D. Yaroshenko believed that aesthetic emotions, poetic inspiration, and a composer’s intuition were nothing but unsatisfied libido.

He concluded that the majority of people were potentially gifted. “Each healthy, harmoniously developed individual carries the germs of different geniuses that are sort of mutually neutralised by their harmonious balance. A harmoniously developed, healthy person forestalls one-sided development of traits and thus prevents the manifestation of genius”²².

Like many others, G.D. Yaroshenko wondered about the possibility for the transmission of genius from one generation to another. In regard to the facts of transmission of such traits from the ancestors, he commented that such examples are extremely rare. In a great number of cases, he believed, genius is not inherited: on the contrary, the offspring of geniuses are usually ordinary if not failures. Most geniuses are born of ordinary parents and produce ordinary offspring or no offspring at all. Yaroshenko explained it by an inverse dependency between intellectual and sexual potency. He believed that, while hereditary transmission of outstanding ability is observed in some cases, in this case it is unspecific traits such as the organism’s increased energy potency (i.e. predisposition for genius) that are inherited. He also believed that the specific traits of genius are developed through nurture, conditioned upon the formation of a habit for inhibiting sex drive, which that increases the intensity of internal secretion of sexual glands.

According to G.D. Yaroshenko, the internal processes related to internal secretions of the gonads and thyroid gland play an important role in the formation of capacities. “Both of these glands,” he wrote, “are antagonists and mutually balance each other; an increased development of any of these glands causes anomalies; if both glands gain momentum simultaneously, this phenomenon, in all probability, is the cause of the increased overall energy potential of the organism, i.e. determines the predisposition for genius”²³. In December 1925, Yaroshenko sent his theoretical speculations to N.K. Koltsov, having stressed that it would be of primary interest for eugenics to test his hypothesis and to study the sexual life of geniuses.

The studies of geniuses occupied the minds of many leading Russian eugenists. In the first decades of the 20th century, in line with the Russian tradition, the problem of giftedness evoked many theories and approaches (Yu.A. Filipchenko, G.D. Yaroshenko, G.V. Segalin, N.K. Koltsov). The scientists, however, failed to arrive at a single definition of what must be understood as giftedness and its causes. This problem remains unresolved to this day

²¹ ARAN. F. 450. Op. 5. D. 106.

²² ARAN. F. 450. Op. 5. D. 106. L. 5.

²³ ARAN. F. 450. Op. 5. D. 106. L. 6.

because it is difficult to trace the formation of such a complicated trait whose manifestation depends on a very large number of internal and external factors. Nevertheless, the Russian eugenicists did formulate the main principles for the studies of talented people that are still relevant and include the following:

- comprehensive nature of the studies of various aspects of prominent individuals' behaviour;
- attracting researchers from various disciplines (geneticists, physiologists, endocrinologists, psychologists) to the studies of giftedness;
- comparing outstanding abilities among the relatives of talented individuals; and
- utilising a broad range of diagnostic methods: questionnaire surveys, observations, interviews, statistical analysis.

One of the leaders of the Russian Eugenics Society was A.S. Serebrovsky. We have discovered previously unpublished materials on eugenics in his archive: the texts of the lectures delivered by Serebrovsky at the Anikovo Genetic Station in July 1922, his notes and comments on the articles devoted to anthropogenetics²⁴.

Serebrovsky believed that humans have a large number of Mendelian genes, which makes them an interesting object for genetics, and that further development of eugenic studies can significantly change what we know about the similarities and differences between individual persons, tribes and peoples: it would become possible to write a genetic formula of the Europeans, Africans, or Australians, and confirm that Africans lack some genes that are present in Europeans and vice versa²⁵.

Eugenics opened the horizons for the studies of hereditary basis of human psyche and talent. In regard to the inheritance of capacities, According to Serebrovsky, one may only guess about the presence of certain inborn capacities in people, as nurture also plays an important role in the making of talent²⁶. He identified the following main research areas in eugenics:

1. Studies of individual genes of physical constitution in the families where certain traits are manifested in a number of generations
2. Studies of children from interracial and interethnic marriages
3. Long-term observation of several generations of individual families
4. Studies of genealogies

Since the reconstruction of genealogical trees of the families under study was very important for anthropogenetic studies, Serebrovsky proposed to open a special division ('otdelenie') under the Moscow Chapter of the Russian Eugenics Society to collect data pertaining to Russian genealogies. Ideally, such division was to register all marriages, about a million of which were annually concluded in Russia at the time. However, even if such huge effort was impossible to undertake, the scientist suggested registering all marriages of more or less prominent individuals. At the same time, the Genealogical Division was meant

²⁴ Lektsii po antropogenetike, 1922 g [Lectures on anthropogenetics, 1922], *Kollektsiia arkhivnykh dokumentov A.S. Serebrovskogo* [Collection of archival documents of A.S. Serebrovsky].

²⁵ Ibid.

²⁶ Ibid.

to study genealogies of prominent Russian citizens, based on various historical and literary sources, gentry and parish registers, and respective questionnaire surveys.

Serebrovsky believed that a study of genetics of rural population would be of particular interest. The population of villages was largely migratorially inert. People lived in the same place year after year, generation after generation, and conducting a survey a today, one could be assured that the same traits would be found there in 25, 50 and even 100 years. People usually marry within the same village or take brides from neighbouring villages and peasant families are usually large, with many children, which may be helpful in their genetic analysis.

Serebrovsky believed that the stock of genes of the country's population tends to be preserved without noticeable changes for a long time, and therefore, in future, many more generations will have largely the same stock of genes, which the scientist coined 'genofond' (gene pool).

Many scientists from different disciplines, including anthropologists, took an interest in eugenics. It was not accidental that the anthropologist V.V. Bunak was invited to succeed Filipchenko as head of the Eugenic Department at the Institute of Experimental Biology. He held this position till 1929²⁷.

In November 1922 when the Scientific Research Institute of Anthropology was created under the auspices of Moscow University, Bunak became one of its first four full members ('deistvitelnye chleny') and, after D.N. Anuchin's death in 1923, its director. In 1927, V.V. Bunak became the head of the Central Anthropometric Bureau under the State Institute of Social Hygiene of the People's Commissariat for Public Health ('Narkomzdrav').

Bunak regarded collecting factual material on human genetics as one of the main tasks of eugenics, and maintained that collecting such material required joint efforts of many researchers who share the same goals (Bunak, 1922).

Bunak suggested to develop a special research programme in eugenics, similar to those at the Galton Laboratory based at University College London and at the Eugenics Record Office (ERO) in New York. The Russian counterpart of these programmes, naturally, was to be adapted to local specifics.

This research programme was intended to pursue the main goal of providing guidance more to the members of general public, interested in the issues of human heredity, than to researchers specialising in eugenics who already possessed the skills necessary for conducting such surveys.

The implementation of this programme required the presence of special eugenic organisations across the country. Bunak thought it expedient to organise eugenic observation centres or eugenic stations at the institutions dealing with the population. He believed that health institutions would be the most suitable for the purpose, particularly as physicians were able to understand the tasks of eugenics better than anyone else. V.V. Bunak wrote:

To cover the most typical category of Russian medical institutions, it would be most correct to establish such experiment/observation centre at some rural district hospital. The latter [rural hospitals], due to their close connection to a certain stationary population, its [this population's] better availability for observation, relative uniformity of its external living conditions, and other similar reasons, comprise in many respects a particularly favourable site for various biosocial observations, and it is these institutions that have produced

²⁷ ARAN. F. 570. Op. 1. D. 11. L. 29.

quite a number of valuable sanitary-statistical, hygienic and anthropometric works in the Russian scientific literature (Bunak, 1922, p. 83).

In Bunak's opinion, the abundant material dealt with by the district medical facilities provided broad opportunities for research in different areas in human genetics. Available statistical data enabled the studies of the influence of exogenous and endogenous factors on the formation of different traits as well as household surveys aimed to look into the heredity of diseases. Bunak placed big hopes on the studies of differences between the representatives of different professions. He believed that people of different professions are biologically different, which is the cause of social competition among the population.

When developing the content for the eugenic survey programme, V.V. Bunak specified the documents that had to be filled out: (1) a family sheet for individual traits; (2) a family sheet for multiple traits; (3) a typological sheet for studying homogenous typological groups; (4) a sample biographical sheet; (5) a demographic family sheet; and (6) a genealogical family chart. Each of these questionnaires was complete in itself and could be filled independently of other documents.

The family sheets for individual traits were intended for registering one particular trait, e.g. a hereditary disease. The most complete information about families under study was contained in the family sheets for multiple traits, which provided the data about racial, demographic (life span, number of children), typological (chest circumference, nutritional status, overall constitution), psychological and pathological traits.

All of these documents, however, only allowed to collect factual data but not to process it. It was the geneticists who were to analyse thus collected material. The researchers were expected to make conclusions about one individual or his family and to compare unrelated subjects, e.g. those afflicted with tuberculosis, in order to determine the true cause of the disease. Indeed, understanding the exogenous and endogenous factors that determine the development of a trait was one of the goals of Bunak's eugenic programme.

Of particular interest were the studies on familial anomalies. During the examination of individuals with pathologies, special consideration was given to the following aspects: (1) information about parents; (2) age; (3) family status; (4) number of children; (5) profession; (6) general health status, and (7) psychic characteristics. Genealogical tables or graphical representations of genealogies were to be prepared for each subject. Graphical genealogical trees were only intended to illustrate the transmission of hereditary properties.

In his eugenic views, V.V. Bunak placed a great emphasis on practical application of scientific research. For human genetics, it was a comprehensive study of human organism and its hereditary properties. Practical experiment stations, proposed by Bunak for registering various anthropological and medical features of individuals, were intended to benefit health care, education, and various industrial sectors. Anthropometric studies of people of different age groups, ethnicities, and professions, organised by Bunak and his colleagues, covered the territory of the entire Soviet Union. The data on morphological features of the country's population, just as he hoped it would, began to be used for various practical purposes and needs of the country's economy. For instance, anthropometric characteristics obtained in Bunak's studies were used in the development of the first state standards for clothes and footwear in the USSR.

Bunak's works in the field of "practical eugenics" provided human genetics with the still relevant methods of measuring different anthropometric parameters. The types of human constitution, age periodisation of individual development, classification of races,

and hypothesis about the origin of different nationalities and their dispersion, proposed by Bunak, remain theoretically and practically relevant to this day.

The analysis of, and public reaction to, the eugenic works indicate that, in the 1920s, Russian eugenics reached the frontiers of biological science. We see the genesis of eugenics as a result of a complicated interaction of the humanities and natural sciences within the framework of integrative processes in the cognitive and socio-cultural components of scientific knowledge. It was not accidental that, in the eugenic journals, one could find the articles written by medical professionals, geneticists, anthropologists, lawyers, psychologists and historians. The participation of the representatives of different disciplines in the eugenics movement broadened considerably the scope of the new science and helped to attract public attention to its problems.

By the late 1920s, the persecution of eugenists began in the USSR and the Russian Eugenics Society's activities began to gradually wane together with the entire field of eugenics. The number of articles devoted to the heredity of human traits dropped considerably and the chronicle of the Society's events and activities almost ceased to be published. Despite the fact that, in 1928, the Society for the Studies on Racial Pathology and Geographical Distribution of Disease, whose scope was to an extent in keeping with eugenic research, was organised in Moscow under the leadership of N.K. Koltsov, whose scope of studies was to an extent in keeping with eugenic research, the former scientific enthusiasm of the eugenists began to fade. E.V. Pchelov believes that one of the causes of the slowing down of research in eugenics was the evolution of views of the eugenics movement's leaders themselves (Pchelov, 2004, 2008).

The attacks of the opponents of eugenics also had a profound negative impact on the Eugenics Society's activities. One of the sources of resentment against eugenics was the fact that this discipline acknowledged inequality, even if it was genetic inequality, among people. The belief that the people's inherited capacities depend on the privileges associated with favourable social status became firmly established in the European tradition. The proponents of equality were strongly opposed to such privileges for gifted individuals, believing that all human beings are endowed with equal abilities. The differences in social status were ascribed to the oppression by the ruling class. From this standpoint, the people engaging in heavy labour were nothing but the product of social system's unfairness, the victims of oppression.

According to the Marxist doctrine, the people's social status is determined, rather than by their heredity, by ownership of the means of production, by their property status. The widespread antagonism towards the rich in the USSR created a tendency to underestimate the importance of heredity and gave people a feeling of satisfaction from knowing that one's imperfection can be attributed to differences in the possession of material wealth. The Soviet eugenists were heavily criticised for adopting the theories of a number of Western European scientists, according to which poverty itself was an indicator of poor biological development.

Another source of public antagonism towards eugenics was a conviction that nurture and education cannot change the individual's nature, which was shared by many of its leaders. The issue of inheritance of acquired characteristics was widely discussed in the USSR in the 1920s. The geneticists refuted the possibility of such an inheritance. This was the period of struggle between the representatives of classical genetics and mechanolamarckism. The discussions on the problems of natural science in the magazine "Pod znamenem marksizma" ('Under the banner of Marxism') began to escalate to political debates and

lose their scientific value. According to E.I. Kolchinsky and S.A. Orlov, the concept of mechanolamarckism, in contrast to nomogenetic theory of evolution and saltationism, became firmly established in the Soviet Union due to political interference in philosophical discussions (Kolchinsky, 1997; Kolchinsky, Orlov, 1990). I.V. Stalin personally advocated the thriving of “<...> the science, which has the courage and determination to break the old traditions, norms, and attitudes when they become obsolete, when they became a hindrance for progress, and which is able to create new traditions, new norms, and new attitudes” (Stalin, 1938, p. 3). The faction of mechanolamarckists included M.B. Mitin, T.D. Lysenko, E. Kolman, A.A. Avakyan, and B.P. Bakhrash. Mechanolamarckists mostly ignored the philosophical and methodological aspects of the debates.

The discussions on the issues of inheritance of acquired characteristics pushed the Russian philosophical and biological thought several decades back. Such debates had already occurred in England long before the publications in “Pod znamenem marksizma.” In the 1870s-1880s, Darwin’s theory was criticised by Herbert Spencer who regarded organism as an aggregate of organs that exist in equilibrium. According to Spencer, the external milieu was able to disrupt this equilibrium that could only be restored through the transmission of acquired characters. Spencer opposed the theory of selection as an all-important factor in evolution (Spencer, 1866, 1870, 1871, 1893, 1894). Many scientists sided with Spencer, calling themselves mechanolamarckists. Others sided with A. Weismann, demanding to “purge” Darwinism from the mistakes of Lamarckism. This situation repeated in Russia. In his speech on philosophical issues of science, A.S. Serebrovsky maintained, “We are the proponents of the position that has been advocated by Weismann and Wallace against Spencer’s line that led to mechanolamarckism, which erupted in a blazing outbreak in our country in recent years” (Serebrovsky, 1938, p. 97). Serebrovsky himself sometimes came out with brave statements in favour of genetics. Thus, in his article titled “An attempt at a qualitative characterisation of the process of organic evolution” (1930) he proved wrong the theory of human origins, substantiated by Engels. He refuted this theory as false and scientifically invalid. According to Serebrovsky, it was not Engels who was to be held accountable for the labour theory but, rather, biology of the time. “The people of genius are children of their time, who can make mistakes together with their contemporaries” (Serebrovsky, 1930b, p. 34). Having perused the works of the classics of Marxism, Serebrovsky wrote, “Even though, in the Marxist literature, a sympathising attitude towards Lamarckism can be encountered in the works of some authors, it by no means follows from it that Lamarckism is closely linked to Marxism ideologically” (Serebrovsky, 1930a, p. 220). In his opinion, the all-important task of biology was “cleansing the evolutionary theory from Lamarckism.” In regard to the driving forces of evolution, Serebrovsky remained a fierce anti-Lamarckist, never giving in a single inch to the simplification of evolutionary theory by the orthodox Darwinists (as neo-Lamarckists called themselves in opposition to neo-Darwinists/geneticists).

The attacks on eugenics on the part of neo-Lamarckists were particularly fierce. The proponents of the inheritance of acquired characters criticised the eugenicists for underestimating the role of new social conditions in the process of personality formation; at the same time, the ideas of artificial selection among humans were harshly criticised. Only very few were able to cope with such fervour, particularly when politically and ideologically-driven factors that had nothing to do with science intervened in scientific disputes. Thus, after Yu.A. Filipchenko’s fundamental work “The intelligentsia and talents” was subjected to harsh criticisms, he abandoned his eugenic research and the Leningrad Bureau of Eugenics soon completely changed the direction of its research.

Furthermore, a number of countries Soviet society was opposed to at the time were using eugenics to address their demographic problems. Nationalistically tinted idea of racial hygiene was running rampant in Germany. “Russkii evgenicheskii zhurnal” even used to publish the foreign programmes of negative eugenics for a time, which naturally provoked negative attitude towards eugenics in the public consciousness. N.K. Koltsov himself thus explained the closure of the Society: “When the first signs of fascism manifested themselves in Germany, I abruptly stopped eugenics by myself, without any external pressures, closed the Eugenics Society, having ceased to publish the journal, and closed the Department of Eugenics at the Institute” (Asturov, 1976, p. 25). In the late 1920s, the overall situation for the development of new scientific societies changed for worse. On the eve of the year of the Great Breakthrough, the state launched an offensive against scientific thought and a large number of scientific societies were closed.

The thrashing of eugenics in the USSR began in the late 1920s when it was on the rise. The Russian Eugenics Society and its Chapters ceased to exist in 1929. “Russkii evgenicheskii zhurnal” was no longer published and the eugenics laboratories were closed. The leaders of the Russian Eugenics Society were accused of racism and chauvinism and forced to publicly repent for their enthusiasm about eugenics.

In 1931, an article on eugenics was published in the Great Soviet Encyclopedia, in which Filipchenko’s eugenic ideas were called “bourgeois”; Koltsov’s ideas, “fascist”; and Serebrovsky’s ideas, an “example of Menshevist idealism” (Batkis, 1931). The author of this article, Grigorii Abramovich Batkis (1895–1960), became the Chair of the Department of Social Hygiene at the 2nd Moscow Medical Institute the very same year (1931). Despite his in-depth training in psychiatry and biological sciences at the St. Petersburg Psychoneurological Institute and Kiev University²⁸, he was skeptical about some studies in the field of human genetics and a zealous opponent of the methods of preventive eugenics (Batkis, 1927, 1928, 1936, 1938, 1941).

In the 1930s, eugenics was held against the scientists who had paid tribute to it. This accusation was used throughout the entire period of struggle against genetics. Hitler’s coming into power in Germany put an end to eugenics in the USSR. Germany always had a reputation of the country with a huge scientific potential, including its significant contribution to the history of genetics. It is enough to name Carl Correns who together with Hugo de Vries (Netherlands) and Erich von Tschermak-Seysenegg (Austria) rediscovered Mendelian laws in 1900 and Erwin Baur who was one of the most important architects of the synthetic evolution. However, after the dictatorship of the Nazi Party was established, the geneticists switched over to the development of racial theories in very limited sense.

After the attacks on eugenics on the part of Soviet politicians and public figures, the leaders of the eugenic movement saw the salvation of eugenics in changing its name to “anthropogenetics,” “medical genetics,” or “human genetics,” as these terms had not been negatively associated with the Western tradition of racial hygiene.

No single act of sterilisation or elimination of hereditary defective individuals has been committed in the USSR, the proposed projects of organising a union “For a better child” (‘Za luchshego rebenka’) and a society named “Let’s produce a healthy child” (‘Dadim zdorovogo rebenka’) had not been realised either. The Russian eugenics movement, in

²⁸ *Arkhiv Rossiiskoi akademii meditsinskikh nauk (ARAMN)*. [Archive of the Russian Academy of Medical Sciences]. F. 1. Op. 8/3. D. 23.

contrast to its foreign counterparts, placed the biggest emphasis on the scientific investigation into the issues of human genetics and the popularisation of the eugenic knowledge.

The mentality of the leaders of new science was governed by their conviction that the value of positive knowledge lies in its being based on the principles developed by natural sciences. Russian eugenicists believed that the conditions of human existence could be improved based on the accomplishments in the cognition of the laws of human heredity, which was reflected in the development of 'positive eugenics' projects. They put forward their grandiose plans for the only purpose of helping the society suffering from hereditary diseases and degeneration. The ideas of perpetual commitment to serving people were inherent in the Russian scientists' activities. The humanistic goals inspired them to spread scientific achievements and knowledge among the people through public lectures that aroused wide public interest.

Our scientists believed that practical objectives of eugenics, associated with the elimination of negative heredity, should be the organisation of special medico-eugenic consultancies. The first such consultancy in the USSR was organised by S.N. Davidenkov at the Genetic Department of the Moscow Institute of Neuropsychiatric Prophylaxis under Narkomzdrav. Davidenkov organised the work of this consultancy based on the principle of strictly individual analysis of each of the newlyweds and their families. The specialists offered their advice based on the examination of the couples' genealogical charts and assessment of transmission of hereditary anomalies. The scientific basis of the eugenic recommendations was the assumption that most of the recessive forms of hereditary diseases were characterised by the intermediate type of heredity. This gave rise to the need to elucidate the type of genotypic combinations, associated with a trait under study, the individual belonged to, whether it was heterozygous or completely free of the negative hereditary factor. "I have been constantly pushing the idea that medico-eugenic advice to the families with recessive anomalies must be based on the diagnosis of heterozygotes rather than on parents' being blood-related," wrote Sergei Nikolayevich Davidenkov (1929, p. 37).

Later on, a eugenic consultancy was organised at the Genetic Consulting Room of the Moscow Medical Institute's Psychiatric Clinic. The demand for such consultations was high, with most of those who sought consultations being women. One of the staff members of this clinic cum consultancy centre, A.G. Galachian, thus wrote about the importance of such work: "Medico-eugenic practices, particularly under our [Soviet] Union's conditions where neither inequality of property, nor national, estate, or religious prejudices exist that dictate the choice of marriage partner, are the matter of today" (Galachian, 1936). The creation of medico-eugenic consultancy centres marked the beginning of a new direction in medical genetics. This day and age, such centres employ modern diagnostic methods. A large number of young families seek such consultations, being aware of their importance. Modern family planning centres are impossible to imagine without an extensive use of genetic technologies allowing to anticipate the birth of a healthy child.

The examples given here demonstrate the diversity of theoretical and methodological views of the scientists who had turned to eugenics in the 1920s, which indicates how popular this area was among the biological and medical communities. According to V.V. Babkov, the preconditions for the extensive spread of this movement in Russia were the need for the mobilisation of the nation's productive and creative forces after WWI and the Civil War as well as the projects of national economy restoration and the belief in the power of the human mind (Babkov, 1998a). These, however, were not the only and not the main caused. The entire socio-cultural atmosphere of the 1920s with its economic, political, religious,

ethical, familial, and scientific aspects facilitated the adoption by the society of the ideas of bettering humankind. The process of emergence of the new public organisations and scientific institutions of eugenics was a universal trend worldwide. The adoption and spread of the eugenic ideas in Russia proceeded in the context of socio-cultural and socio-political changes occurring in the first decades of the Soviet regime. To be recognised and financially supported by its own country, it was not enough for eugenics to just adapt to socialist realities, requirements and specifics. It became involved in the processes associated with addressing the economic, political and socio-cultural tasks of the Soviet society, and carried out extensive organisational, research and educational activities.

The totalitarian system killed many initiatives of the Russian eugenicists, banished many advanced studies, and destroyed research teams and institutions but failed to erase the remarkable pages of “the eugenics period” from the history of Russian genetics. The contemporary interest in the history of the eugenics movement in the USSR is governed not only by the scientific, methodological, sociopolitical and educational works by the outstanding eugenicists but also by the examples of adherence to scientific and moral principles and earnest commitment to work for the benefit of future generations.

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Русское евгеническое общество: история и основные направления деятельности

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В статье на основе архивных материалов реконструирована история Русского евгенического общества, созданного в 1920 г. и просуществовавшего до 1929 г. Обсуждение евгенических проблем совпало и с распространением генетики в России. Не случайно среди учёных, получивших первоначально естественно-научное университетское образование и начавших свою научную карьеру в традиционных биологических областях, таких как сравнительная морфология, энтомология, гидробиология, антропология (Н.К. Кольцов, А.С. Серебровский, Ю.А. Филипченко, В.В. Бунак), увлечение генетикой привело их в дальнейшем к рассмотрению ключевых проблем антропогенетики. Научные традиции, привнесённые из классических дисциплин, способствовали развитию евгеники в России как научной дисциплины, с характерными для неё методологическим базисом и привлечением современных для того времени методов исследования. Отделения Русского евгенического общества к концу 1920-х гг. проводили масштабную научную и просветительскую работу. Наибольшее число направлений деятельности было в Московском отделении, в Ленинграде в основном упор был сделан на социодемографические исследования, в Одессе евгенисты сосредоточились на пропаганде идей новой науки, а в Саратовском отделении связали евгенику с решением

важнейших медицинских проблем: распространением различных заболеваний и выяснением их природы, борьбой с абортами и венерическими заболеваниями, профилактикой появления наследственных аномалий. В отличие от евгенических обществ других стран, в России оно было пропитано строгими научными стандартами и скепсисом в отношении к околонаучным утопиям. В отечественной традиции между евгеникой и антропогенетикой ставился знак равенства. Таким образом, исторический период формирования евгеники в полной мере можно считать одним из этапов в истории отечественной генетики человека.

Ключевые слова: Русское евгеническое общество, Русский евгенический журнал, изучение наследственности человека, популяризация науки, наука и власть.

The American Society of Mammalogists, The Ecological Society of America, and the Politics of Preservation

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From the 1920s to the early 1940s, the American Society of Mammalogists and the Ecological Society of America became involved in efforts to preserve natural conditions on protected land areas, and to conserve predatory and other wildlife. Members vigorously disputed how active a scientific society should be in advocating for conservation. Charles C. Adams and Victor E. Shelford served as leaders in two major efforts aiming to shape federal policy, notably the preservation of natural landscapes and the protection of predatory animals. Their unique argument for conservation highlighted preserved landscapes with their original compliments of wildlife, emphasizing the outstanding scientific value and potential for future scientific study of protected places. Through their work on committees of their professional societies and the National Research Council, Adams, Shelford, and many of their colleagues illustrate the various avenues utilized by scientists in efforts to preserve the very essence of their research. Scientific societies took risks as members and the organizations themselves played critical roles in conservation advocacy, while the politics of science became intermixed with the politics of nature preservation.

Keywords: American Society of Mammalogists, Ecological Society of America, Charles C. Adams, Victor E. Shelford, protected areas, nature preservation, wildlife conservation.

One of the more famous episodes of wildlife conservation history in North America was the fight against federal predator control programs on public lands, which peaked in disputes during the late 1920s and 1930s, resurging again in the 1960s. While the campaign has been interpreted properly as an outcome of the growing influence of ecology, it also demonstrates the integral roles of scientific societies in petitioning governmental agencies to shift policies towards the conservation of wildlife. At the same time, members of the societies engaged in an ongoing conversation regarding the appropriateness of scientists actively participating in public policy issues.

Two movements for conservation of habitat and wildlife from the 1920s into the early 1940s reveal a wide base of support that emerged from notable scientific societies of the day. First, ecologists' interests, centered in the Ecological Society of America (ESA), proved instrumental in a long campaign to preserve "natural conditions" in protected places or landscapes. A second related movement, the battle of the American Society of Mammalogists (ASM) against predator control, developed an early Western focus within the Museum of Vertebrate Zoology (MVZ) in Berkeley, California (Dunlap, 1988, p. 49). However, opposition to federal predator control also emerged nationally, and from a wide matrix of professional involvement. The careers of Charles Christopher Adams and Victor Ernest Shelford, two early animal ecologists who played leadership roles in scientific societies, help us to see the connections between preserving places and preserving species during this formative era in North American ecology and wildlife conservation.

Beginning in the late 1910s and continuing to the Second World War, early animal ecologists advocated for the preservation of natural conditions. Also using the terms "original", "primitive" or "primeval" conditions, these scientists shared a concern that civilization was rapidly eliminating habitats where nature proceeded by its own devices, unmodified by the manipulations of human hand. By 1931, ecologists argued for special reserves to be set aside within the national parks and other appropriate places as "nature sanctuaries to which only persons conducting scientific, artistic or literary work of a serious nature are to be admitted"¹. This movement originated in the Ecological Society of America and intensified in the mid-1920s when concerns about regional extirpations and possible extinctions of the larger mammalian predators arose. The twin concerns about vanishing predators and swiftly disappearing natural places invigorated one another during the 1930s and up until WWII. Networks of communication among mammalogists, ecologists, field biologists, and institutional administrators reveal the interconnected nature of these two movements, and the role of scientific societies. The politics of science became engaged with the politics of conservation, as scientists' efforts to conserve the natural world (the raw material for their studies) took divergent forms within a heterogeneous and much larger conservation movement².

Preserving Natural Conditions

Committee members organizing the Ecological Society of America in late 1914 felt themselves to be riding a new and important wave in science. Some of them also hoped that this organization of scientists would serve the practical ends of conservation. Among the twenty-two founders of the society sat Charles C. Adams, a progressive ecologist on the faculty of the New York State College in Syracuse, as well as zoologist and animal ecologist Victor E. Shelford of the University of Illinois. By 1917, Shelford organized a Committee on the Preservation of Natural Conditions, one of the first four committees created to

¹ Shelford V.E. (1931). *Report on a Proposed Policy for the Ecological Society of America Regarding Preservation and Study of Natural Biotic Communities*, (pp. 2), Charles C. Adams Papers, Regional History Collections, Western Michigan University, hereafter cited as CCAP-WMU.

² For episodes in Russian conservation history showing some parallels with the American case discussed here see: Weiner, 1988, 1999. On environmental worldviews and how they are sometimes tied to political views see: Weiner, 1992.

carry out the business of the ESA (Burgess, 1977; Tobey, 1981, p. 127). He chaired this committee through 1923, and again from 1931 to 1936, remaining in close contact with committee members throughout the 1930s. Original members of the committee included W. S. Cooper, Charles C. Adams, Robert F. Griggs, and Barrington Moore (Crocker, 1991, p. 121; Committee on the Preservation of Natural Conditions, 1937).

Scientists on this committee shared a wider concern among ecologists that the nature they enthusiastically studied was in danger of disappearing for all time. Extensive alteration of native ecosystems was readily apparent on the Great Plains, certain species of birds and mammals had been extirpated from vast sections of America (or become extinct), and forests of the West seemed to fall rapidly to the ax and saw. Thus some of the same objective conditions that drove the wider conservation movement inspired the scientists on Shelford's committee. Yet their reasoning also embraced their professional interests; they were worried that future scientists would be unable to find places to study that had not been significantly altered by human hand. When all pristine areas had been modified into farms, towns, and second-growth forests, how could science know how nature functioned on its own? What standard might scientists use to compare the effects of human alteration of landscapes? To American ecologists of the early twentieth century, the very fabric and essence of what they hoped to study and understand seemed fast disappearing, lending a sense of urgency to the work of the Committee on the Preservation of Natural Conditions.

With growing effectiveness around 1920, Shelford and his associates began gathering a catalog of natural areas typical of each region, sought to identify an ESA representative in each state, and prepared a list of people as well as local and national organizations interested in preservation. The finished product might be described as monumental. Published in 1926, *The Naturalist's Guide to the Americas* ran to well over 700 pages, describing physiographic provinces from Alaska to the Amazon River, assessments of the plant and animal life, the location of unpolluted waters, and remarkable natural features. The volume included a natural history bibliography for each region, country, state or province. Although Shelford served as the general editor, he was assisted by Forrest Shreve of the Carnegie Institution's Desert Laboratory as well as seven other subject editors in compiling the work of numerous other authors. *The Naturalist's Guide* listed all the natural areas the authors could locate on the North American Continent. This remarkable enumeration of natural places not only listed the obvious federal forests and parks, but also small private and state-owned wildlife preserves. Scientists of the 1920s generally thought of "pristine" landscapes as untouched by human hand, because their cultural blinders caused them to underestimate the effects Native Americans had on natural systems. The authors of *The Naturalist's Guide* may have shared this prejudice, yet the areas they thought worthy of noting for natural features included arboretums and parts of forested metropolitan parks within the limits of cities such as Cleveland and Cincinnati. In short, they attempted to compile a list, including areas as small as 50 acres, where human intrusions seemed negligible, a protected status would be desirable, and research might be conducted (Shelford, 1926).

Between the world wars, the ESA Committee on the Preservation of Natural Conditions took part in securing protection for some notable areas. Big Bend National Park in Texas, the Quetico-Superior wilderness in northern Minnesota, and Glacier Bay National Monument in Alaska provide examples of their contributions to preservation campaigns. Identified during the 1920s by the committee as deserving special protective status, by 1944 these areas had been designated a national monument, park, or a U.S. Forest Service primitive area.

Significantly, Shelford believed that scientists could and should lead the way in conservation. In the *Naturalist's Guide to the Americas* he included a piece by Henry S. Graves, from 1910 to 1920 chief forester of the U. S. Forest Service, on "The Duty of Scientific Men". Graves argued that conservation awaited organization, and there was "a duty for the great national organizations of scientific men to join hands in assuming this leadership". The goals of Shelford and Graves were rather ambitious and presaged terms like "sustainable development", but they reveal that many scientific people of the 1920s perceived environmental problems in a comprehensive manner. They saw the weakness of a piecemeal approach, arguing that these dilemmas required systematic approaches. They utilized the Progressive movement and its emphasis on the positive power of government. Graves suggested that scientists could assemble the necessary information and render an "interpretation of the problems of conservation from the broad viewpoint of the relation of all resources to our national development" (Graves, 1926). While Shelford and Adams agreed that scientists should lead the way in conservation, they later came to disagree over the role of professional societies in the preservation of natural places.

During the 1920s, ecologist Charles C. Adams shared Shelford's driving interest in preserving natural conditions. As president of the ESA in 1923, he was certainly aware of the activities of the ESA Committee on Natural Conditions and demonstrated his own interest by publishing several notes and articles on the subject. While some of his early work in biogeography focused on a genus of snails in the Tennessee River Valley, Adams claimed that he "became deeply impressed with the importance of the study of natural conditions", beginning with his 1905 ecological survey of Isle Royale on the north shore of Lake Superior (Adams, 1925, p. 561; Raup, 1959; Sprugel, 1985). In 1917, while Shelford was organizing the ESA Committee on the Preservation of Natural Conditions, Adams called himself a forest zoologist and taught at the New York State College of Forestry in Syracuse. Adams joined in Shelford's effort to preserve natural conditions, speaking and writing on the subject. In 1922, Adams presented a paper at the second National Conference of State Parks on "The Relation of Wild Life to the Public in National and State Parks." At this time, Adams did not specifically speak for the preservation of predators, but he did suggest that if the parks were to be permanently maintained, they "must remain primarily a wilderness", a vehicle for the larger purpose of "maintaining their native plants and animals in natural conditions". One of the primary concerns Adams shared with other scientists was the problem of exotic species in the parks. The American Association for the Advancement of Science in 1921 passed resolutions urging the National Park Service to prohibit the introduction of non-native plants or animals into the parks, and furthermore noted its strong opposition to "all other unessential interference with natural conditions" (Adams, 1923, p. 129, 130, 137).

In 1925, Adams wrote "Ecological Conditions in National Forests and in National Parks" for the June issue of *The Scientific Monthly*, in which he clearly advocated for the protection of original conditions within the parks (Adams, 1925). His article seemed to make some favorable impressions among foresters, yet Adams regretted that he did not strike up more enthusiasm among National Park Service personnel. His impressions may have been shaped by the fact that as a member of the American Forestry Association he had maintained close professional connections with foresters, yet it is clear that NPS leadership was not terribly enthusiastic about surveying the ecological complexity of its domain. Director Steven Mather and his assistant Horace Albright were essentially preoccupied with boosting tourism (Sellars, 1997, p. 281–284). Like Victor Shelford and many others of his generation, Charles Adams gave an enthusiastic push to the idea of preserving natural

conditions. The living creatures that embodied those primitive conditions, however, became a locus of dispute during the 1920s.

From Preserving Primitive Conditions to Preserving Predators

Adams's interest in preserving natural conditions for scientific study found expression and developed further during the 1920s in a growing movement to preserve native predators in North America. Recognition that predators formed a crucial element within natural conditions was the essential link between the two movements. Adams and others sought sanctuaries for predators specifically so that "primitive conditions" could carry on unimpeded.

Unusual events in Yellowstone National Park during the mid-1920s helped shape Adams's ideas on predators. In 1922, the U.S. Fish Commission secured the services of a reputable parasitologist, Henry B. Ward, to come to Yellowstone for the purpose of investigating a parasite that made the park's trout appear "wormy" and therefore unappetizing to anglers. He was also pressed, however, to render an opinion on the food habits of the pelicans. The U.S. Fish Commission demanded that the park control a population of American White Pelicans (*Pelecanus erythrorhynchos*) on Yellowstone Lake. Despite disclaimers about not making value judgments, Ward's information was employed to convince Horace Albright to conduct from 1924 through at least 1928 small "experiments" in controlling the pelican population by destroying eggs and chicks on Molly Island.

In 1925, Charles Adams was the first scientist to openly object to the common perception that pelicans feasting on the trout was a bad thing needing some corrective measure. Adams argued that the pelicans were hardly to blame for a noted decline in park sport fishing. Rather, the Fish Commission's collection of trout eggs, overzealous anglers and park hotels and camps that served trout were causing anglers' creels to go unfilled. Most importantly, Adams called on the purposes of the parks, noting the "real purpose of the National Parks is to preserve in them what can best be maintained there" (Adams, 1925). The American White Pelican needed isolated and undisturbed nesting grounds, and the parks provided such places where natural conditions played themselves out.

The pelican episode also introduced Charles Adams to the action agendas of well-known but not always well-liked conservationists. In the early summer of 1931, Rosalie Edge of New York published a small yet inflammatory pamphlet, "Last of the White Pelican", insinuating that the Park Service was destroying this rare native bird. In late 1931, W.L. McAtee also defended the pelican on the pages of *Bird Lore*, published by the Audubon Societies. National Park Service leaders Horace Albright and Stephen Mather had carefully created an image of the Park Service as an agency that protected wildlife, and they seemed very sensitive to negative publicity. The NPS resistance to protecting wolves (*Canis lupus*) and coyotes (*Canis latrans*) had been reinforced and supported by widespread cultural antipathy for predators, but the public viewed the pelicans not as predaceous but as beautiful, rare, and innocent victims of needless persecution. In the May 1931 number of the *Journal of Mammalogy*, Horace Albright declared protection for all animals in the national parks, yet curiously one year later Yellowstone Superintendent Roger W. Toll proclaimed full protection for the park's pelicans. For Adams, the Yellowstone episode made sense of the connections between preserving natural conditions on public lands and saving predators.

The Federal predator-control program

During the late 1800s, ranchers had sought to eradicate wolves and coyotes that took advantage of the great numbers of cattle that replaced the virtually extinct bison on the plains and in western states. Early encouragement and organization of this effort consisted of bounty systems that became known for rampant fraud. When the federal government began predator control work in 1915, much of the damage had been done to the wolf. Hence, the Biological Survey's work assisting stockmen turned its attention mainly to coyotes and later to rodents such as prairie dogs that were resented for their raids on grain supplies, disliked for eating the grass that cattle might otherwise receive, and for digging holes that some people thought caused injury to horses and stock (Dunlap, 1988, p. 48).

Originally established in 1885 as the Office of Economic Ornithology and Mammalogy, the federal Bureau of Biological Survey (BBS) had strong roots in natural history traditions. Under director Clinton Hart Merriam, the Bureau carried out scientific work in taxonomy and biogeography at a standard respected by academic museums. Bureau personnel, in fact, helped establish the American Society of Mammalogists. The Bureau's respected status did not last, however, as western livestock interests pressured congressmen for assistance, with the result that the Bureau became employed in assisting ranchers in killing "varmints". Merriam left the agency when it became apparent that his interests in natural history and scientific research would be subsumed under a new mission of practical control measures. In the mid-1920s, a new Division of Predator and Rodent Control (PARC) was created, and this section became the target of the ASM campaign (Cameron, 1929; Sterling 1974, 1989; Dunlap, 1988, p. 35–39). Nevertheless, the Bureau had important and lasting ties with academia, including the development of cooperative wildlife research projects with the states. The long debate over federal predator control policies might be understood partly as a family feud; mammalogists in the Bureau employed science to make the range safe for agriculture, while mammalogists in the academy utilized ecology to defend the predatory species. Ranchers' expectations for federal science clashed with the presumptions of scientists mostly outside the Bureau who wanted federal science to take a greater interest in the preservation of natural conditions and wildlife species.

The ASM Committees

Charles Adams's participation on committees of the American Society of Mammalogists reveal the connections between ecology, the movement for the preservation of natural conditions, and the ASM drive for the protection of native predators. Beginning in 1920, Adams chaired two out of three ASM committees that aimed to preserve mammalian predators. While there was some overlap in the life of the three committees, they arrived on the scene sequentially, the first two organized in significant measure thanks to the efforts of Adams. The Life History Committee was created first in the early 1920s and continued under W.P. Taylor at least through 1927; the Committee on Wildlife Sanctuaries was established by June of 1924; and, finally, the Special Committee on Problems of Predatory Animal Control initiated activities in 1930 under Harold E. Anthony. The mammalogists' fight against federal predator control was carried out through the work of these committees, but scientists and conservationists also organized opposition informally behind the scenes.

The American Society of Mammalogists had been organized in 1919, about four years after the Ecological Society of America (Sterling, 1974, p. 415–417; Hoffmeister, 1969)³. Adams participated actively in both organizations from their beginnings, helping to initiate the ASM Life History Committee and serving as its first chairman during the early 1920s. The activities of this committee can be understood best in the context of economic ornithology and economic mammalogy as practiced at the time. In justifying protection for wildlife during the early part of the twentieth century, conservationists found themselves using a variety of arguments. The rational and scientific side of these arguments often took economic forms. Farmers had waged war on chicken hawks, owls, and other species because they believed those creatures hurt their financial interests. The Bureau of Biological Survey was charged with assisting farmers in their battle against the elements. Within the Bureau's Division of Food Habits Research, economic ornithologists used techniques that naturalists such as S.A. Forbes had pioneered in the 1870s. They carefully observed birds in the wild, examined stomach contents, and employed scatological analysis to determine exactly what birds consumed. The ASM Life History Committee also can be seen as a product of nineteenth century natural history traditions, performing basic research on the life habits and distributions of species that were not yet well documented. This list of little-known species included significant species of the mountain west, such as grizzly bears (*Ursus arctos horribilis*). During the 1930s, research documenting the food habits of mammals began to play an important role in defending native predators from unfounded claims of excessive damages to stock. By the late 1930s, Adolph Murie came to Yellowstone Park, where he determined that coyotes roaming the northern areas of the park consumed mainly rodents, rather than the sheep on Forest Service allotments just north of the park. Park Service naturalists used Murie's research to fend off ranchers' demands that Yellowstone poison coyotes within the park.

In 1924, opposition in the ASM to the Bureau of Biological Survey's policies coalesced and became public. Naturalist Joseph Scattergood Dixon and Charles C. Adams initiated a dialog in the early summer of 1924, discussing predators in their correspondence. Dixon was a practiced naturalist and curator of mammals at the Museum of Vertebrate Zoology in Berkeley. He was a veteran of many field expeditions, widely known and respected not only for his judgments on matters of systematics, but also for his opinions on practical matters affecting wildlife (Sterling et al., 1997, p. 210–212). Rumor had it that the ASM would appoint a committee to look into the predator problem. Both Adams and Dixon worried that the Biological Survey did not take mammalogists' concerns seriously. How could they remedy this situation?

Adams began the task of reforming the Bureau through his work on committees of the American Society of Mammalogists. At the 1924 ASM meeting, members openly debated federal policy with two Bureau biologists, E.A. Goldman and W.B. Bell. In August 1924, ASM president Wilfred H. Osgood appointed Adams to head a new committee to look into the predator control issue. Dixon had met Osgood, and thought him "perfectly fair-minded"⁴ Walter P. Taylor of the Museum of Vertebrate Zoology filled Adams's place as

³ Hoffmeister D.F. (1969). A History of the American Society of Mammalogists, *Program of ASM Meeting*, (pp. 8–11). Box 3. E 230. RG 22. (Records of the U.S. Fish and Wildlife Service), National Archives at College Park, Maryland.

⁴ Dixon to Adams, June 10, 1924, Adams correspondence, Museum of Vertebrate Zoology, University of California-Berkeley (hereafter cited as MVZ-UCB).

chairman of the Life History Committee. Shortly thereafter, Adams accepted the director's position at the New York State Museum in Albany. From his new office, he chaired the ASM Committee on Wildlife Sanctuaries until 1928. Other members of the committee included Vernon Bailey and E. A. Goldman (Bureau of Biological Survey), Joseph Dixon (Museum of Vertebrate Zoology), and Edmund Heller (from 1926–1928, curator of mammals at Chicago's Field Museum). The composition of the committee was intended to provide a balance of viewpoints. Adams initially had resisted Osgood's request to serve on the committee because he had made his general position on the predator issue clear at the ASM meeting, and he worried that others would view his leadership as less than impartial. Adams voiced firm opinions on the predator issue, yet Edward William Nelson, the Bureau of Biological Survey Chief from 1916–1927, also urged Adams to chair the committee. Adams clarified the mission of the committee, which became identifying "localities particularly suited for the preservation of the larger predators"⁵.

This committee was due to submit its report in 1927, yet Dixon was concerned that the draft report Adams sent him would be rejected out of hand by Heller and Goldman. Additionally, Dixon was hoping that he would be appointed to carry out an investigation of the relationship between widespread poisoning and the welfare of furbearing species pursued by trappers. He worried that a report condemning poisoning would disqualify him for the job. In deference to Dixon's reservations, Adams delayed the report for one year, claiming the pause necessary to gather more data and to get naturalist Milton Skinner's Yellowstone data into print. The negotiations within the committee over the content of the report provided perhaps the most compelling reason for the delay. Indeed, it proved impossible to reach a consensus, even within a small committee. In March 1928, Adams sent Dixon a "dehydrated" committee report that had been revised by Bailey and Goldman. "This is about all we can expect from them", wrote Adams. Dixon did not think the report went far enough, endorsing Adams's suggestion that the chairman's introductory note might be submitted as a minority report. The final report thus included the uncompromising views of Adams and Dixon, submitted as the minority opinion⁶.

The relationship between officials and scientists of the Bureau of Biological Survey and some mammalogists in the ASM was characterized by mistrust and friction. In 1927, BBS Chief E.W. Nelson wrote a letter to Adams that ended by asking about a recent episode in western New York. Coyotes had suddenly reappeared in numbers sufficient to spark a farmers' protest and a bounty on the predators. Sarcastically, he enquired "If these animals are such desirable citizens, why was it that the naturalists of New York State did not arise in their might and demand that these interesting beasts be permitted to go on and enjoy their interesting lives without man's brutal interference?"⁷

Two major criticisms propelled the opposition to federal predator control. The issue of incidental take provided a clear focus for the scientists' movement against poisoning, a method that did not distinguish between the target species and other wildlife. Throughout the 1920s, the fur industry protested the use of poison and the indiscriminate destruction of

⁵ Charles C. Adams to committee members, Feb. 11, 1925, Adams correspondence, MVZ-UCB.

⁶ Adams to Dixon, May 14, 1927, Adams to Dixon March 24, 1928, and Dixon to Adams, March 30, 1928, Adams Correspondence, MVZ-UCB. Heller signed on to the minority report written by Adams and Dixon.

⁷ E. W. Nelson to Adams, May 27, 1927, Adams Correspondence, MVZ-UCB.

fur resources. The fur trapping industry was still a significant economic enterprise during the 1920s, and industry leaders leaned on their political representatives and notified the chief of the BBS of their concerns. In the state of New York, the industry was important enough that the Roosevelt Wild Life Experiment Station (organized by Adams) carried out research particular to furbearing species in northeastern forests (Pritchard, 1999, p. 44–46).

Secondly, the Bureau's critics lambasted the agency's scientific methods and interpretation of statistics. In August 1925, Joseph Dixon wrote to E.W. Nelson concerning the issue of incidental take. While the Survey claimed that two thirds of the coyotes destroyed by poison were never found and thus their numbers had to be inferred, the Bureau also claimed that wildcats, skunks, raccoons, foxes, porcupines, and badgers died immediately upon taking the bait. Thus, nearly all could be counted, demonstrating that only a few furbearers were killed in coyote poisoning operations. Dixon rejected this logic, arguing that many poisoned furbearers were never found, and suggested that if the survey took greater care in determining the incidental take, they would enjoy more confidence from mammalogists.

In 1926, Dixon criticized the Bureau for not investigating the food habits of predators, as it did for birds. The criticism was deserved — no evidence supported the ranchers' demands for control, or the Bureau's claims regarding the numbers of predators killed. Reliable numbers were not available because the Bureau had not performed much, if any, scientific research. Lee R. Dice, curator of mammals at the University of Michigan, suggested the ASM was "fully within its province when it states that in its opinion the policies of the Survey are not founded on a sound body of fact". He further urged the ASM not to perform research for the Bureau, arguing the BBS had become "largely an administrative and control organization", when its primary role should have been investigative⁸. Ultimately, the reputation of the Bureau of Biological Survey as a scientific organization was pulverized by the predator controversy.

During the mid-1920s, several sources of inspiration motivated the mammalogists' movement against the Bureau of Biological Survey's predator control program. Historian Thomas Dunlap's excellent account of the ASM campaign against federal predator control portrays Joseph Grinnell as the leader of western mammalogists who were most actively involved in opposing predator control activities (Dunlap, 1988, p. 49; Worster, 1994, p. 274–282). There is no doubt that Grinnell and other individuals at the Museum of Vertebrate Zoology including Joseph Dixon and E. Raymond Hall did play crucial roles in the opposition to federal predator control. Yet in the movement's early days, from his desk in New York, Adams initiated formal contacts with the Bureau of Biological Survey and organized ASM committees. His partner was Dixon, who provided the field and technical expertise as well as a steady presence until the late 1920s when others became active in the ASM campaign. During those early stages, Adams and Dixon carried on the necessary paperwork of challenging the Bureau, while a wider network of discussion provided impetus to the growing concern among mammalogists about federal predator control efforts.

Throughout the 1920s and 1930s, Joseph Grinnell gave tacit permission to field naturalists under his employ to participate in the campaign against federal predator control (Miller, 1964; Gillispie, 1970, p. 545). He cautioned Dixon and Hall not to speak or write opinions on behalf of the MVZ, but they might say anything or serve actively on the ASM committee "just so you always insist that you are acting as an impartial man of science", but not

⁸ Lee R. Dice to H. E. Anthony, April 28, 1931, Anthony Correspondence, MVZ-UCB.

representing the University of California⁹. While he favored Dixon publishing a paper on the predatory animal situation, he made it clear that “all personalities be left out”¹⁰. In short, he was a gentleman who did not wish to offend old acquaintances or violate professional working relationships. Grinnell reaffirmed this tacit support when he assured E. Raymond Hall that he had encouraged Dixon all along, and that Hall could expect similar support¹¹.

In 1929, Grinnell wrote to Adams, “Personally, although I have my own ideas(!), I have decided that I can have ‘nothing to say’. To cook up an adequate rejoinder would mean very careful, and prolonged study, so as to make exceedingly sure of facts”¹². Grinnell was reluctant to involve his institution in a messy conflict with a government agency and thus offend state legislators (Dunlap, 1988, p. 49)¹³. Surviving memos and letters indicate that Grinnell discussed the issues of predator control and the politics of conservation with his museum staff, particularly E. Raymond Hall. His letters to fellow professionals were generally quite brief on political issues, yet long and specific on the details of collecting, preserving, and cataloging specimens. For Grinnell, the politics of conservation were interesting and a source of concern, but they seemed to play second fiddle to the pressing business of systematic zoology.

The Problem of Predatory Mammals

During the 1920s, ranchers and the Bureau of Biological Survey carried out their campaigns against predators with efficiency, killing all but the last vestiges of wolf and mountain lion populations in the lower forty-eight states. Remnant populations existed only in the most remote areas, places far from ranches in the valleys and furthest from grazing leases on U.S. Forest Service lands. The national parks, despite years of eliminating predators that killed animals popular with the tourists, still retained limited populations of their native carnivores. Yet time was running out.

A common belief about predators was that they would always persist in the West. Coyotes in particular seemed resilient and ubiquitous. E. W. Nelson wrote Adams suggesting there was “no cause for nature lovers to fear extermination of these interesting animals”. Like the red fox (*Vulpes vulpes*) in the eastern states, wolves and coyotes would simply endure. Yet almost in the same breath, Nelson suggested it would be “practicable, no doubt, to more or less completely eliminate both coyotes and mountain lions” (*Puma concolor*) in the Western states. In fact, only recently had the Bureau ceased using the word “exterminate” in its lexicon. The efforts of ranchers and the Bureau had been successful. By 1925 it seemed that the last populations of large mammalian predators were holed up in the national parks. Nelson had “not the slightest objection to the continued existence of a limited number of wolves and mountain lions within national parks”, but he found it hard to imagine why the parks would want them considering they were “exceedingly destructive to game”¹⁴. And Nelson was hardly alone. In fact, the Park Service was actively shooting and trapping predators in Yellowstone National Park, offering

⁹ Grinnell to Hall, August 19, 1930, Hall Correspondence, MVZ-UCB.

¹⁰ Dixon to Adams, June 10, 1924, Adams correspondence, MVZ-UCB.

¹¹ See also the E. Raymond Hall correspondence, MVZ-UCB.

¹² Grinnell to Adams, August 12, 1929, Adams Correspondence 1909-29, MVZ-UCB.

¹³ See also Grinnell to Hall, August 19, 1930, Hall Correspondence, MVZ-UCB.

¹⁴ E.W. Nelson to Charles Adams, August 7, 1925, Box 17, CCAP-WMU.

bounties to rangers bringing in proof of their kills. In 1926, the last Yellowstone wolf was shot during this campaign.

In 1925, when Adams publicly advocated for the preservation of natural conditions, he hoped that representative habitats or examples of successional processes might be preserved in many distinct places. He also believed that significant and remote areas outside of the parks still existed where predators might be protected. BBS Chief E.W. Nelson sought to disabuse Adams of this notion, advising him “I do not know of a single area left in this country which would fit into such a category”¹⁵. Adams started with the desire to protect natural conditions for scientific study, but by 1924 realized that the preserves had limited value to science if the full complement of animal life was not present.

In 1926, on the pages of the *Roosevelt Wild Life Bulletin*, Adams registered his opinion on the problem of predatory mammals. Adams urged foresters to “not endeavor to console ourselves with the idea that if we could exterminate predators in economic forests, our troubles would be over”. “Control”, he noted, “is a permanent problem”. Measures taken against the larger predators would result in an increase in rodents and other small animals that would sooner or later present another problem, calling for additional control. In the national parks, he noted, another standard came into play, the ideal of passing on park resources unimpaired for future generations. While the balance of nature was an idea widely used, Adams and others noted that nature did not stand still. “The wise procedure in maintaining wild or wilderness conditions”, Adams suggested, “is to interfere as little as possible with the course of Nature”. Specifically, Adams derided the NPS for borrowing a policy of extermination from the Biological Survey (Adams, 1926).

The activities of the ASM Committee on Wild Life Sanctuaries stalled during 1927 and 1928, as Adams and others became increasingly frustrated with the Bureau’s unyielding position. Although Adams and Dixon were able to open and develop the issues, and carry the fight along for a time, they eventually needed and received assistance. Beginning in 1928, E. Raymond Hall (curator of mammals at the Museum of Vertebrate Zoology in Berkeley), Harold E. Anthony (curator of mammals at the American Museum of Natural History in New York City), and A. Brazier Howell (Department of Anatomy at Johns Hopkins Medical School) began to participate in the ASM movement against federal predator control. The ASM Sanctuary Committee was reformulated in 1930 as the ASM Special Committee on Problems in Predatory Animal Control.

In 1930, the pressure peaked when Congress considered future appropriations for the Bureau. In April, not less than 148 scientists associated with nationally recognized institutions signed a formal protest orchestrated by A. Brazier Howell, which was widely circulated and distributed to congressional representatives. The Bureau had requested \$1 million annually for a ten-year program against predators, and legislation for this purpose (S 3483) was introduced in Congress (Dunlap, 1988, p. 55–56). In April 1930, Congress held hearings where just as at the PARC conventions, the National Wool Growers Association showed up in force, cajoling and demanding the federal government take action. Although Adams later thought that the Bureau had been “hit pretty hard all along the line” by the testimony of Howell and Hall, the mammalogists’ opposition ultimately did not greatly sway the results¹⁶. At the ASM spring meeting, Goldman and Henderson defended the Bureau’s work, claiming that food-habits research showed that coyotes were great consumers of beef

¹⁵ Ibid.

¹⁶ Adams to Grinnell, February 24, 1931, Adams Correspondence, MVZ-UCB.

and lamb. Dixon and Hall criticized the Bureau's use of science, declaring that the analysis of stomach contents carried out by the Bureau was biased and faulty. The ASM and the Survey agreed on a joint field inspection to see if official guidelines for the use of poison were being followed by the rank and file on the ground, but the trip did not resolve any issue nor did it calm tempers (Dunlap, 1988, p. 58).

For all its efforts, by 1930 the ASM seemed to have made little headway in changing the Bureau's policies. A. Brazier Howell thought that the Survey:

cares not in the least how much we pan it, if we do not make too much noise in doing so; and it was precisely for this reason that it has seemed to cooperate with the ASM investigation — because it knew that it would prevent the Society from taking any definite and vigorous action for at least a year¹⁷.

Joseph Grinnell wrote one of his most direct and forceful letters to Barrington Moore, editor of *Ecology*, informing him that “I am not so sanguine as you are” about the benefits of any investigation carried out by the Bureau. Grinnell argued that “we know *enough* right now, to justify discontinuing all poisoning of predatory animals” except in extreme circumstances¹⁸. In 1930, Anthony expressed frustration after reading mammalogist Lee R. Dice's criticism of the Survey, writing Hall that “the Dice criticism is just the sort of thing that the Society of Mammalogists has been recording for ten years, and at the end of ten years they are just where they started”¹⁹. Adams had a similar sense that nothing had come of the Ecological Society's work, writing Grinnell that “It is a shame that so much time is given to cheap politics, rather than to science and to *constructive* programs”²⁰. Historian Thomas Dunlap describes a “general collapse” after 1930 of the forces opposing federal control policies. In 1931, Congress passed the Animal Damage Control Act, approving the Bureau's ten-year plan (Dunlap, 1988, p. 59). While opposition to federal predator control in the scientific societies may not have been entirely effective, it did not lie inert. From 1930, Adams redirected his efforts to preserve predators and natural conditions in a new direction.

New Directions in the ESA and the NRC

In 1930, participants reorganized the ASM effort against federal predator control policies. Harold E. Anthony became chair of the new ASM Special Committee on Problems of Predatory Mammal Control. He held the post of curator of mammals at the American Museum of Natural History in New York City, one of the premier scientific institutions of the day, writing over fifty papers from 1913 to 1927. Anthony was active in a dozen scientific societies (in both ornithology and mammalogy) and was elected president of the American Society of Mammalogists in 1935 (Sterling et al., 1997, p. 29–31). Also serving on the committee were Lee Dice, curator of mammals at the University of Michigan, and C.T. Vorhies of the University of Arizona in Tucson. Finally, two committee members had connections with the Museum of Vertebrate Zoology in Berkeley — E. Raymond Hall served as curator of mammals at the museum, while Milton P. Skinner networked among

¹⁷ Howell to Anthony, December 26, 1930, Howell Correspondence, MVZ-UCB.

¹⁸ Grinnell to Moore, April 14, 1931, Moore correspondence, MVZ-UCB.

¹⁹ Anthony to Hall, November 21, 1930, Anthony Correspondence, MVZ-UCB.

²⁰ Adams to Grinnell, February 24, 1931, Adams Correspondence, MVZ-UCB.

Cooper Club members along the West Coast, offering his services as field naturalist and lecturer. While Hall and Howell provided notable energy and diligence to the predator control debate over the next six years, Anthony provided necessary leadership, diplomacy and connections.

As if following the lead of the ASM, in 1930 the ESA reorganized its Committee on the Preservation of Natural Conditions, creating one for Canada and one for the United States. Shelford, under authority of the by-laws, created the ESA Committee on the Study of Plant and Animal Communities, which served as a fact gathering body, while the original group functioned as a “Public Contact Committee to urge governmental agencies to act in certain ways” (Shelford, 1943).²¹ Shelford later thought the arrangement was quite effective. The two committees operated simultaneously from 1933 through 1945. A.O. Weese, Curtis Newcombe, and Charles Kendeigh joined Shelford in leading these committees.

While Shelford pushed preservation efforts in the ESA, others looked to the National Research Council (NRC) to preserve natural conditions and predators. This was a body within the National Academy of Sciences created in 1916 to mobilize science for public purposes. The work of the National Research Council’s Committee on Wild Life Studies and its following incarnations until the beginning of WWII demonstrate not only links between the two preservation movements, but also some of the continuing tensions within the conservation movement. Late in 1931, just after John C. Merriam was appointed as chair of a new NRC wildlife committee, Harold Anthony went to Washington to try to convince him that the NRC might be able to help out in the Biological Survey controversy²². Other appointees to this NRC committee included Adams, Anthony, Harold C. Bryant, E. A. Goldman, Aldo Leopold, and Victor Shelford.

The NRC, after the Sporting Arms and Ammunition Manufacturing Institute (SAAMI) made approaches, charged the Committee on Wild Life Studies with carrying out a large-scale game study. By late December, Aldo Leopold had a proposal ready for the NRC game survey.²³ This episode revealed rifts within the conservation movement. Charles Adams was suspicious of SAAMI, and considered Leopold “too much of a tool”, thinking that the gun manufacturers were using Leopold to “gain respectability” by funding fellowships at the universities²⁴. The study was intended to provide an overview of game populations and evaluate conservation measures in midwestern states, including Ohio, Indiana, Michigan, Illinois, Wisconsin, Minnesota, Iowa, and Missouri.

In December 1928, Leopold had presented the initial results of his own, prior game survey at the meeting of the American Game Conference, where he suggested that saving isolated habitat as refuges would not be enough to preserve game populations from agricultural techniques that tidied up every last corner of the landscape. The American Game Protective Association thereupon appointed Leopold to a committee charged with recommending new national game policies (Meine, 1988, p. 259–268; Lorbiecki, 1996, p. 106–109). This committee sought to define and advance an American system of game

²¹ See also Directory of the ESA, *Bulletin of the Ecological Society of America* 18 (December 1937), 60–68.

²² Anthony to Hall, December 2, 1931. Anthony Correspondence, MVZ-UCB.

²³ Wild Life Committee, National Research Council, “Proposed Game Survey,” Dec. 30, 1931, Box 60, CCAP-WMU.

²⁴ Adams to Hornaday, January 13, 1932. See also Adams to Hall, July 24, 1935, Adams Correspondence, MVZ-UCB.

conservation that encouraged wild game populations, in contrast to the European system of game ranching and private ownership of game. Leopold's contribution to this American style of game management was significant. He continued the SAAMI game survey until the late winter of 1932, when depression-era cutbacks ended the institute's funding of his work (Meine, 1988, p. 275–278, 288). In December 1931, as NRC committee member Leopold planned a new multi-state survey of the Midwest, Charles Adams wondered what “hidden trade” might be involved²⁵.

In 1934, the NRC designated Aldo Leopold chair of the Committee on Wild Life to replace John C. Merriam. Two of the members did not want Leopold as chair, arguing that a “broader perspective” was necessary. This opinion reflected, says Leopold's biographer Curt Meine, “the general low esteem in which game management was held by ‘pure’ zoologists”. The chair of NRC's Division of Biology and Agriculture, Ivy F. Lewis, remained unwavering in his choice, because the committee critics were also rather inactive. Under Leopold, the committee promoted wildlife research and gave advice in creating the Cooperative Research Units at colleges (Meine, 1988, p. 325).

In late 1937, because several members felt that “wild life” did not cover the group's concerns and activities, the NRC committee changed its name to the Committee on the Preservation of Natural Conditions²⁶. By that time, the committee included Adams, H.E. Anthony of the American Museum of Natural History (chair), Henry I. Baldwin of the New Hampshire Forestry and Recreation Department, R.E. Coker of the University of North Carolina, William S. Cooper of the University of Minnesota, Herbert C. Hanson of the Alaska Rural Rehabilitation Corporation, Ellsworth Huntington of Yale University, G.E. Nichols, Edward A. Preble, independent wildlife expert, and Albert Hazen Wright, a respected herpetologist from Cornell University. The committee membership thus comprised some of the leaders of significant institutions of the day, as well as active participants in scientific associations. The group must have seemed capable of real progress. Cooper had been instrumental in the designation of Glacier Bay National Park, for example. In 1937, Grinnell had high hopes for the “reconstituted advisory committee which will be undoubtedly potent in Washington”²⁷.

Yet ultimately the NRC committee had little more visible effectiveness than the efforts of the ASM and ESA committees. By 1941, Cooper counted four organizations that had concerned themselves with the preservation of natural conditions: the NRC group, the ESA's committee, the Wilderness Society, and the Robert Marshall Foundation. Cooper worried that these groups would overlap efforts and waste energy, and so urged coordination with representatives of other committees and organizations, including Robert Sterling Yard and S. Charles Kendeigh. Following his recommendation, C.S. Newcombe and Kendeigh came to the March 1941 meeting of the NRC committee in New York.

As it turned out, Cooper's worries became subsumed under the conflagration of World War II, which redirected the vital energy of the National Research Council toward the pursuit of war-related problems. The NRC Committee on the Preservation of Natural Conditions apparently did not survive past 1945, and Victor Shelford's effort to preserve natural areas was limited in effect, at least within the ESA. During the war, Shelford's ESA

²⁵ Adams to Leopold, June 1, 1935, Box 60, CCAP-WMU.

²⁶ This name was, by coincidence or by intent, the same as the ESA committee.

²⁷ Grinnell to Adams, February 4, 1937, Adams Correspondence, MVZ-UCB.

Committee on the Study of Plant and Animal Communities ceased functioning, but the Committee on Natural Conditions did continue under Newcombe's direction.

Since 1937, Shelford had been pushing the Ecological Society's executive committee to become more active in preservation. In June 1944, he published two open letters to the membership, seeking support for his vision of the society's fundamental purpose over the prior twenty-seven years as "concerned with the preservation of research materials for its members". Shelford carried on the fight to continue active preservation efforts within the ESA, writing personal notes to members asking them to support the preservation committee. At the ESA business meeting in September 1944, the executive committee advised discontinuing the preservation committee. Past presidents and the executive committee of the ESA opposed direct action for nature preservation, thinking it unseemly for a scientific society to act as a pressure group. Adams wrote a letter to Shelford, expressing his worry that Shelford had "forced a decision" that threatened the balance of research, publishing, meetings and advocacy that had been built over the years in the society (Shelford, 1944)²⁸.

During 1945, the debate over the ESA's mission came to a head in the form of a referendum to the society. While Shelford had demanded permanence for the Committee on the Preservation of Natural Conditions and other committees supported by 10% of dues, the executive committee's resolution barred specifying the names of standing committees and did not stipulate financial support. Ballots were sent out on July 20, 1945, and the vote, by a margin of 213 to 115, approved an amendment to the ESA bylaws that for all practical purposes restricted the society from direct lobbying on legislation. In essence, the membership defined the ESA more as a scientific society than as an activist organization (Croker, 1991, p. 138–144)²⁹. In 1946, as a result of the referendum vote put to the membership, the ESA Committee on the Preservation of Natural Conditions was disbanded, and Kendeigh resigned the chair of the Committee on the Study of Plant and Animal Communities. Adams, Robert Griggs and others had proposed a "Conservation Council" outside of the society that would consist of representatives from various agencies and societies to plan, coordinate, and to lobby for conservation activities and programs. The idea, originating in the National Conference on Outdoor Recreation and referred to as a "Conservation Department", had first come to Adams's attention in 1927. Shelford regrouped his forces and with Harold Hefley of Texas Technological College, establishing an organization aimed at preserving natural areas, the Ecologists' Union, with eighty-three charter members including several past presidents of the ESA. In 1950, the group reorganized as The Nature Conservancy (Croker, 1991, p. 144–146)³⁰. This organization has grown ever since, to employ about 3,100 staff and 400 scientists worldwide, working with governments, corporations and local partners to build a "world where people and nature thrive". They have assisted landowners in writing conservation easements, and acted as a broker for conservation land purchases, with resulting protection of ecosystem functions on

²⁸ Charles C. Adams to Victor E. Shelford, October 23, 1944, CCAP-WMU. Adams to Dixon, October 7, 1927, Adams Correspondence, MVZ-UCB.

²⁹ Referendum, *Bulletin of the Ecological Society of America*, Vol. 46, No. 3/4 (Dec. 1945), 12. The vote, thought Kendeigh, had been swayed by the prestige of executive committee members. After all, Shelford's prior 1943 personal survey of the membership indicated considerable support (85 per cent) for ESA action on legislative issues. This was not the last time that issues of professional objectivity came before the ESA; see Nelkin (1976) and Nelkin (1977).

³⁰ See also Robert F. Griggs to Charles C. Adams, October 6, 1944, uncatalogued, CCAP-WMU. See also The Nature Conservancy website at www.tnc.org.

millions of acres of land. The success of the Nature Conservancy, at least in part, may be a consequence of the freedom that the organization gained by no longer having to represent the official and “neutral” face of science.

Scientists and the Politics of Preservation

Historians Robert Croker and Sara F. Tjossem convey a general sense that caution against active participation in public policy won out over activism for natural area protection in the societies. However, the 1930s argument over the proper role of the ESA in nature preservation involved larger issues. This was also a struggle over the “definition of acceptable work within the discipline of ecology” and a challenge to the “ESA’s role as the unified national voice for the science of ecology” (Tjossem, 1994). The desire to maintain credibility by laying claim to scientific objectivity was (and remains to this day) a considerable concern among scientists. Yet the desire to make a difference in the world also persisted. In the 1980s, when scientists created the Society for Conservation Biology (SCB), this association of scientists consciously asserted that good science could rightfully involve activism for the conservation of biodiversity. Today, the ESA and the SCB include policy issues and position statements on their websites, and the SCB actively communicates their view regarding policy actions. The ESA also sponsors information sessions for congressional staff, helps arrange meetings for members with legislators, and is active in Washington, D.C. based coalitions that engage in policy activities in support of science³¹.

When compared to Victor Shelford’s enthusiastic push within the ESA for action to preserve natural areas, the NRC Committee on the Preservation of Natural Conditions may appear rather lackluster, even stodgy. Yet this image, conveyed by emphasizing Shelford’s outstanding contributions to natural area preservation over thirty years, may not do justice to Adams and other scientists of the interwar era who also attempted to preserve natural areas and wildlife (Croker, 1991). In his own mind, Adams was engaged in the good fight, taking on the forces opposing intelligent conservation. Adams’s records contain a long correspondence with the perceived troublemakers of the conservation world, notably William T. Hornaday and Rosalie Edge. In these letters, Adams sympathized with their outlook, wishing for more stringent protective measures, hoping that those in positions of authority would demonstrate more backbone. He began writing to Rosalie Edge after her battle to jar the National Association of Audubon Societies into more vigorous action, mailed his annual contributions, and was listed on the Emergency Conservation Committee’s board of consulting scientists. Yet while he aligned himself with the provocative purposes of nature preservation, he labored away in the most bureaucratic of ways, serving on committees that Shelford thought ineffective.

If one counts Adams as a ponderous conservative, then what do we make of Joseph Grinnell? He was reluctant to engage the MVZ in the fight against federal predator control, and took special pains to avoid direct criticism of Bureau personnel such as E.W. Nelson. There is a problem with seeing conservationists as divided up into camps of conservation or preservation, or grouped as heroic fighters contrasted against cautious and ineffective penpushers. Using such a view, we might lump Grinnell and Adams together as the carefully treading bureaucrats, yet this doesn’t begin to describe their attitudes, actions and influence.

³¹ See also the websites of the ESA (esa.org) and the SCB (conbio.org).

Similarly, viewing Grinnell or Adams as significantly more active than the other does not ring true, because they wrote to each other quite a bit, and shared a sense that they were on the activist side of conservation's struggles.

Adams, Shelford, and the Societies

Charles C. Adams and Victor Shelford illustrate how the Ecological Society of America and the American Society of Mammalogists played critical roles in the politics of preservation. From the very beginning of the campaign by members of the American Society of Mammalogists against federal predator control policies, Adams played multiple roles. His ideas in ecology, his interest in preserving natural conditions for scientific study, and his experience with defending predator pelicans from an "experiment" in population control during the 1930s in Yellowstone National Park led him towards practical efforts to protect predatory species (Pritchard, 1999). The activities of Adams demonstrate the connections between preserving natural conditions for scientific study, and the movement for predator protection. Reassessing Adams's role in the 1920s and 1930s allows us to see the movement to protect natural conditions as a precursor to the movement against federal predator control policies, as well as the growing connections between the scientific societies concerned with wildlife preservation during the 1930s.

While his involvement with the NRC committees focusing on preserving natural conditions in some ways paralleled the ESA committee, Adams's efforts should not be interpreted as merely duplicating Shelford's activities. Rather, Adams might be seen as trying new approaches in attempts to shape federal policies affecting wildlife. When he perceived that efforts based in the scientific societies had failed to significantly shake up federal policy, he attempted in the early 1940s to influence policy through a federal-level advisory board. Victor Shelford similarly tested out other avenues toward achieving his goals. Shelford not only joined the independent Grasslands Research Federation, but also chaired the National Research Council's Committee on the Ecology of the Grasslands. Like Adams, Shelford saw possibilities in the NRC for support of ecological research as well as serving the cause of preserving nature (Tobey, 1981, p. 127).

Ultimately, it is debatable whether the NRC Committee on the Preservation of Natural Conditions was any more effective than the ESA and ASM committees. Additionally, the plan for a federal "Conservation Council" never got off the ground. Adams's actions should not be seen as over-cautious conservatism, nor as capitulation to greater powers. Rather, Adams and Shelford took different approaches to preserving natural conditions. While Shelford maintained his faith that the ESA should take action to preserve natural areas, Adams progressed toward influencing government policy outside of the auspices of the professional association. Both approaches comprised valid and significant methodologies within the conservation movement.

The involvement of scientific societies in the movements for the preservation of natural places and for preservation of all wildlife species demonstrate the widespread nature of scientific contributions to conservation, and how diverse sorts of people with diverse interests and training, as well as various institutional affiliations, comprised a movement greater than the individual parts. The examples of the American Society of Mammalogists and the Ecological Society of America show that scientific societies will risk their "value-

free” public image to engage in activism to protect science itself — in this case the habitats and biota of North America, the open-air laboratories of zoology and ecology.

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Американское общество терриологов, экологическое общество Америки и политика сохранения

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С 1920-х до начала 1940-х гг. Американское общество терриологов и Экологическое общество Америки были вовлечены в предпринимаемые усилия по сохранению природных условий на охраняемых землях, а также по сохранению хищных и других диких животных. Члены яростно дискутировали, насколько активно научное сообщество должно выступать за сохранение природы. Чарльз С. Адамс и Виктор Э. Шелфорд были лидерами двух главных усилий, направленных на формирование федеральной политики, в частности, по сохранению природных ландшафтов и защите хищных животных. Их уникальный аргумент в пользу сохранения выдвинул на первый план сохранённые ландшафты с их оригинальным дополнением в качестве дикой природы, подчеркнув выдающуюся научную ценность и потенциал для будущего научного изучения охраняемых мест. Работая в комитетах профессиональных сообществ и в Национальном исследовательском совете, Адамс, Шелфорд и многие их коллеги демонстрируют различные способы, используемые учёными в попытках сохранить саму суть

своих исследований. Научные общества пошли на риск, поскольку сами члены и организации играли решающую роль в вопросах защиты окружающей среды, в то время как политика науки смешалась с политикой сохранения природы.

Ключевые слова: Американское общество териологов, экологическое общество Америки, Чарльз С. Адамс, Виктор Э. Шелфорд, охраняемые территории, охрана природы, сохранение дикой природы.

КРАТКИЕ СООБЩЕНИЯ

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The Society of Biology in French 19th century science. Thinking of biology and theory from a positivist perspective

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Between the mid-19th century and the mid-20th century, French biology, despite a handful of remarkable breakthroughs (e.g. Claude Bernard, Louis Pasteur), contributed only very marginally to the growth of biological thought. This has puzzled historians for decades, especially given the unbelievably strong opposition met by cell theory, evolutionary theory and genetics during that time in France. The aim of this paper is to show how a specific form of positivism was instrumental in shaping an epistemological attitude, shared by most scientists, which opposed any form of speculative theorization in biology. I show, first, that the French Society of Biology, which quickly became a highly influent institution, promoted exactly this kind of positivism, having already epitomized this position in its founding manifesto of 1849. Second, partly on the basis of secondary sources (Gley, 1899, Schnitter, 1992, Bange, 2009), I document the kind of research that was promoted within the French Society of Biology during the second half of the 19th century, especially from 1865 onwards, when Claude Bernard published his *Introduction to the Study of the Experimental Medicine*. An experimental-physiological approach to biology was particularly valued then, reducing theoretical explanation to only the identification of external causal parameters. In the final section, I argue that it was this dual and complex Comtian-Bernardian legacy that was captured by the term “positivism” in French biology. I especially focus on the fact that this positivism was a crude simplification compared to Comte’s and Bernard’s own subtle ideas. Unlike Comte, it made almost no room for the agency of organisms. Unlike Bernard, it minimized the significance of a third entity between an organism’s living parts and the environment, namely the “internal milieu”.

Keywords: Society of Biology, positivism, Auguste Comte, Charles Robin, Claude Bernard, French biology.

Introduction

Between 1850 and 1950 at least, the state of French biology was quite peculiar. Whereas in the golden age of the ‘Jardin du Roy’ and the Museum of Natural History, Paris was the scientific capital of Europe (1750–1830), French science, and especially French “biology” was very quickly superseded by advances abroad, first in German-speaking countries and, later on, in England and the United States (Ben-David, 1970, Paul, 1972). Despite significant exceptions, like Claude Bernard’s achievements, French biologists strongly opposed all the major theories that came to frame the whole field, like cell theory (Loison, 2015), evolutionary theory (Conry, 1974; Gayon, 2013), and, from 1900 onwards, genetics (Burian, Gayon, Zallen, 1988).

I argue that such a consistent opposition cannot be explained at the individual level and must have something to do with systemic characteristics of French biology as a whole. In the present paper, my aim is to contribute to the elucidation of this strange state of things by supporting the view that Auguste Comte’s and, later on, Claude Bernard’s complex legacies were instrumental in shaping French resistance to any form of speculation and theorization within biology. I am focusing here especially on the first 50 years of the ‘Society of Biology’ [*Société de Biologie*], from its foundation in 1848 until the end of the 19th century. The early history of the Society of Biology has already been the subject of previous work by several colleagues, especially Claude Schnitter (1992) and Christian Bange (2009) and I will here largely rely on some of their findings. What transpires from this work is that this scientific society promoted a very narrow kind of experimental science that simply could not make any room for the theoretical reasoning that was for instance the very basis of Darwin’s argument in his *Origin of Species*. It was thought that biology had to be experimental, following to the criteria exemplified by experimental physiology. Given that the Society of Biology and its journal (the “*Comptes rendus des séances de la Société de biologie*”) were during an entire century one of the main scientific venues for French biologists to present their work, its impact on the course of this history must be thoroughly examined.

This is not to say that Auguste Comte, Claude Bernard, and their numerous writings were *directly* responsible for such an entrenched theoretical reluctance (even if, for example, Comte shared some responsibility in the case of cell theory, see for instance: Stanguennec, 1984). As I will document in the last section, the brand of “positivism” that came to be central for French biologists showed substantial differences from both Comte’s and Bernard’s philosophy of science. Crucially, whereas Comte always insisted on two categories in order to build a genuine biology, the “milieu” on the one side and the organism on the other (Canguilhem, 1994, p. 65), during the second half of the 19th century, French biologists only considered the first (Canguilhem, 1992). Biology was supposed to be no more than the experimental demonstration of the causal impact of the milieu on living things: explanation was reduced to the elucidation of the Bernardian “determinism” of a phenomenon. This positioning was pivotal in the opposition to Darwin’s evolutionary theory and, later, in the development of a so-called “experimental transformism” (Loison, 2010).

1. The birth of the Society of Biology (1848–1849).

Charles Robin’s positivist manifesto

Although some studies have been devoted to the context in which the Society of Biology was founded (Schnitter, 1992, Bange, 2009), it remains unclear how precisely an informal

group of discussion of young physicians eventually became a structured scientific society. What has now been established is that the creation of this society was the result of the activity of a very select group of individuals: Eugène Follin (1823–1867), Claude Bernard (1813–1878), Hermann Lebert (1813–1878) and most notably Charles Robin (1821–1885). Under the patronage of Pierre Rayer (1793–1867), who became the first president of the society (1848–1867), they met on a regular basis in Paris in order to discuss their work and the newly published findings in various fields of the life sciences. In May 1848, weekly meetings began to be held in Robin's lecture hall at the *Ecole pratique*, with other colleagues also attending (such as Charles-Edouard Brown-Séquard), every Saturday (Lebert, 1849). Histologist and microscopist Charles Robin appears to have quickly taken the reins in this endeavor, as he was the sole author of the programmatic text published in 1849 in the first issue of the Society's journal. The text was read on 7 June 1849, and provides details on "the direction" that the founding members intended to follow in promoting a special kind of biology (Robin, 1849).

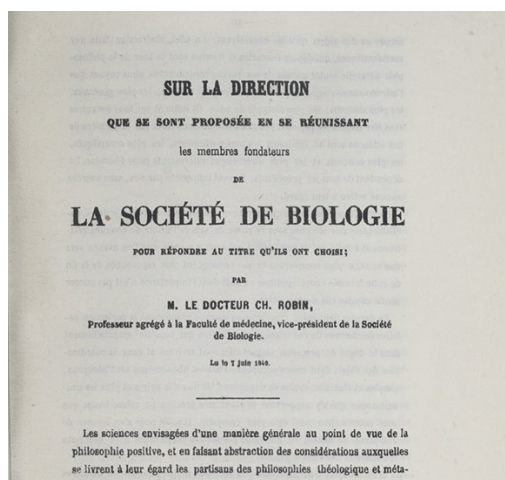


Fig. 1. Front page of the first text published in the *Comptes rendus de la Société de Biologie* (1849). Written by Charles Robin, this programmatic text lays the foundations of the positivist orientation of the Society

Рис. 1. Титульная страница первого текста, опубликованного в *Comptes rendus de la Société de Biologie* (1849 г.). Этот программный текст, написанный Чарльзом Робино, закладывает основы позитивистской направленности Общества

From cover to cover, this 10-page essay reads as a genuine positivist manifesto in a standard Comtian style. Robin starts by recalling Auguste Comte's famous classification of the sciences, from mathematics to social sciences, in order to specifically situate biology in this linear representation. The explicit use of the term "biology" is by itself far from being neutral. At that time, "biology" was not yet commonly used in French; terms like "natural sciences" or "general physiology" were usually favored, especially in print. To choose "biology" as a banner meant following Comte's footsteps, especially for young physicians (Canguilhem, 1994).

It should be stressed that Auguste Comte (1798–1857) had no specific training in the life sciences. Before turning to philosophy, he had studied mathematics and most of his

knowledge in biology came from lectures by Henri-Marie Ducrotay de Blainville (1777–1850) at the Museum of National History. Comte was especially concerned with drawing a clear line between sciences and their applications. Hence, he supported an autonomous science of living things — biology — that could not be reduced to medicine or any other form of applied knowledge, a positioning that was also explicit in Robin's manifesto (Robin, 1849, p. IX–X).

Thus, to choose “biology” was both a sign of fidelity towards Comte and a way to emphasize the fact that living things give birth to special phenomena that need specific explanations. This was not tantamount to adopting a vitalistic stance: all these young scientists firmly opposed any form of theorization that would have relied on unknowable and vitalistic forces. The point was to acknowledge the irreducible complexity of vital phenomena, which deserved a special science (Robin, 1849, p. III):

Among the sciences that I have listed, there is one that interests us more directly than the others, and that is *biology*.

The phenomena that biology deals with have something more complicated, more particular than the others, which makes them easily distinguishable; these phenomena are influenced by all the others without reciprocity. No matter how one explains the differences between the beings studied in biology and those studied in the inorganic sciences, it is certain that in living bodies one observes all the phenomena, whether mechanical, physical or chemical, that take place in raw bodies. But we notice that they become more and more complicated until they are so complex that their direct physical or chemical analysis becomes impossible, such are especially the nervous, sensitive, intellectual and moral phenomena. They therefore constitute a very special order of phenomena called *vital phenomena*, the only ones worthy of the name, coinciding with a very special static state as well¹.

Being neither medicine nor physics or chemistry, life science deserved a name of its own. Another Comtian mark that is obvious in this short text is the centrality of the concept of milieu (Braunstein, 1997). Again, as for “biology”, there is here a rather straightforward historical line from Blainville to Comte and from Comte to Robin (note that Robin had also direct contacts with Blainville at the very beginning of his career). In his own work, Robin always paid special attention to the “milieux” (plural) and the way in which variations of abiotic parameters (like temperature, humidity and so on) altered the physiological working of living beings. Robin was so concerned by what he thought would be a major shift towards a genuine biology that he attempted to elaborate an entire scientific discipline dedicated to the quantitative study of the “milieu”, which he termed “mesology” (*mésologie*²). As documented in the final section of this article, the emphasis on this specific account of the concept of milieu would have a tremendously long-lasting legacy in French biology, which only faded gradually during the interwar period.

In the late 1840s, although Comte had already distanced himself from part of his own “positive philosophy” (Petit, 2016), much (albeit not all) of it served as building blocks for the nascent Society of Biology's philosophical approach. To what extent the other founding members were as committed as Robin to Comte's early positivism remains an open question. In particular, it is highly doubtful that, even as a beginner (especially considering his philosophical education), the young Claude Bernard had adhered to such a dogmatic

¹ All translations from French are mine.

² On the history and philosophy of mesology, see Taylan, 2018.

definition of the nature and goals of biology. As rightly noted by Frederic Holmes, it is more likely that Bernard was then interested in finding a place that would be more open to biological discussions than the old-fashioned Academy of Medicine and Academy of Sciences (Holmes, 1974, p. 403).

Very quickly indeed, the Society of Biology became one of the most important French institutions specifically devoted to the life sciences, and a substantial part of the writings that became landmarks were very often first discussed in the *Comptes rendus des séances de la Société de Biologie*. Bernard himself published roughly one third of his scientific output in that journal, including his work on sugar synthesis in animals (Bernard, 1856). This journal was more accessible for young scholars than the *Comptes rendus de l'Académie des sciences*, and the Society of Biology, during the last third of the 19th century, appeared more dynamic and open than the “controlled” National Academy of Sciences, which was still run by the rearguard (Crosland, 1992). The Society of Biology became the place to discuss new results and emerging research programs, and one of the most influential institutions in the late 19th century French life sciences.

2. What kind of science did the Society of Biology promote during the second half of the 19th century? From observation and anatomy to experimentation and physiology

To account for half a century of the activity of a scientific society is a very difficult task, which would require an exhaustive quantitative study of all the work published and discussed within that society³. Here, I will rely on a more modest qualitative approach and I will also draw on previous work (Schnitter, 1992; Bange, 2009) and on the extensive overview provided in 1899 by physiologist Eugène Gley, who was asked, for the 50th anniversary of the Society, to account for the strengths and weaknesses of the Society's activity during that period (Gley, 1899).

First, it must be emphasized that the first volumes of the Society's journal evidently reflect an initial orientation towards description and anatomy. For instance, volume no.1 includes a thematic index comprising entries such as “Pathological anatomy of man and animals”, “Botanic”, “Zoology” or “Teratology”. Most of the papers in that volume are about the description of anatomical and histological structures. Initially, only one section was devoted to experimental science (“Physiology”), which was almost entirely formed by Bernard's and Brown-Séquard's early work. Such a descriptive and observational — rather than experimental — perspective is not surprising because it perfectly fits the Comtian credo embraced by Charles Robin: in the hierarchy of the sciences, experimentation was the method of physics whereas biology was supposed to be about comparison.

Bange and Schnitter note a significant shift during the 1865–1870 period (Bange, 2009: 243). Roughly then, the Society of Biology started to promote a much more experimental and physiological approach. This should not be surprising either: in 1865, Claude Bernard published his opus magnum *The Introduction to the Study of Experimental Medicine* and, after the death of Rayer in 1867, he was elected president of the Society, a position he

³ Reportedly, steps towards such a quantitative assessment can be found in Claude Schnitter's master thesis, which he defended in June 1991 (Bange, 2009, p. 243). Unfortunately, this work is not referenced in French academic libraries and I was unable to locate a copy.

kept until his own death in 1878. Thus, from the late 1860s to the end of the 19th century, the Comtian and the Bernardian perspectives merged into an orientation that was usually called “positivism” by the biological community of the time (see section 3 below). Most of the work discussed and published during that period pertained to animal physiology in a rather strict and narrow understanding of the term. Typical studies dealt with subjects such as the functioning of the nervous system in vertebrates in various altered conditions, and, later, the nascent field of endocrinology, in which the French school was at the forefront. Brown-Séquard’s famous work on experimental epilepsy on guinea pigs was a perfect example of the kind of methodology that the Society rated highly: it was pivotal to ascertain the conditions that were both necessary and sufficient for the controlled production of a specific phenomenon. Brown-Séquard’s results are still remembered today because they were acknowledged by Darwin himself as convincing evidence supporting the inheritance of acquired characters.⁴ It was in the Society’s journal that Brown-Séquard announced, as soon as 1859, what seemed to be a documented case of inheritance of an acquired character (Brown-Séquard, 1859) and “experimental epilepsy”, from that point, constantly remained a topic of interest during the following decades (see for instance Brown-Séquard, 1871). It must be noted here that, in those years, although Brown-Séquard was explicitly dealing with heredity, he was especially cautious never to mention evolution and the nascent evolutionary theory.

A generally similar picture emerges from Eugène Gley’s detailed review. On 27 December 1899, he delivered to his colleagues a 69-page synthesis on the history of the Society. At that time, the Society’s centrality was indisputable, to such an extent that the minister of “Instruction Publique” was invited to attend the anniversary speeches. Gley’s synthesis is highly informative and I will only focus here on what I think were the Society’s most essential features from 1849 to 1899. First, even if “biology” was favored, there is no doubt, for Gley, that the work promoted by the Society had mostly been about animal physiology. Second, this thematic orientation was closely linked to a strong epistemological commitment: following in Bernard’s footsteps, physiology had to be an experimental practice aiming at establishing what was called the “determinism” of specific phenomena (Bernard, 1865). Third, such an epistemological claim was itself understood as the cornerstone of a philosophical positioning usually termed “positivism”, even if it was clear at that time that this kind of biological positivism may have had only a very distant relation to Comte’s own philosophical system (Gley, 1899, p. 1022–1023). These prominent features strongly limited the kind of topics valued by the Society of Biology. Besides standard physiology, only the nascent fields of microbiology and immunology were progressively welcomed as new disciplines embracing this epistemological attitude (Bange, 2009, p. 247).

This is especially obvious regarding the two main theories that were instrumental in the progressive emancipation of biology as an autonomous science: cell theory and evolutionary theory. Neither were discussed in their own right during the 1849–1899 period. At the end of his text, Gley was forced to admit that evolutionary theory was mentioned in only a couple of papers published in the *Comptes rendus*. He argued that the “positivist” and experimental

⁴ Darwin started to refer to Brown-Séquard’s work from the 3rd edition of the *Origin of Species* (Darwin, 1861, p. 152). On Darwin’s relation to Brown-Séquard’s work, see especially Walsh, 2021

orientation of the Society made it impossible to discuss such speculative topics⁵ (Gley, 1899, p. 1078–1079):

Still, transformism [i.e. evolutionary theory] has never been the subject of direct examination or discussion at the Society, unlike everywhere else. One may simply wonder whether, at the time when it began to be studied in France, when it returned in the form of Darwinism to the country of Lamarck, there were enough men in the Society capable of effectively partaking in this examination. One may rather wonder whether those who would have been able to discuss the question were not deterred from doing so at the Society by the very experimental and very positive tendencies that prevailed there. In this way, we would have paid a kind of ransom for the spirit that presided over our foundation. Positivism, starting with its leader, was very hostile to transformism; and Ch. Robin, in particular, manifested this hostility on more than one occasion.

Gley was right: Charles Robin himself, one of the most prominent figures in Parisian medicine and biology in the mid-19th century, repeatedly expressed his opposition to both cell theory (in its Virchowian form) and evolutionary theory, broadly speaking — i.e. whatever the mechanisms considered (Loison, 2015). Even if Gley seemed to regret this orientation that prevented any serious discussion of the main biological theories of the time, one must emphasize here that still in the 20th century the Society of Biology continued to favor empirical and experimental work to the detriment of theoretical issues. In 1948, Maurice Caullery was invited to give a speech for the Society's 150th anniversary. Despite being himself Professor in the chair of "Evolution of Organized Beings" [*Evolution des êtres organisés*] at the Sorbonne, Caullery highlighted the centrality of the experimental method, in a physiological sense, for the Society, and, like Gley did half a century before, when he had to present what he considered the Society's most significant achievements, he chose to focus on work related to endocrinology, including for instance Paul Ancel's on the interstitial tissue in testes (Caullery 1948).

In short, rather quickly indeed, the Society of Biology had tended to reduce biology to physiology and, as a consequence, had come to consider that the only method relevant to produce biological knowledge was the experimental method used in physiology and masterfully laid out by Claude Bernard in his *Introduction to the study of Experimental Medicine*.

3. Biological theory and positivism, the ambiguous Comtian-Bernardian legacy

One cannot expect Auguste Comte's or Claude Bernard's legacy to have been simple and straightforward, especially when both were progressively combined into an idiosyncratic mixture. That would be my only disagreement with Bange's account, who does not tackle the issue of the continuity/discontinuity between Bernard's philosophy of science and the methodology promoted by the Society of Biology (Bange, 2009, p. 243). In such cases, the ill-defined concept of "influence" is too weak a tool to properly understand what was at

⁵ Evolution was discussed on a regular basis in another, more modest, scientific journal, the "*Bulletin scientifique de la France et de la Belgique*", which was run by one of the most prominent figures of French neo-Lamarckism, zoologist Alfred Giard (1846–1908).

stake. My claim in the present section is that this Society encapsulated an experimentalist philosophy of biology that was rooted in some of Comte's and Bernard's own positionings but also that, at the same time, it strongly simplified and even *denatured* both of them. It was this biological account of positivism that framed the anti-theoretical dimension of French biology.

Auguste Comte's philosophical system was inherently highly complex and experienced major shifts during his own lifetime (Petit, 2016). For instance, some of his closest supporters, like Charles Robin and Emile Littré, did not follow Comte when, in the late 1840s, he partly renounced some central aspects of his "Philosophie positive" in order to develop what he termed a "religion of Mankind" [*religion de l'Humanité*]. In the life sciences, positivism thus came to label a methodological attitude that only had a distant and elastic relation to Comte's own ideas. This sort of positivism was the main philosophical driver of the life sciences in France during decades (Canguilhem, 1994), and was at the root of the Society of Biology.

In Comte's system, biology was the key science because it acts as a bridge between the natural sciences and what he termed "sociology". This is why he paid special attention to developing his ideas about biology, leading him to propose a substantial philosophy of biology grounded on two concepts: "milieu" and organism. For Comte, biology was the science devoted to the study of the causal relationship between organisms and their milieu, wherein the causal interactions were understood as reciprocal, dialectic ones: if the milieu were able to alter organisms, organisms themselves were endowed with a form of irreducible spontaneity (Canguilhem, 1994).

In sharp contrast, Robin, the Society of Biology, and most French biologists in the second half of the 19th century — see for instance Gaston Bonnier's work in "experimental anatomy" (Bonnier, 1893) — minimize the role of the organism and emphasized the omnipotence of the milieu (Canguilhem, 1992). Very quickly indeed, organisms were pictured as passive automats dominated by their physical and chemical surroundings. This theoretical positioning, closer to Descartes than to Comte, was in complete accordance with the so-called Bernardian experimentalism that was simultaneously being defended: it seemed to legitimate the necessity of studying the impact of the controlled variation of environmental parameters on living bodies (Loison, 2010, 2011). But in so doing, most of these biologists also partly missed one of Bernard's lessons: between an organism's living cells and the environment, there is a complex intermediary, namely the "internal milieu", which highly complicates and buffers the causal action of the environment on living things.

"Positivism", in this specific context, came to signify a rather simple attitude: biology, it was thought, should only be about experimentally linking the abiotic environment to the organism in an unidirectional way. Any form of theorization was immediately opposed because it would reintroduce metaphysics in science. As Eugène Gley still acknowledged by 1899, positivism — albeit no longer Auguste Comte's version of it — remained an active factor in the Society's epistemological orientation (Gley, 1899, p. 1023, my emphasis):

Without doubt, positivism, as a philosophical doctrine, has little effect on contemporary thought, and the classification of the sciences of Auguste Comte, on which Robin relied so confidently to explain the intentions of the founders of our Society, has rightly been criticized. But of all the great philosophical systems something remains. [...] *Positivism, in turn, has transmitted to many minds its faith in experience as the unique principle of science.*

This is why evolutionary theory was barely an issue for French biology, and especially within the Society of Biology. In *The Origin of Species*, there is not a single piece of experimental evidence of transformation of one species into another. To be convinced of the significance of such a speculative framework, French biologists expected experimental support of the kind provided by physiological disciplines. When eventually, evolutionary theory could no longer be ignored, in the 1880s, it was conceived along these lines as “experimental transformism” (Loison, 2010, 2011). Evolution was understood as only the long-term effect of inheritance of acquired characters, where the milieu had the major causal role. Organisms, reduced to plastic bodies, accommodated this inescapable “determinism” in their morphology and physiology. During the 1880–1920 period, several research programs were launched to ascertain this view of the evolutionary process, in botany, microbiology or zoology. All of them were degenerative according to Lakatos’ epistemology (Loison, Herring, 2017).

Such a crude positivism prevented any form of theorization that could not immediately rely on a firm empirical ground. For instance, August Weismann’s theory of the germplasm was dismissed as metaphysical and anti-scientific from the outset (Le Dantec, 1909, p. 267). In the early 20th century, genetics met the same fate: for a long time, the gene was caricatured by biologists like Felix Le Dantec or Etienne Rabaud as a reminiscence of the pre-scientific era, when somehow magic properties were attributed to invisible entities. This epistemological attitude, strongly rooted in the Society of Biology, contributed to the gradual marginalization of French biology (Burian, Gayon, Zallen, 1988). Only after the Second World War did French biology come to progressively catch up with international standards (Gayon, Burian, 1989–1990), when, eventually, genetics was taught in the old Sorbonne and molecular biology studied within the Pasteur Institute (Burian, Gayon, 1999).

Conclusion

The history of the Society of Biology ran parallel with most of the history of French biology for almost a century, from the late 1840s until the late 1940s. To decide if the Society’s history was itself only a side-effect or a causal factor in the course of this history remains difficult. Yet, given its institutional and scientific centrality since at least the 1870s, I think that it cannot be denied that the Society of Biology genuinely led the way in the building of this defensive form of positivism that decisively opposed cell theory, evolutionary theory and eventually classical genetics. Other factors were of course involved, that most certainly reinforced this situation, like Parisian centralism, the weakness of the relationships with foreign colleagues, etc. (for a more complete survey in the case of genetics see: Burian, Gayon, Zallen, 1988). Nonetheless, in my view this effort to promote an effectively a-theoretical form of biological knowledge played a key role in this state of affairs, and there is no doubt that it was reified in the Society of Biology itself, as Charles Robin’s positivist manifesto already exemplified in 1849.

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Биологическое общество во французской науке XIX в. Размышление о биологии и теории с позитивистской точки зрения

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В период с середины XIX по середину XX вв. французская биология, несмотря на выдающиеся достижения таких учёных, как Клод Бернар и Луи Пастер, лишь незначительно способствовала развитию биологической мысли. На протяжении десятилетий это озадачивало историков, учитывая существовавшую в то время во Франции невероятно сильную оппозицию клеточной теории, эволюционной теории и генетики. Цель данной статьи — показать, как конкретная форма позитивизма способствовала формированию эпистемологической установки, разделяемой большинством учёных, которая выступала против любой формы спекулятивного теоретизирования в биологии. Во-первых, я покажу, что Французское биологическое общество, которое быстро стало влиятельным учреждением, продвигало именно этот вид позитивизма, уже воплощая эту позицию в своём основополагающем манифесте 1849 г. Во-вторых, частично на основе вторичных источников (Gley, 1899, Schnitter, 1992, Bange, 2009) я документирую те исследования, которые проводились в этом Обществе во второй половине XIX в. и особенно с 1865 г., когда Клод Бернар опубликовал своё «Введение в изучение экспериментальной медицины». В тот период в биологии особенно ценился экс-

периментально-физиологический подход, сводивший теоретическое объяснение только к выявлению внешних причинных параметров. В заключительном разделе я утверждаю, что именно это двойственное и сложное наследие Конт-бернардианства было охвачено термином «позитивизм» во французской биологии. Я особенно акцентирую внимание на том факте, что этот позитивизм был грубым упрощением по сравнению с собственными тонкими идеями Конта и Бернара. В отличие от Конта, здесь почти не оставалось места для действий организмов. В отличие от Бернара, он сводил к минимуму значение третьей сущности между живыми частями организма и окружающей средой, а именно «внутренней среды».

Ключевые слова: Биологическое общество, позитивизм, Огюст Конт, Шарль Робен, Клод Бернар, французская биология.

Вопросы микробиологии на страницах «Дневника Казанского общества врачей»

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Общество врачей г. Казани, впоследствии присоединившееся к Императорскому Казанскому университету, с начала своего создания посвящало достаточно много внимания вопросам распространения и профилактики заразных болезней. Членами Общества были как сотрудники различных факультетов университета, так и земские доктора. Наряду с прикладными проблемами обсуждались и фундаментальные аспекты бактериологии. Содержание заседаний отражалось в «Дневнике» Общества на страницах «Учёных записок Казанского университета». В данной статье представлен материал, посвящённый вопросам медицинской и общей микробиологии, который можно встретить в публикациях разных лет, отражающих деятельность Казанского общества врачей.

Ключевые слова: микробиология, Императорский Казанский университет, «Дневник Казанского общества врачей», «Учёные записки Казанского университета».

Процесс формирования различных научных обществ в Российской Империи «стартовал» в XVIII в. (Обухович, 2018) с появления Императорского Вольно-экономического общества; деятельность его была весьма широка — от изучения проблем жизни народа и его занятий до географических описаний (Фомин, 1797). В начале XIX в. научные кружки и общества стали появляться при образовательных учреждениях. При Императорском Казанском университете во второй половине позапрошлого столетия действовало несколько основных научных обществ, а именно — Общество археологии, истории и этнографии, Общество врачей, Общество естествоиспытателей, Юридическое общество (Список почетных членов..., 1880, с. 18), а также Общество любителей русской словесности в память А.С. Пушкина (Архангельский, 1900). Их деятельность обобщалась некоторыми авторами ранее (Шамсутдинова, 2010). Весьма часто одни и те же люди входили в состав нескольких обществ.

Общество врачей при Казанском университете было одним из самых значимых в городе и являлось широко известным за его пределами. Оно ставило перед собой цель «содействовать развитию медицинских наук, преимущественно исследованиями в медицинском отношении восточного края России» («Устав...», 1910): этот «Устав» относился к 1877 г., но в более раннем «Уставе» от 1868 г., когда Общество было самостоятельным («Общество врачей г. Казани»), его цели были практически идентичными («Устав...», 1868). Первым председателем Общества был А.В. Петров, вклад Александра Васильевича был высоко оценён после его кончины от туберкулёза Н.М. Любимовым (Любимов, 1885). Согласно отчёту А.В. Петрова (1873), вопросы распространения и контроля различных инфекций были весьма актуальными. Сведения заносились в особые формы (рис. 1). Обращалось внимание на проблему внутрибольничных инфекций (Петров, 1873, с. 27). Сообщалось, что с целью недопущения перехода взрослых болезней на детей (в частности, сифилиса) был открыт по предложению Н.Ф. Высоцкого Отдел санитарных осмотров (для кормилиц, нянек и прислуги) (там же, с. 34). При Обществе действовал Отдел оспопрививания. Н.Ф. Высоцкий свидетельствовал о проблемах практического характера в его работе — загрязнении лимфы и развитии у привитых детей сифилитических язв:

В самом деле, при совершенном отсутствии контроля со стороны врачей никоим образом нельзя ручаться, чтобы оспенная лимфа не была снимаема оспопрививателями с сифилитиков, и едва ли кто будет настаивать, чтобы оспопрививатель, с помощью своих знаний, мог сделать точное распознавание сифилиса. На этом основании Общество полагает, что дело оспопрививания давно пора принять в свое ведение исключительно врачам, которые одни только могут вести его надлежащим образом (там же, с. 26).

по по- №	ОБЩЕСТВО ВРАЧЕЙ Г. КАЗАНИ.	редку
Свидетель о больном		
собранный 187 г.		
для руководства служить свѣд. формулы, сокращения и знаки: рус.		
1. ВОЗРАСТЪ ВОЛѢН		
1. и НАРОДНОСТЬ		
скій-р, татар.-тат, чуваш.-чув, черем.-чер, мордвин.-мор, вотяк.-вотн;		
2. ЗАНЯТИЯ		
неграмотный-и, полуграмотн. (умѣнье тол. читать)-нр, грамотн. (чи-)		
3. СТЕПЕНЬ		
4. ОБРАЗОВАНІЯ		
татъ и пис.-ур, дом. образ.-дом, средн. (гим. шт. и.)-ср, высш. (гимн.)-в;		
4. СЕМЕЙНЫЯ		
ОТНОШЕНІЯ		
жен. или замуж.-жен, зам, холост.-хол, вдов.-вдов, число дѣт.-дѣт, и т.п.		
5. МѢСТО		
ЖИТЕЛЬСТВА		
сначала обознач. улица, затѣмъ домъ и матер., изъ к. онъ построено;		
6. МѢСТО		
ЗАВОДѢВАНІЯ		
каненин.-к, деревн.-д, полукан.-д/к, утѣш.-утѣш, ср., ниж., подвал.		
7. ВРЕМЯ		
ЗАВОДѢВАНІЯ		
должно быть точное при болѣз. остр., при хрон.-же въ общ. цифрахъ		
8. АНАМНЕЗЪ		
желательна возможна. подробность свѣд. объ условіяхъ предшествовав.		
9. ДІАГНОЗЪ		
лишь болѣз. и сопровождавшихъ его (причинахъ распол. и прогност.)		
10. ТЕЧЕНІЕ		
БОЛѢЗНИ		
опред. числомъ дней; при леченіи обозн. способы, вѣж. средства и дозм.		
11. ЛЕЧЕНІЕ		
обозначать: выдорозл. +, облегч., излѣриваніе, смерть — дензв.?		
12. ИСХОДЪ		

Свидѣнія собрали	Врачѣ
Въ практикѣ (hist. morbi №)	
предлущаго	№
ОСОБЕННОСТИ СЛУЧАЯ (*)	
сообщенія	№
всѣхъ свѣдѣн. условіяхъ происхожд. и развитія, и въ научн. отнош.	
Замѣ. обозначается въ наболю извѣстномъ и особомъ случаѣ, а равно и резул- тата патолог.-анатомическаго исследованія, если оно будетъ сделано.	
(*) При обширности свѣдѣній, особенно въ сомнительныхъ случаяхъ, можно продолжать записку на оборотѣ.	

Рис. 1. Форма, в которую заносилась информация о больном (по: Петров, 1873, с. 6–7)

Fig. 1. The form in which information about the patient was recorded (Petrov, 1873, p. 6–7)

В составе Общества имелся и Ветеринарный отдел (деятельное участие в его работе принимал ветеринар А.К. Фабер), занимающийся контролем чумы рогатого скота, сапа, сибирской язвы и бешенства собак (там же, с. 29). В целом Общество врачей поддерживало отношения с Обществом орловских врачей, Обществом черниговских врачей, Императорским Кавказским медицинским обществом, Обществом архангельских врачей, Обществом минских врачей, Харьковским медицинским обществом, Обществом одесских врачей (с. 15–17).

Как отмечал А.В. Петров, идея создания «Дневника» зародилась у Н.И. Студенского, которому:

...пришла счастливая мысль сделать собираемый материал не только интересным, но и полезным, даже необходимым для гг. врачей в их ежедневной практической деятельности. Он предложил сведения как из больничной, так и из частной практики врачей, по крайней мере об острых болезнях, публиковать за возможно короткие сроки, чтобы таким образом, сделать известным характер болезненности города во всякое данное время (1873, с. 9).

Первый номер «Дневника» появился 5 мая 1872 г. (там же, с. 9). Выход его стал регулярным. Его объём расширялся. Благодаря публикации сведений о болезненности были получены данные, которые «...в течение многих лет тщетно пыталась уловить медицинская администрация» (с. 10). Данная статья посвящена обзору некоторых аспектов микробиологии, освещенных в «Дневнике Общества врачей». В течение ряда лет материалы заседаний Общества публиковались в разделе «Известия» на страницах журнала «Учёных записках Казанского университета».

Проблемы микробиологии в работе Общества врачей при Казанском университете

Хроника работы «Общества врачей» начала освещаться на страницах «Известий и учёных записок Казанского университета» в форме протоколов заседаний (за предшествующий год) в 1878 г. (Протокол..., 1878). На втором очередном заседании, состоявшемся 22 января 1878 г., И.М. Гвоздём были подняты вопросы заболеваний сибирской язвой (там же, с. 384) — он отмечал:

Обыкновенно встречающаяся здесь карбункулезная форма достаточно характеристична по своим наружным признакам. Но существуют формы этой язвы у человека и животных без всяких наружных изменений. Формы эти, хотя, по-видимому и встречающиеся очень редко, тем не менее представляются крайне важными для судебных врачей. Трупы умерших от внутренней язвы, без внешних локализаций, должны быть вскрываемы с большими предосторожностями ввиду сильной заразительности болезни (там же, с. 384).

Кроме того, им было доложено о 7 новых случаях наружной сибирской язвы. В ответ на сообщение И.М. Гвоздёма последовали реплики от К.А. Арнштейна, который сослался на наличие богатого клинического материала у Г.Н. Минха в Киеве, который ставил без затруднения диагноз в отсутствие выраженных наружных локализаций язвы (там же, с. 385). И.П. Скворцов указал, что в Самарской губернии, «...где сибирская язва наблюдается часто, народ хорошо знаком с ее различными формами» (там же, с. 385). Он писал:

<...> мне не раз приводилось слышать подробные указания относительно внутренней сибирской язвы, которая обыкновенно появляется одновременно с карбункулезною и по течению своему очень сходна с тем периодом карбункулезной язвы, когда выступают припадки общего заражения. В народе существует даже и особый способ лечения внутренней язвы (там же, с. 386).

В протоколе второго годичного собрания за 1879 г. упомянут рассказ Н.Ф. Высоцкого о вопросе чумы. Указывая на сомнения европейских врачей в вероятности повторного появления чумы в Европе, он отмечал:

<...> в лучших современных учебниках находятся только чрезвычайно краткие и неудовлетворительные описания ее. Поэтому — на нас — ученом университетском Обществе, ближайшем к краю заразы, лежит нравственный и гражданский долг основательно изучить эту забытую форму болезни и познакомить с ней наших товарищей — провинциальных врачей (Дневник Общества врачей, 1880, с. 2).

В состав Комиссии по борьбе с чумой при Обществе вошли Б.А. Арнштейн, И.М. Догель, И.Т. Зейфман, И.Ф. Кривошеин, Н.М. Малиев, А.Б. Мандельштам, М.А. Падарин, В.В. Пашутин, А.В. Петров, И.П. Скворцов, Н.И. Студенский, Н.А. Толмачёв, В.М. Флоринский, А.Я. Щербаков. Позднее были включены профессор полицейского права Я.С. Степанов, профессор истории русского права С.М. Шпилевский, профессор химии А.М. Зайцев, минералогии Ф.Ф. Розен, геологии А.А. Штукенберг. Результатом работы стало издание 19 материалов о чуме, что, по мнению Н.Ф. Высоцкого, «представляет собой один из наиболее ценных вкладов в довольно скудную отечественную литературу чумы» (там же, с. 3).

В этом же номере «Дневника» присутствует доклад А.Г. Ге «Можно ли передать сифилис отделяемым мягкого шанкра сифилитика» (там же, с. 12–15). Сообщение А.Г. Ге посвящено исследованию путей передачи сифилиса. С самого начала становится очевидным, что А.Г. Ге рассматривал в качестве фактора передачи заразы особый яд, находящийся, по его мнению, в «крови и в семени, да в яйце матери» (там же, с. 12). А.Г. Ге обзоре работ европейских исследователей, посвящённые способам передачи сифилиса, и переходит к описанию своего опыта по привитию отделяемого мягкого шанкра здоровой женщине с её согласия от больного сифилитика. Был сделан вывод, что появление мягкого шанкра у здоровой больной после искусственного привития не привело к развитию сифилиса в полной мере (там же, с. 15). В заключение Н.Ф. Высоцкий отмечает, что «самым ценным для медицинской практики, а равно и для населения материалом комиссия считает сведения об инфекционных и господствующих болезнях» (там же, с. 25).

В «Дневнике» за 1881 г. напечатано сообщение Н.В. Сорокина «Несколько слов о *Spirochaete* (петлянке)», сделанное им на заседании Казанского общества врачей 28 октября 1880 г. (Дневник..., 1881, с. 5–8, 26–35, 49–56). Начинается его доклад с реплики об актуальности учения о микробах: «После того, как стало известным, что, при некоторых условиях, в теле человека и животных развиваются микроскопические организмы, история развития и отношения их к исходу той или другой болезни служили и служат предметом многочисленных исследований» (там же, с. 5). По его мнению, повышенный интерес способствовал тому, что:

Мы знаем теперь средства, которые задерживают их развитие, следовательно можем по произволу не допускать гниение. С другой стороны, контрольные опыты, проделываемые в лабораториях, дают полную возможность познакомиться с уровнями жизни бактерий, способом их переноса от од-

ного организма к другому, степени их выносливости по отношению к температурам, сухому и влажному воздуху и проч., и проч. Одним словом, в эпоху бактериев мы могли, наконец, узнать истинную натуру многих заразных болезней и сущность самого *contagium vivum* (там же, с. 6).

Н.В. Сорокин отмечает, что побудительным стимулом для его выступления стала публикация проф. Арндта «*Beobachtungen an roten Blutkörperchen der Wirbeltiere*» («Наблюдения за красными кровяными шариками позвоночных»), опубликованная в журнале «*Archiv für pathologische Anatomie und Physiologie*» (1879. Т. 78. Тетр. 1-я. С. 1) и кратко представленная в разделе «Смесь» «Военно-медицинского журнала» (1879, с. 162). Николай Васильевич даёт обстоятельнейший обзор работ зарубежных и отечественных авторов о спирохетах (Дневник..., 1881, с. 27–34). В его заключение Н.В. Сорокин относительно связи между наличием спирохет и возвратным тифом пишет: «строго говоря, вопрос должен считаться пока открытым во многих деталях» (там же, с. 49). Как контраргумент он приводит пример сибирской язвы:

Ведь имеем же мы отчетливое и ясное представление о паразите сибирской язвы. Но, убеждение в справедливости выводов, касающихся этой болезни явилось только тогда, когда путем искусственного заражения, путем фильтрации крови, путем изолирования бактериев — удалось доказать, как дважды два четыре, что мы имеем здесь дело действительно с микроорганизмами. В этом случае, дело поставлено так хорошо, что, по выражению нашего народа «и иголки не подденешь». Вот такие-то опыты и желательны для паразитов возвратной горячки (там же, с. 50).

Указывая на возможные причины необнаружения спирохет в крови больных, Н.В. Сорокин отмечает:

Вероятно, существуют еще неизвестные условия, при которых петлянки у рекуррентов не появляются. Быть может в это время они гнездятся где-нибудь во внутренних органах, и уже потом разбегаются по всей кровеносной системе. На эти пробелы я и хотел обратить внимание гг. медиков. Они-то и требуют участия соединенных сил микологов и врачей (там же, с. 51).

В заключение своего сообщения Н.В. Сорокин возвращается к работе проф. Арндта о красных кровяных шариках и подвергает его точку зрения (что «петлянки есть ничто иное как отделившиеся нитевидные удлинения красных кровяных шариков» (там же, с. 51)) существенной критике. Николай Васильевич отмечает, что в качестве примера проф. Арндт ссылается на опыты с амёбами Винценца Черни, при этом добавляет, что его собственные опыты с *Amoeba terricola*, проведённые им в Ташкенте в 1879 г., не подтвердили выводов проф. Арндта (там же, с. 53), заключая: «Оставим же в стороне все вымыслы и удержимся на почве точного метода исследования и опыта» (там же, с. 54).

В «Дневнике» за 1882 г. № 1 мы встречаем «Очерк господствующих и эпидемических болезней в г. Казани во второй половине 1881 г.» (Дневник..., 1882, с. 11–14), составленный студентами медицинского факультета Добромысловым и Дементьевым, а также «Очерк болезненности Казанской губернии» (там же, с. 14–16), представленный доктором А.П. Бржозовским, — в них мы можем найти данные о представленности тех или иных инфекционных заболеваний за указанный период. В части № 2 напечатан довольно интересный доклад И.Н. Ланге «О новом паразите — *filaria sang. enq.*, найденном в крови лошади и о сходстве его с *filaria sanguinis hominis* Lewis» (там же, с. 25–28). В самом начале доклада мы можем

прочитать: «В клинику Казанского Ветеринарного Института 24 октября поступила чрезвычайно интересная больная лошадь» (там же, с. 25). Далее отмечается, что паразитов в крови обнаружил студент 4-го курса Якимов. Под микроскопом было обнаружено, что в крови, взятой из разных сосудов, присутствуют микроскопические круглые черви длиной 0,03 мм и толщиной 0,0054 мм, в каждой капле крови было по 2–3 паразита (там же, с. 26). И.Н. Ланге отмечает сходство между этим паразитом и *filaria sanguinis hominis*, обнаруженной Lewis'ом у людей в случае слоновости мошонки и ног у жителей тропических стран. В № 2 «Дневника» мы опять можем ознакомиться со статистикой заразных болезней, составленной студентами Дементьевым и Керстиным (там же, с. 45–48). В № 3 имеется сообщение И.В. Годнева «К учению о влиянии солнечного света на животных» (Дневник..., 1882), в котором на странице 56 частично затрагиваются вопросы бактериологии, где он ссылается на работы английских учёных (Downes and Blunt, 1877) о влиянии света на микробов:

Развитие бактерий наблюдалось в пастеровской жидкости, свежей моче и очень старом настое сена. Относительно разных цветов спектра замечено, что враждебное действие света усиливается в синем и падает постепенно к красному концу спектра. Если солнечный свет долгое время действовал на жидкости, в которых в изобилии развивались бактерии, то не только все бактерии были убиты, но сами жидкости теряли способность развивать их. Через три недели бродильный фермент, заключающийся в них, совершенно утрачивал способность сахара перевертывать вращение поляризованного луча. Вредное влияние света на эти организмы Доун и Блент приписывают окисляющему действию света. Опыты свои они приводят как доказательство несостоятельности мнения, что живая материя лучшие противодействует вредным влияниям (там же, с. 57).

Как видно из представленного отрывка сочинения И.В. Годнева, медицинское сообщество Казани было знакомо с опытами по влиянию света на бактерии, в которых был правильно определён сам эффект спектра, но представление о самих бактериях отождествлялось с бродильным ферментом.

В номерах 4–6 и 8 «Дневника» представлена обычная статистика по эпидемическим болезням, не представляющая большого научного интереса. В номере 7 имеется краткое сообщение Н.В. Сорокина «К вопросу о новом паразите, открытом г. Ланге» (Дневник..., 1882, с. 146–147) по поводу доклада И.Н. Ланге, в котором он обращает внимание на наличие схожего заболевания (под названием ришта) у «джигитов-бухарцев» и подвергает некоторому сомнению новизну находки И.Н. Ланге.

В «Дневнике» за 1883 г. в номере 5 было напечатано сообщение Н.В. Сорокина «К вопросу о ферменте кумыса» (Дневник..., 1883, с. 73–81). Николай Васильевич отмечает, что «имел возможность наблюдать ферменты кумыса трех родов: кефира или кавказского напитка, обыкновенного (кобыльего) и искусственного (коровьего)» (с. 73). Он отмечает, что кумысное бродило представляет собой комочки желтоватого или сероватого цвета от 1 до 5 мм в диаметре, покрытые слизью. Источник материала определить не представляется возможным, поскольку, как пишет Н.В. Сорокин: «Откуда взялись упомянутые комочки — сами горцы не знают; кефир ведётся у них с незапамятных времен, разводиться в домашнем быту и передается из поколения в поколение. Таким образом, кефир есть такое же культурное растение, как и дрожжи, и в диком состоянии в настоящее время не существует» (с. 74). Относительно более тонкого строения он продолжает:

<...> все зерно состоит из густо переплетенных тонких нежных грибных волоконцев, *Leptothrix*; сплошной массы нити эти не представляют, но в центральной части образуют много больших и ма-

лых полостей. Между нитями встречаются там и сям группы бродильных грибов (*Saccharomyces*) и цепочки четырехугольных клеток *Oidium lactis*. *Leptothrix* распадается на палочки, расположенные в ряд. В комочках бродила палочки склеены студенистой массой, которая есть ничто иное, как выделение тех же нитей. Мы имеем таким образом, форму *zoogloea* палочковидных бактерий. Попавши в жидкость, бактерии движутся, как и уверяет Керн, посредством ресничек, расположенных на концах палочек. Наконец, палочки могут давать начало спорам (с. 74).

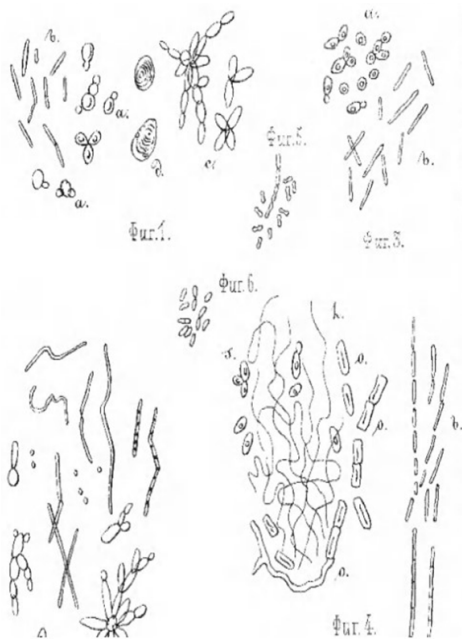


Рис. 2. Изображения, упоминаемые в работе Н.В. Сорокина «К вопросу о ферментах кумыса» (Дневник..., 1883, с. 81). Отмечается, что зарисовки сделаны при увеличении 800/1.

Фиг. 1. Фермент искусственного кумыса (из коровьего молока):

а — бродильный гриб, b — бактерии, с — бродильный гриб через 24 часа после начала культуры, d — крахмальные зерна.

Фиг. 2. Бактерии искусственного кумыса через 24 часа после начала культуры.

Фиг. 3. Фермент обыкновенного (кобыльего) кумыса, а — бродильный гриб, b — бактерии.

Фиг. 4. Фермент кефира: s — бродильный гриб, h — *Leptothrix*, o — *Oidium lactis*, b — распадение *Leptothrix* на бактерии; d — образование спор в бактериях.

Фиг. 5. Ферменты молочного брожения (по Пастеру). Увеличение 450/1.

Фиг. 6. *Bacterium lintola* (по Кону). Увеличение 650/1

Fig. 2. Images mentioned in the work of N.V. Sorokin "On the question of the enzymes of kumys" (Diary ..., 1883, p. 81). It is noted that the sketches were made at a magnification of 800/1.

FIG. 1. Enzyme of artificial kumis (from cow's milk): a — fermentative fungus, b — bacteria, c — fermentation fungus 24 hours after the start of culture, d — starch grains.

FIG. 2. Bacteria of artificial kumis 24 hours after the start of culture.

FIG. 3. Enzyme of common (mare's) kumis, a — fermentative mushroom, b — bacteria.

FIG. 4. Kefir enzyme: s — fermentative mushroom, h — *Leptothrix*, o — *Oidium lactis*, b — disintegration of *Leptothrix* into bacteria; d — spore formation in bacteria.

FIG. 5. Enzymes of lactic fermentation (according to Pasteur). Magnification 450/1.

FIG. 6. *Bacterium lintola* (Cohn). Magnification 650/1

Далее Н.В. Сорокин обобщает другие работы авторов, посвящённые кумысу и кефиру, в частности, сочинения Маньена, Негели, Пастера, Ценковского, сравнивая кумыс с клеком (это «студенистые образования свеклосахарных растворов», с. 78). Завершает своё выступление Н.В. Сорокин словами: «из всего сказанного о микроорганизмах, образующих студенистые шарообразные комья, видно, что бактерии могут давать начало плотным тельцам напоминающим бродило кефира» (с. 80).

Сообщение И.П. Дроздова «Эпидемия дифтерита и борьба с ней» (Дневник..., 1883, с. 249–256) подчёркивает бедственное положение с этой инфекцией — смертность достигала 58% в 1882 г. по данным для Новоузенского уезда. Автор отмечает, что самой распространённой является крупозно-гангренозная форма (там же, с. 252) и докладывает о необходимых мерах профилактики (там же, с. 254). Фундаментальные вопросы о заразном начале в работе И.П. Дроздова не обсуждались. В следующем номере «Дневника» (№ 17) за 1883 г. вопросы микробиологии изложены в сочинении Н.М. Любимова «О туберкулёзных бациллах Koch'a» (там же, с. 266–269) — рассматривается история наблюдений за патологией. В № 18 представлено сообщение И.В. Годнева «О возвратной горячке» (там же, с. 287–305), которая «право на существование свое в Казани получила, насколько нам известно, без боя» (там же, с. 288). И.В. Годнев отмечает, что первое описание возвратной горячки принадлежит доктору П.Н. Сапожникову и относится к 1865 г. (с. 289), после чего представлен исторический обзор по вспышкам возвратной горячки начиная с гиппократовских времен (с. 289–293). Анализируя данные П.Н. Сапожникова, И.В. Годнев отмечает сезонность болезни с максимумами в середине лета и в конце осени — начале зимы (с. 298). В этом же номере «Дневника» представлено предложение Н.В. Сорокина «Об устройстве микологической станции» (с. 306–309), в которой он отмечает высокую смертность от заразных болезней — чахотки, тифа, оспы, скарлатины, дифтерита. «Вопрос об инфекционных болезнях, ставший в настоящее время на твердую почву, благодаря новейшим исследованиям, думаю, принадлежит к числу самых важных», — писал Николай Васильевич (с. 306). Отмечается, что Франция и Германия «первыми обратили внимание на этот вопрос» (с. 306). Н.В. Сорокин далее пишет:

В нашем отечестве таких солидных учреждений не имеется; тем не менее, я думаю, нет ни одного русского врача, который бы не желал поближе ознакомиться с патогенными бактериями, который не захотел бы выучиться отличать их под микроскопом. И хотя это возможно, но — не легко. Только трудностью и сложностью манипуляций можно объяснить тот факт, что весьма солидные микроскописты, с успехом занимающиеся гистологией и анатомией, могли проповедовать, будто бактерии развиваются из содержимого клеток животной и растительной ткани, из белых кровяных шариков лягушки, из красных шариков крови человека и проч. Ясно, что микроорганизмы требуют для своего изучения особенного навыка. Если ко всему этому мы вспомним, что все предохранительные прививки и контрольные опыты заражения основаны на культуре бактерий, то является еще новое затруднение — надо уметь возиться с этим мелким щепетильным материалом, иначе дойдешь до геркулесовых столбов фантазии (с. 307).

Далее Н.В. Сорокин обращает внимание, что прогресс в методах способствует более тщательному анализу патогенов:

<...> можно производить самые чистые культуры, можно окрашивать едва видимые паразиты, делать их резко отличимыми и даже снимать с них весьма точные фотограммы. Это последнее важ-

ное обстоятельство весьма важно потому, что дает возможность контролировать описание авторов и стесняет полет их фантазии и увлечений (с. 307).

Н.В. Сорокин отмечает, что, несмотря на длительное преподавание курса паразитов растений и животных, у него нет места, где он мог бы заняться экспериментальной работой, — он сетует: «повторяю, является возможность изучить причины эпидемий, познакомиться с контагием, уносящим столько жертв изо дня в день; найдутся работники, дайте только возможность работать» (с. 308). В заключение Николай Васильевич подчёркивает, что польза от открытия микологического кабинета может быть не только для медицины, а для сельского хозяйства и других отраслей.

В номере 19 «Дневника» (1883) представлено продолжение работы И.В. Годнева (с. 314–336) о возвратной горячке. В ней он после тщательного анализа климатических условий приходит к выводу, что проявление заразы зависит только от условий её занесения извне и условий проживания людей: «итак очевидно, что причина существования и распространения в Казани возвратной горячки находится в ясной зависимости от бедности, скученности и антигигиенического состояния тех домов и улиц, в которых, по необходимости, приходится жить беднякам» (с. 335). В номере 20 представлено продолжение статьи Н.М. Любимова о бациллах Коха, в которой он обобщает опыты Р. Коха по культивированию бацилл на среде с сывороткой крупного рогатого скота или овец, «чтоб доказать, что туберкулез — инфекционная болезнь» (с. 357). С продолжения этой же статьи начинается следующий номер 21, в нём Н.М. Любимов обобщает методы получения чистой культуры — способы «Koch'a, Baumgarten'a, ... Ehrlich'a, Balner'a и Fraentzel'a, Rindfleisch'a, Heneage Gibbes, Schill'a и Friedlander'a» (с. 359). Особое внимание здесь Н.М. Любимов уделяет вопросам окрашивания бацилл. В номере 22 обобщается довольно редкая для Российской Империи инфекция: она является предметом рассмотрения в работе Н.К. Щепотьева «Материал для изучения астраханской лихорадки», в ней речь идёт о формах «малярийного отравления» (с. 385–392), порождаемого «болотной миазмой» (с. 386). В работе в больших подробностях описана клиническая картина заболевания. В номере 23 «Дневника» (1883) имеется сообщение Е.М. Идельсона «Венерические заболевания в войсках города Казани в 1880, 1881 и 1882 годах» (с. 402–414), в котором автор о природе заболевания рассуждает:

Исходя из того факта, что венерические яды передаются от больного субъекта здоровому только путем близкого соприкосновения и преимущественно полового, весьма понятно, что энергическими мерами можно добиться здесь весьма солидных результатов, можно довести число венерических больных до известного минимума. Но чтобы во всеоружии выступить против распространения венерических болезней, необходимо ближе ознакомиться с ними и точнее изучить их (с. 402).

Продолжение статьи Н.М. Любимова о бациллах туберкулёза представлено в «Дневнике» № 24 (с. 425–435). В ней Николай Матвеевич детальнейшим образом рассматривает применяемые для окрашивания бацилл методики. Кроме того, поднимался вопрос о связи между тяжестью процесса и количеством обнаруживаемых микробов: «Что касается до вопроса о параллелизме между количеством бацилл и интенсивностью процесса, то я имею мало данных высказаться определенно, Но не могу не сказать, чтоб не обращал внимания на эту сторону вопроса» (с. 432).

В «Дневнике» № 3 за 1884 г. представлено краткое сообщение Н.А. Виноградова «Материалы для изучения Казанской лихорадки» (с. 33–34). Работа посвящена

изучению пигментации кожи при малярийной кахексии — это, пожалуй, единственное описание дерматологических проявлений трансмиссивной протозойной инфекции у человека, сделанное сотрудниками Императорского Казанского университета. Кроме того, Казанское общество врачей выступало организатором проведения VII съезда Общества русских врачей им. Н.И. Пирогова, который проходил в Казани в мае 1899 г. В структуре съезда было 16 секций — седьмая секция была посвящена вопросам инфекционных болезней и бактериологии. Возглавляли её Н.Ф. Высоцкий, Н.М. Любимов и И.Г. Савченко (Протоколы..., 1899, с. 9). Кроме того, в съезде участвовал переехавший в то время в Харьков И.П. Скворцов с докладом по динамической (электрогенной) теории мироздания (там же, с. 14).

Заключение

Казанское Общество врачей при университете представляло собой общественную организацию, поднимавшую самые разнообразные вопросы медицины на своих заседаниях. Большое внимание было уделено и проблемам распространения и профилактики различных инфекционных болезней. Мы видим это при анализе содержания «Дневника» Общества, начиная с момента основания общества и вплоть до второй декады XX в. (Протокол..., 2014). Цель Общества была одна — служить отечеству, сохраняя общественное здоровье, и усилия в этом направлении прилагались значительные.

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Issues of microbiology on the pages of the “Diary of the Kazan Society of physicians”

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The Society of physicians of Kazan, which later joined the Imperial Kazan University, from the beginning of its creation devoted a lot of attention to the spread and prevention of infectious diseases. The members of the Society were both employees of various faculties of the university, and zemstvo doctors. Along with applied problems, fundamental aspects of bacteriology were also discussed. The content of the meetings was reflected in the “Diary” of the Society on the pages of “Scientific Notes of the Kazan University”. This article presents the material devoted to the issues of medical and general microbiology, which can be found in publications of different years, reflecting the activities of the Kazan Society of physicians.

Keywords: microbiology, Imperial Kazan University, Diary of the Kazan Society of physicians, Scientific Notes of the Kazan University.

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ПАМЯТНЫЕ ДАТЫ

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«Залог успеха лежит в общей дружной работе»: Московское общество сельского хозяйства (1820–1930 гг.)

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Московское общество сельского хозяйства являлось одним из старейших естественно-научных обществ России, деятельность которого внесла значительный вклад в развитие и становление отечественной аграрной теории и практики. Настоящая статья не претендует на подробное изложение более чем вековой истории этого общества, 200-летие со дня создания которого отмечался в прошлом году. Статья лишь показывает основные аспекты деятельности Московского общества сельского хозяйства, так как вся история этого общества представлена в фундаментальном 3-томном труде, который стал результатом многолетних исследований автора настоящей статьи (Козлов, 2020). Статья же призвана привлечь внимание историко-научного сообщества на эту важную страницу в истории отечественной науки.

Ключевые слова: Московское общество сельского хозяйства, аграрная рационализация, аграрная наука.

Историю российского сельского хозяйства и историю российских научных обществ невозможно представить без Московского общества сельского хозяйства. Деятельность этого общества была исследована в 3-томном труде автора предлагаемой статьи (Козлов, 2020). Тем не менее перипетии истории Московского общества сельского хозяйства по-прежнему неизвестны широкому кругу историков науки. В этой связи возникла необходимость подготовки данной статьи.

Учреждение первого в истории страны сельскохозяйственного общества (ИВЭО не имело статус чисто аграрного) было обусловлено необходимостью изменения рутинных форм и методов ведения хозяйства после Отечественной войны 1812 г.,

ускоренного внедрения различных технико-технологических новаций. События 1812–1813 гг. заметно оживили общественную жизнь страны, также в известной степени подготовив почву для учреждения МОСХ. В 1818 г. было принято решение о создании отечественного сельскохозяйственного общества с центром в Москве «для пользы земледелия и сельского хозяйства, как основания народного благосостояния и всякой промышленности». Девизом МОСХ был выбран следующий: «Ora et labora» («Молись и трудись») — девиз святого Бенедикта Нурсийского, символизирующий соединение воедино физической работы и молитвенного служения. Входивших в состав общества аграрников объединяли общие национально-патриотические идеи на основе православной веры, что придавало их многолетнему созидательному труду общероссийский всесословный характер. Этому способствовали и традиции аграрного патернализма.

Общество, начавшее практическую работу с 1820 г. и объединявшее вначале лишь «сельских хозяев» (помещиков-дворян) Центральной России, быстро превратилось в центр, координирующий деятельность лучших аграрных сил дореформенной эпохи: помещиков-рационализаторов, учёных, просветителей, инженеров, механиков, а также некоторых представителей торгово-промышленных кругов (из семей Прохоровых, Масловых, Басниных, Хлудовых и др.). Особое внимание было обращено «на утверждение связей и сношений, как внутри, так и вне России»: так, действительными членами МОСХ были избраны не только все губернские предводители дворянства, но и наиболее известные иностранные специалисты-аграрники. К 1828 г. в состав МОСХ входило уже около 200 человек, в том числе: действительных членов, проживающих в Москве — 114 человек; в других городах — 114 человек; почётных членов — 36 человек, «чиновников общества» — 10 человек, иностранных членов — 42 человека (Список членов, 1828, с. 501–513).

Уже в дореформенную эпоху членам МОСХ, действовавшим в сложных условиях (засилья архаичного природопользования, отсталости и неграмотности крестьянства, цензурных ограничений и проч.), удалось добиться значительных успехов на пути аграрной рационализации. Новейшая техника и технология (прежде всего, многопольные севообороты) всё активнее внедряются в хозяйственный уклад (в основном, помещичий). Благодаря подвижнической деятельности таких новаторов, как ведущие деятели МОСХ С.А. Маслов, кн. Д.В. Голицын, Н.Н. Муравьёв, Д.М. Полторацкий, Е.С. Карнович и других, в России быстрыми темпами развивается целый ряд аграрных отраслей: свеклосахарное производство, тонкорунное и романовское овцеводство, шелководство, льнополотняная промышленность, пчеловодство, лесоводство и др. Открытия Н.П. Шишкова и Д.А. Давыдова (героя Отечественной войны 1812 г. и одного из учредителей МОСХ) в области технологии свеклосахарного производства (разработка диффузионного способа извлечения сахара из свекловицы) имели мировое значение. Имена многих членов МОСХ (подмосковное «Ясенево» кн. С.И. Гагарина, ярославское «Пятницкая гора» Е.С. Карновича и др.) становятся «культурно-хозяйственными гнёздами»: проводимые в них аграрные и просветительские начинания оказывали воздействие на соседние помещичьи и крестьянские хозяйства. В то же время в условиях крепостничества внедрение аграрных новаций изначально не могло проводиться в общегосударственном масштабе.

Несмотря на то что власти оказывали регулярную финансовую помощь деятельности МОСХ, а само общество именовалось «Императорским», организационная

поддержка на государственном уровне отсутствовала; более того — налицо было стремление властей ограничить действия МОСХ чисто хозяйственными аспектами и не позволить перейти даже к обсуждению насущных социальных проблем.

Уже в дореформенную эпоху на высокий уровень поднимается хозяйственно-просветительская деятельность МОСХ. Продуктивно работают Земледельческая школа и Бутырский учебно-опытный хутор (первый в России хутор «для систематического хозяйственного обучения крестьянских мальчиков»); на страницах печатных изданий общества («Земледельческого журнала» и др.) активно пропагандируются конкретные технические и технологические усовершенствования в сфере аграрного хозяйства.

Общество также издавало «Журнал для овцеводов» (выходил в Москве в 1833–1840 гг. с периодичностью «по 6 книжек в год», а в 1841 г. был соединён с «Земледельческим журналом») — единственное издание подобного рода в Европе в середине XIX в.

О своих хозяйственных интересах в качестве помещиков-землевладельцев его члены тоже не забывали; отметим деятельность организованных ещё в дореформенную эпоху при МОСХ — Депо хозяйственных семян и Комиссионерства для сельских хозяев, которые превратились в ключевые центры не только обмена хозяйственной информацией, но и трудоустройства российских и иностранных управляющих, землемеров, фермеров и сельских рабочих. Именно через депо распространялась и передовая земледельческая техника. Позже, уже в 1871 г. при МОСХ был организован Комитет сельскохозяйственной консультации.

В трудах аграрников закладываются основы общенациональной хозяйственной стратегии, творчески адаптирующей «микрохозяйственную тактику» (с учётом местной специфики) к «макрохозяйственной стратегии» в контексте общегосударственных нужд. Во многом благодаря усилиям входивших в состав общества выдающихся учёных (М.Г. Павлова, Я.А. Линовского и др.), творчески использовавших зарубежные достижения для адаптации к российским условиям, плодотворно развивается в дореформенный период и отечественная аграрная наука, возникшая именно в эти годы.

Огромная заслуга в реализации поставленных целей принадлежала «учённому секретарю» МОСХ С.А. Маслову, ставшему главным координатором и вдохновителем этой работы на протяжении всей дореформенной эпохи (см. о нём: Козлов, 2019, с. 123–188). Вплоть до наших дней не утратило своего значения составленное С.А. Масловым обозрение деятельности МОСХ (Историческое обозрение действий и трудов Императорского Московского общества сельского хозяйства, 1846), изданное также на немецком и французском языках. Его заслуги высоко ценили и зарубежные аграрники; кроме того, именно С.А. Маслов представлял МОСХ в качестве депутата на четырёх Общих съездах германских сельских хозяев в 1840, 1842, 1843 и 1844 гг.

Последний факт отнюдь не случаен: члены МОСХ особенно успешно использовали на практике богатейший германский аграрный опыт. В свою очередь, немецкие члены общества публиковали в его изданиях собственные работы (подробнее о немецком аграрном опыте в дореформенной России см.: Козлов, 2002, с. 195–213).

С МОСХ продуктивно сотрудничали видные государственные и общественные деятели: гр. Н.С. Мордвинов (почётный член МОСХ с 1828 г. и президент ВЭО в 1823–1840 гг.), А.П. Заблоцкий-Десятовский, А.С. Хомяков (действительный член

МОСХ с 1850 г.), А.И. Кошелев, гр. П.Д. Киселёв и др. Благодаря их поддержке многие важные начинания МОСХ (включая деятельность работавшего при обществе Комитета распространения грамотности на религиозно-нравственном основании) приобрели общероссийскую известность, внесли весомый вклад в развитие не только отечественной аграрной науки и практики, но и народного просвещения.

В составе МОСХ были и некоторые будущие декабристы — гр. В.А. Мусин-Пушкин, Н.М. Нарышкин и другие, а также люди из декабристского окружения. Согласно новейшим изысканиям А.В. Петрикова, в круг общения А.С. Пушкина (двоюродный дядя которого, А.М. Пушкин, был не только одним из учредителей МОСХ, но и его первым секретарём) входило 50 членов МОСХ! (подробнее см.: Петриков, 2020б).

Члены общества поддерживали тесные связи с рационализаторами многих губерний Российской Империи, а также с Российско-Американской компанией.

Печатные труды видных деятелей МОСХ (А.С. Хомякова, С.А. Маслова и др.) стали важной вехой в развитии русского национального самосознания. Выделим и ценнейшие практические выводы, главный из которых заключался в следующем: зарубежный опыт необходимо заимствовать крайне осторожно и лишь с учётом собственных богатейших аграрно-культурных традиций, поэтому гораздо эффективнее путь усовершенствования, а не слепого копирования. «России надобно тут своё особое, как это в ней исстари велось..., — подчёркивал авторитетный помещик-рационализатор, видный член МОСХ Н.Н. Муравьёв (1838, с. 69), — ...а не слепо схватывать от иностранного земледелия и его затей в России бесполезное, ненужное и даже неисполнимое».

Отметим патриотическую направленность всей работы МОСХ. «Мы должны сознаться, — отмечал С.А. Маслов, — что, то же патриотическое чувство любви к Отечеству и к просвещению, которое положило основание и начало сему обществу, есть и доселе истинный его гений-хранитель»; не случайно общество «с равным участием смотрело и на успехи сельской промышленности подле Москвы, и на учреждение Земледельческой компании в Камчатке...» (Отчёт Императорского Московского Общества Сельского хозяйства за 1832, 1833 и 1834 гг., 1835, с. 48, 6). Американский историк Дж. Брэдли в своём исследовании об общественных организациях царской России отмечает (2012, с. 166): «Служение родине было одной из движущих сил, с самого начала питавших энергию членов Вольного экономического общества и Московского общества сельского хозяйства».

Накануне Крестьянской реформы 1861 г. деятельность МОСХ заметно активизировалась. Многие его члены принимали активное участие в работе специальных комитетов «об улучшении быта помещичьих крестьян» в рамках подготовки реформы.

Пореформенная деятельность МОСХ начиналась в условиях глубокого экономического и социокультурного кризиса традиционного помещичьего и крестьянского уклада. В 1864 г. общество возглавил выдающийся рационализатор И.Н. Шатилов. Согласно новому уставу МОСХ 1864 г. большее внимание стало уделяться развитию хозяйственно-просветительской деятельности.

Исключительно важным стало учреждение Петровской земледельческой и лесной академии под Москвой — событие, в котором ключевую роль сыграло Московское общество сельского хозяйства (Об учреждении Петровской Земледельческой Академии близ Москвы, 1861, с. 594—599). В этом высшем учебном сельскохозяйственном учреждении, оказавшем огромное влияние на развитие отечественной аграрной науки и образования в XIX — начале XX в. (Баутин, Казарезов,

2005; Баутин, 2015, с. 2–16), работали выдающиеся учёные-аграрники, тесно сотрудничавшие с МОСХ: А.П. Людоговский, И.А. Стебут, Д.Н. Прянишников, А.Ф. Фортунатов и др. (Баутин, 2020; и др.).

Продуктивно работал Комитет грамотности при МОСХ, к сотрудничеству с которым были привлечены лучшие интеллектуальные силы пореформенной России, включая гр. Л.Н. Толстого и И.С. Тургенева.

С 1873 г. учреждаются и губернские отделы МОСХ; первым был организован Воронежский отдел, к 1889 г. их было уже десять.

В первые пореформенные десятилетия сельскохозяйственное общество организовало «сельскохозяйственные беседы», отраслевые съезды скотопромышленников (в 1884–1885 гг.), всероссийский съезд мукомолов (в 1888 г.), съезды по винокурению (1892 г.), хмелеводов и пивоваров (1887 г.). В 1895 г. усилиями МОСХ был организован и проведён VI Всероссийский съезд сельских хозяев. Вместе с тем многие важные инициативы общества долгое время не находили понимания и поддержки со стороны властей.

С 1900 г. МОСХ выпускает журнал «Вестник сельского хозяйства» в качестве своего главного печатного органа. Благодаря его публикациям многие землевладельцы получили возможность не только следить за аграрными новшествами, но и оперативно внедрять их в хозяйствах. В 1901 г. в Москве был проведён I съезд деятелей агрономической помощи местному хозяйству, в организации которого участвовали ведущие деятели МОСХ.

Московское общество сельского хозяйства сыграло важную роль и в развитии российского общественного движения на рубеже XIX–XX вв., с одной стороны, сплотив ведущие пассионарные силы российских землевладельцев, учёных-аграрников и просветителей в борьбе за улучшение сельского хозяйства; с другой — способствуя буржуазной модернизации страны и созданию предпосылок для построения гражданского общества. В начале 1905 г. МОСХ, к руководству в котором пришли либералы (И.И. Петрункевич, кн. Д.И. Шаховской и др.), встало на путь открытой конфронтации с самодержавной властью и вскоре было лишено права именоваться «Императорским». Общество превратилось в центр, консолидирующий недовольную внутренней политикой самодержавия часть социума; оно публиковало враждебную властям популярную литературу; но, главное, — совершило принципиальный «разворот», начав борьбу за хозяйственные интересы не крупных помещиков (как ранее), а крестьянства, игравшего ключевую роль в хозяйственном развитии страны (см. также: Данилов, 2011); став всероссийским органом содействия кредитной и сельскохозяйственной кооперации (подробнее см.: Дударев, 1997). В 1905 г. члены МОСХ вошли в состав руководства Конституционно-демократической партии, «Союза Союзов» (либерального объединения профессионально-политических союзов); составили основу бюро Всероссийского крестьянского союза.

Важнейшую роль сыграли подвижнические усилия аграрников по модернизации сельского хозяйства в период столыпинских аграрных реформ, когда резко активизировалась деятельность множества общественных организаций, включая аграрные (см. также: Елина, 2011, 2012). МОСХ, проводя масштабную работу в сфере «общественной агрономии» и переориентировавшись на сотрудничество с общественными, земскими и кооперативными учреждениями, взяло на себя функции координатора всей хозяйственно-просветительской деятельности в деревне. В составе общества начал работу ряд новых комитетов: почвенный (с 30 окт. 1910 г.), ви-

нокуренной промышленности (с 14 окт. 1911 г.), «по холодильному делу» (с 28 февр. 1911 г.) и экономический (с 11 окт. 1911 г.).

Печатные труды членов МОСХ (прежде всего, С.Н. Прокоповича, А.Н. Челинцева, А.В. Чаянова и А.И. Чупрова) внесли весомый вклад в развитие отечественной аграрной науки. Большую роль сыграло общество в творческом самоопределении и поступательном развитии организационно-производственной школы — авторитетного направления российской экономической мысли начала XX в.

В начале XX в. начинается долгий и трудный путь профессиональной самореализации как первых российских женщин-агрономов (Вахромеева, 2016, 2017; Елина, 2018), так и женщин-учёных (Валькова, 2014, 2019). В составе МОСХ, разумеется, тоже трудились женщины, но их было немного. Прежде всего, отметим одну из «старейших работниц» МОСХ Е.П. Леонардову, долгие годы трудившуюся в Комитете скотоводства, А.Д. Хвастунову (сотрудницу журнала «Вестник сельского хозяйства»), а также Е.Н. Сахарову (жену Н.И. Вавилова), принимавшую в 1914–1918 гг. активное участие в работе Комитета о сельских ссудо-сберегательных и промышленных товариществах при МОСХ (см. также: Вишнякова, 2012).

В годы Первой мировой войны члены МОСХ (А.И. Угримов, кн. А.Г. Щербатов, И.П. Демидов и др.), движимые патриотическими побуждениями, активно участвуют в организации помощи фронту и тылу. Известные учёные Д.Н. Прянишников и М.Н. Туган-Барановский принимают участие в работе Комиссии по изучению естественных производительных сил России (КЕПС). С.Н. Прокопович, Д.И. Шаховской, С.Л. Маслов, А.Н. Минин и А.В. Тейтель не только выступали в роли организаторов, но и активно пропагандировали передовой кооперативный опыт.

Даже в суровых условиях войны общество не забывало об истории России. В 1915 г. Совет МОСХ организовал и провёл специальное заседание, посвящённое 150-летней деятельности Императорского Вольного экономического общества.

Большинство членов МОСХ поддержало Февральскую буржуазно-демократическую революцию в России, с развитием которой они связывали надежды на реформирование и страны, и общества, и отсталой аграрной экономики. Члены МОСХ (А.В. Чаянов, Н.П. Огановский, С.Л. Маслов, А.Н. Челинцев, С.Н. Прокопович и др.) сыграли в 1917 г. заметную роль в работе Лиги аграрных реформ, поддержавшей программные установки эсеров. Наиболее активно они проявили себя в деятельности Временного правительства, в состав которого, по нашим подсчётам, в разное время входило десять членов МОСХ, включая одного из ведущих теоретиков МОСХ С.Н. Прокоповича.

После прихода к власти большевиков МОСХ продолжило работу, однако оказалось в тяжелейшей ситуации: события Великой российской революции 1917–1922 гг. привели к «замораживанию» большинства начинаний; наступил «период систематического разрушения сельско-хозяйственной культуры» (Щепкин, 1918, с. 7). Оказались уничтожены и разорены «образцовые имения». Такие важнейшие учреждения МОСХ, как имение «Вешки» и мастерская для ремонта сельскохозяйственных машин, были национализированы¹. 27 ноября 1919 г. Бутырский хутор, вся история которого

¹ Центральный государственный архив Московской области (ЦГАМО). Ф. 921. Оп. 1. Д. 31. Л. 1–5.

была тесно связана с МОСХ, также перешёл в «общенародную» собственность ВСНХ, причём, как отмечалось в отчете общества, «в расцвете его деятельности»².

Таким образом, ни самодержавные, ни большевистские власти в начале XX в. оказались не готовы к адекватному восприятию и поддержке ценнейших научно-практических разработок ведущих деятелей МОСХ, что в итоге, наряду с другими факторами, крайне негативно отразилось на хозяйственном и социокультурном развитии страны в XX столетии (см. также: Никонов, 1995, с. 124–230).

В первые годы Советской власти, в условиях крайне противоречивых хозяйственных и социокультурных процессов в стране (Булдаков, 2012), члены общества добились заметных успехов в развитии как аграрной теории, так и вопросов управления сельским хозяйством. Именно здесь они смогли разработать целый ряд важных для восстановления сельского хозяйства России научно-практических инициатив, активно участвуя в разнообразных мероприятиях, касающихся экономического планирования (деятельность А.В. Чаянова, Н.Д. Кондратьева и др.). Члены МОСХ (М.М. Щепкин, Я.И. Бутович, О.В. Гаркави и др.) приложили большие усилия по спасению русского племенного животноводства.

С принятием нового устава МОСХ в 1919 г. начинается новый этап в жизни общества. Право на вступление в его состав получили также «юридические лица»; при этом Московское общество сельского хозяйства берёт на себя функции координатора агрономической работы как кооперативных, так и сельскохозяйственных организаций, защищая интересы и права других сельскохозяйственных обществ страны. Был разработан целый ряд важных для восстановления аграрной экономики России научно-практических инициатив. 4 марта 1918 г. при МОСХ было создано «Бюро защиты опытного дела». Огромную научно-практическую работу (в том числе по составлению «сводных почвенных карт» отдельных губерний) провели сотрудники Почвенного комитета МОСХ под руководством Н.А. Димо. Члены МОСХ подготовили ценные разработки для центральных хозяйственных органов (Наркомзема РСФСР, Наркомфина СССР и др.).

В 1920-х гг. именно от ведущих специалистов общества (прежде всего, от Н.Д. Кондратьева, А.В. Чаянова, Н.П. Огановского и А.В. Тейтеля) сотрудники государственных учреждений, ведающих развитием сельского хозяйства, оперативно получали важнейшую хозяйственную информацию о состоянии аграрной сферы страны. МОСХ активно взаимодействовало с кооперативными организациями (Советом объединённой сельскохозяйственной кооперации и его агрономической секцией и др.), а также с государственными и общественными учреждениями и организациями, выступая в качестве наиболее профессионально компетентного и уважаемого экспертного сообщества аграрников.

В 1921 г. аграрники пытались помочь голодающему населению страны (7 членов МОСХ вошли в состав Всероссийского комитета помощи голодающим), однако власти жёстко пресекли эту деятельность; С.Н. Прокопович и А.И. Угримов (президент МОСХ в 1912–1915 гг.) были высланы с семьями из России. М.М. Щепкин был обвинён в «контрреволюционной деятельности», подвергся аресту и заключению; даже в тюремной камере работал над докладом для Наркомзема РСФСР; после освобождения тяжело переживал решение властей о выселении его из Москвы и 21 ноября 1921 г. скончался в Подмоскovie в возрасте 50 лет (подробнее о его

² ЦГАМО. Ф. 921. Оп. 1. Д. 63. Л. 3.

подвижнической деятельности см.: Козлов, 2019, с. 395–469). Потеря этих выдающихся учёных-аграрников оказалась невосполнимой и для МОСХ, и для страны в целом.

Благоприятно отразилась на деятельности общества новая экономическая политика — время возрождённых надежд, на короткий период реанимировавшее базовые ценности мировоззрения членов МОСХ: развитие рыночной экономики и частной предприимчивости, помощь индивидуальному крестьянскому хозяйству и др. (см. также: Сельскохозяйственное опытное дело в РСФСР, 1928). Активизировалась работа отдельных комитетов, прежде всего Комитета скотоводства; продуктивно функционировала Семенная опытная и контрольная станция МОСХ, сотрудники которой не только снабжали качественными семенами многие кооперативные и крестьянские хозяйства, но и проводили ценные научно-хозяйственные опыты, получившие всероссийское и международное признание.

В последние годы деятельности МОСХ в его работе появляются новые приоритеты: аграрники подключаются к реализации экономического курса на массовую коллективизацию и индустриализацию страны. Наиболее перспективными, на наш взгляд, были научно-методологические подходы, разрабатываемые в 1920-х гг. Л.Н. Литошенко, Н.Д. Кондратьевым, А.Н. Челинцевым и А.В. Чаяновым. Примечательно, что ведущие теоретики МОСХ к концу 1920-х гг. высказывали альтернативные научные идеи, касающиеся перспектив модернизации сельского хозяйства Советской России: так, имели место принципиальные разногласия по данной проблеме между Л.Н. Литошенко и группой аграрников в составе А.В. Чаянова, Н.П. Макарова и А.А. Рыбникова (Кузнецов, Савинова, 2018).

В 1928 г. был принят новый устав МОСХ, согласно которому оно получило от государства более широкие права на проведение хозяйственно-просветительских мероприятий. Однако руководство страны берёт курс на тотальное огосударствление всех сфер общественной жизни; усиливается командно-административная система, ухудшаются условия для продуктивной научной работы (Синельникова, 2017, 2018; Кривошеина, 2018). Начинаются репрессии против видных членов МОСХ, выдающихся учёных-аграрников Н.Д. Кондратьева, А.В. Чаянова, А.Н. Челинцева. Организуется заказная кампания в печати и против самого сельскохозяйственного общества, на всю историческую деятельность которого навешиваются политические ярлыки (Муллин, 1929; и др.).

В 1930 г. Московское общество сельского хозяйства было уничтожено властями. Ликвидация общества совпала по времени с репрессиями против Академии наук и делом мифической «Трудовой крестьянской партии», по которому были репрессированы ведущие учёные-аграрники страны, включая многих членов МОСХ. Это означало разрушение интеллектуального творческого потенциала отечественной аграрной науки. Был нарушен более чем столетний эволюционный путь развития как российской аграрной рационализации, так и передовой сельскохозяйственной теории.

Несмотря на ликвидацию МОСХ, многое из его теоретического и практического наследия продолжает жить и в начале XXI столетия (Козлов, Петриков, Баутин, Иванов, Костяев, Ореханов, 2020, с. 462–464). Опыт первого российского сельскохозяйственного общества — научный, хозяйственно-практический, организационный, общественный, социокультурный и духовно-нравственный — по-прежнему

сохраняет свой высочайший творческий потенциал, включая как синтез аграрных традиций и новаций, так и основы разработанного членами МОСХ принципа адаптивно-дифференцированного (с учётом региональной специфики) использования природных ресурсов страны. Для современной России по-прежнему крайне необходима организация, которая бы выполняла задачи ранее ликвидированного МОСХ, объединяя научно-практическое сообщество аграрников, — организация, в которой, как отмечал ещё в 1884 г. К.А. Тимирязев, «учёный имеет случай встретиться с представителями, практического, прикладного знания» (цит. по: Синельникова, 2020, с. 121). Не менее важен и апробированный на практике опыт объединения и координации всех сил в контексте широкомасштабной аграрной модернизации России: главный завет подвижников МОСХ, высказанный в год столетнего юбилея общества в 1920 г. — «залог успеха лежит в общей дружной работе, объединённой и тем умножающей силу и значение работы отдельных его членов» (Столетие Московского Общества Сельского Хозяйства, 1920, с. 6), — значим и в наши дни.

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“The key to success lies in a concerted joint effort” Moscow Society of Agriculture (1820–1930)

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The article describes the activities of the Moscow Society of Agriculture (MSA) — the first Russian agricultural society, which was the main domestic center of advanced agricultural theory and practice from 1820 to 1930. For MSA agriculturists who were striving for a creative synthesis of traditions and innovations, it was already clear in the prereform era that any effective work organization is based on elements of traditional experience. That is why their rich creative heritage attracts the close attention of modern scientists. MSA's experience is valuable and relevant especially now when the tasks of innovative upgrading of domestic agriculture, reducing its dependence on the import of seeds, pedigree cattle, machinery, and equipment, are being addressed. In conditions of severe economic pressure exerted on Russia by the United States and other Western countries from 2014, the principle of adaptively differentiated (taking into account regional specifics) use of the country's richest natural resources, developed by MSA members, is of particular applied importance. Particular attention is paid to the role of the Moscow Society of Agriculture in the agrarian modernization of the country, many years of economic and educational work in the peasant and landlord milieu, achievements in the improvement of individual agricultural sectors, the progress of agricultural science and the formation of the foundations of civil society in prerevolutionary Russia. The important role of the Moscow Society of Agriculture in the preservation and development of economic, sociocultural, and Orthodox traditions is revealed, and the relevance of this unique national heritage in modern Russia is noted.

Keywords: Moscow Society of Agriculture, agricultural rationalization, agricultural science.

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The Fifth International Congress of Biochemistry, Moscow, 1961

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The Fifth International Congress of Biochemistry was held in Moscow sixty years ago, on 10-16 August 1961. Back then it was the biggest event with thousands of participants and proceedings counting more than 3,500 pages. Comparing this congress with the preceding and succeeding events held in Vienna in 1958 and in New York in 1964 allows to identify both the qualitative and the quantitative trends in biochemistry. Furthermore, the Fifth Congress marks a turning point in the history of molecular biology because it was during this congress that Nirenberg announced the cracking of the genetic code. The rest of the abstracts, however, certainly deserves more attention. The congresses of this size promote fruitful exchanges among scientists but rather in the spirit of “Olympic internationalism”. At the same time they also provided an international scientific audience for the whistleblowers on nuclear fallout. In the early 1960s, the international congresses of biochemistry and zoology were facing the same challenges (their heterogeneity and size, the issue of molecular biology) but biochemistry dealt with these challenges more successfully than zoology.

Keywords: international congress, biochemistry, molecular biology, genetic code.

The Fifth International Congress of Biochemistry was the first to be held outside Western Europe. Held every three years, the first one took place in Cambridge UK in 1949, the second in Paris (1952), the third in Brussels (1955), the fourth in Vienna (1958) (Slater, 2000). The Moscow congress was the largest one which was held up to then. They were about 1700 participants in the first one, around 3000 in Vienna while more than 5000 people have attended the Moscow congress (Slater, 2000, p. 332; Whelan, 2003). It was only superseded by the 1964 New York congress with an attendance above 6000 (Ochoa, 1964, p. 9). Such a “mammoth” congress, held in one week, was attended by many scientists, students, and even journalists. Given its size, it is only possible to describe its main features (qualitative and quantitative) and to describe in more details some abstracts. It is also possible to analyze selected trends and issues as Konashev did while analyzing Soviet participation at the series of International Congresses of Genetics (Konashev, 2010).

Results

The congress took place at Moscow University, while Moscow was celebrating the safe return of its second Cosmonaut, Herman S. Titov. Alexander I. Oparin was the president of the congress, Norair M. Sissakian was Secretary-General of the congress, Vladimir A. Engelhardt was the president of the scientific committee.

The congress of biochemistry includes three different types of communications. Two plenary lectures were held (by US biochemist David E. Green and Czech biochemist František Šorm). There were 8 symposia and 28 sections (27 were included in the program but the 28th, “biochemistry of lipids”, was included in the proceedings)¹.

The eight symposia

They were edited as eight separate volumes and constituted, according to Engelhardt (1961, p. 1109), the most important part of the congress, in particular because they examine current problems. Their topics are listed in Table 1. These titles reflect the priorities of the congress as shown by a comparison with the proceedings of the previous (Vienna) and the following (New York) symposia. For instance, in Moscow, steroids and antibiotics were not longer topics for a separate symposium as they were in Vienna (despite, of course, being present in the sections, see Table 2). The proceedings start with a volume entitled “Biological Structure and Function at the Molecular Level” edited by Engelhardt. As pinpointed by Hargittai (2007, p. 33–34), Engelhardt wrote that he had proposed this title because the previous one, “molecular biology”, had not been accepted by the organizing committee (Engelhardt, 1982, p. 16–17). One shall point out that “molecular biology” as such was also not retained as a title for the proceedings of the next meeting in New York where the president of the congress, John T. Edsall, said in his opening remarks (1964, p. 4):

One could imagine that biochemistry, in becoming so all pervading, might have lost its separate identity. Indeed we see some of our closely affiliated colleagues, including some members of this audience, advancing to the conquest of the unknown, carrying a banner emblazoned with the word, “Biophysics”. Others carry a similar banner labeled, “Molecular Biology”. Regardless of those labels, all of us are dealing with the biological problems at the molecular level; the biophysicist working at this level perforce becomes a biochemist, and the biochemist commonly must master some of the tools, and some of the outlook, of the physicist. For myself, I am happy to continue being called a biochemist, while hailing the biophysicists and molecular biologists as fellow workers in the same field.

Molecular biology was thus a challenge for biochemistry, but a challenge from within that was dealt with.

The total number of communications at the eight symposia was 227 (without chairman’s introductions and conclusions, discussions). While 39 % of the abstracts published in the sections were written by a single author, in the symposia, 65 % of the communications (147 out of 227) were made by a single author which shows that symposia gather a different

¹ This has been pointed out by Bud (2014). The program of the congress is available online. Cold Spring Harbor Archives Repository. James D. Watson’s files. File JDW/2/14/6. Retrieved February the 21 st, 2021 from <http://libgallery.cshl.edu/items/show/53878>

type of communications than the sections. In the symposia, the communications look more like authoritative lectures. In case of communications with several authors, none were the product of an international team of authors. A further argument which shows how distinct were the symposia is that they included a pleiade of Nobel prize winners. Among the authors from the symposium “Biological Structure and Function at the Molecular Level”, two were already Nobel prize winners (Lipmann in 1953 and Ochoa in 1959, both in medicine and physiology) and four more were awarded the prize in the following years: Kendrew (chemistry, 1962), Jacob and Monod (medicine and physiology, 1965) and finally Nirenberg for the very work he had presented in the Moscow congress (medicine and physiology, 1968). At the time of the congress, together with the first symposium, the third (Tatum) and the fourth (Theorell), included communications by Nobel prize winner. Later, many Nobel prizes were awarded but the highest total number was to be found in the first symposium². Only speakers from the last symposium, dedicated to more applied sciences, have not yet been awarded a Nobel prize.

	Title	Editor	Communications	Single author (%)	USA	USSR
I	Biological Structure and Function at the Molecular Level	Engelhardt V.A.	33	48	17	4
II	Functional biochemistry of cell structures	Lindberg O.	24	79	8	3
III	Evolutionary biochemistry	Oparin A.	38	82	22	6
IV	Molecular basis of enzyme action and inhibition	Desnuelle P.A.E.	26	50	14	4
V	Intracellular respiration	Slater E.C.	22	55	12	2
VI	Mechanism of photosynthesis	Tamiya H.	27	67	15	5
VII	Biosynthesis of lipids	Popják, G.	32	63	18	3
VIII	Biochemical principles of the food industry	Kretovich, V. L. and Pijanowski, E.	25	72	4	5
			227	64	110	32

Table 1. Topics of the eight symposia held. Bottom: sums and mean (in the case of the percentage of communications with a single author)

Таблица 1. Темы восьми проведенных симпозиумов. Внизу: суммы и среднее значение (в процентном соотношении указаны сообщения с одним автором)

² Here is the full list per volume:

1. 5 prizes, all in medicine and physiology apart one: Lipmann (1953), Ochoa (1959), Kendrew (chemistry, 1962), Jacob and Monod (1965), Nirenberg (1968).
2. 1 prize: De Duve (medicine and physiology, 1974).
3. 2 prizes, both in medicine and physiology: Tatum (1958), Wald (1967).
4. 4 prizes: Theorell (medicine and physiology, 1955), Lynen (medicine and physiology, 1964), Anfinsen (chemistry, 1972), Moore and Stein (chemistry, 1972), Boyer (chemistry, 1997).
5. 1 prize: Boyer (chemistry, 1997).
6. 1 prize: Calvin (chemistry, 1961).
7. 1 prize: Lynen (medicine and physiology, 1964).

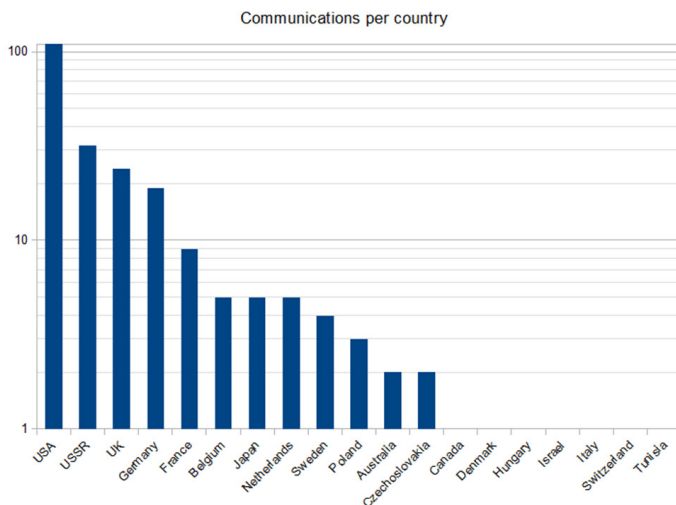


Fig. 1. Number of communications per country at the eight symposia

Рис. 1. Количество сообщений от каждой страны на восьми симпозиумах

One may notice also the lion share of the US in the symposia (50%), whereas the host country share, USSR, is 14 %, the second largest one (Fig. 1). The highest number of contributions, both total, US and Soviet, is found in the third volume edited by Oparin.

The 28 sections

Most of the communications of the congress were included in the sections (Sissakian, 1963a). A total of 2218 communications were included in 28 sections (Table 2). At the closing session, the Secretary-General of the congress said that (Sissakian, 1963c, p. 54):

2600 papers and communications were read and discussed at the two plenary sessions, 8 symposia and 28 sections. A wide discussion developed in which 1596 speakers participated.

It means that communications must have been discarded by the editors or given up by the authors in the editing process. However, this figure remains much higher than in the New York congress which includes a total number of 664 communications in its program.

The number of abstracts per section range from 28 (section 25, Biogeochemistry and biochemistry of trace elements) to 203 (section 5, Enzymology). While the average number of communications per symposium was 28 with a standard deviation of 5,4, the average number of communications per section was 79 with a standard deviation of 48. The dispersion is much higher and one can conclude that sections accommodate the variability of biochemistry across topics while symposia seem to fit a more fixed structure. This was indeed the case: symposia were carefully scheduled while sections were filled according to the received abstracts (Engelhardt, 1961, p. 1109).

A major difference with the symposia was that USA and USSR shares are almost equal, they are accounting for a quarter of the total number of abstracts each. However, their patterns of contributions are quite distinct with huge differences in some sections, the

extremes being found in sections 5 and 24. The next five countries represent a quarter of the number of abstracts (Fig. 2). Thus seven countries represent more than 75 % of the abstracts. At the New York congress, the share of USA was similar (46 %, with 304 communications) while the Soviet one was much lower (less than 3 % with 18 communications). This reflects an asymmetry on traveling possibilities.

In contrast with symposia where two-thirds of the communications are signed by one author, in the sections, less than 40 % of the abstracts are authored by a single scientist. Abstracts were thus more representative of a team-work at the bench rather than a lecture style communication at the symposia.

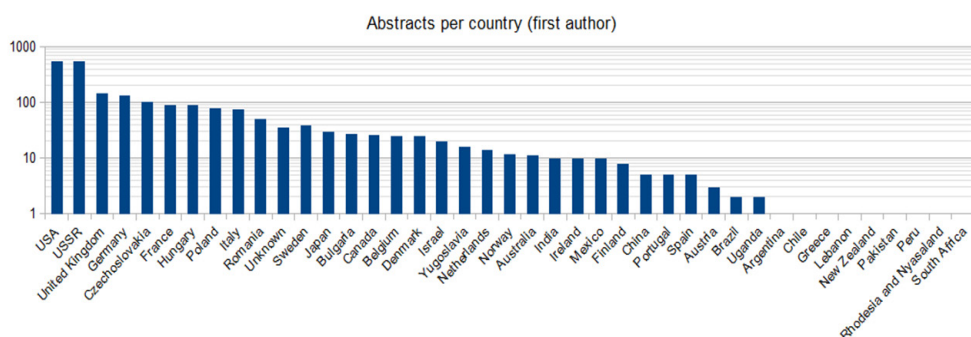


Fig. 2. Number of communications per country (of the first author) at the twenty-eight sections
Рис. 2. Количество сообщений на страну (первого автора) в двадцати восьми секциях

It was reported in the proceedings that scientists from 58 countries attended the congress (Sissakian, 1963b). Only 40 different countries can be listed among the 2218 abstracts published³. While, as we have seen, most of the abstracts were signed by two or more authors, there were only 19 abstracts signed by authors from different countries (in New York, there were only 8). International collaboration was thus the exception. Only one abstract is signed by scientists from the two sides of the Iron Curtain (in New York, there was none): abstract 11.5, by Polish and French scientists.

The French case

French scientists did not deliver plenary lectures but gave 9 communications at the symposia⁴. There were 93 abstracts from France in the sections (in three case, as a second country). The majority is from Paris (50 out of 90). The highest number of French abstracts,

³ This number reaches 42 if one takes into account the symposia, which include a communication from Switzerland and Tunisia. Countries of the United Kingdom have been merged in our dataset.

⁴ The full list is:

- vol. 1: 3 (F. Jacob and J. Monod, F. Gros and H.H. Hiatt, G. Cohen);
- vol. 3: 1 (J. Roche);
- vol. 4: 1 (P. Desnuelle);
- vol. 6: 2 (R. Wurmser, A. Moyse);
- vol. 7: 1 (E. Lederer);
- vol. 8: 1 (L. Genevois).

Section	Title	Communications	Single author (%)	USA	USSR
1	Chemistry of compounds of biological interest	84	35	21	19
2	Biochemistry of proteins and amino acids	201	35	65	31
3	Biochemistry of nucleic acids and nucleoproteins	128	40	48	23
4	Biochemistry of viruses	31	35	13	1
5	Enzymology	203	36	68	22
6	Comparative and age biochemistry	48	52	7	16
7	Biochemistry of antibiotics	44	23	6	13
8	Industrial biochemistry	33	55	2	22
9	Cyto- and histochemistry	43	47	7	15
10	Muscle biochemistry	72	36	13	16
11	Biochemistry of the nervous system	66	39	16	16
12	Vitamins and nutrition	84	36	19	24
13	Biochemistry of hormones	117	33	37	23
14	Biochemistry of microorganisms	163	38	34	22
15	Plant biochemistry	121	58	14	43
16	Clinical biochemistry	118	40	15	40
17	Biochemistry of carbohydrates	68	35	22	16
18	Biochemical pharmacology	71	27	19	17
19	Biochemical genetics	29	48	14	4
20	Immunochimistry	59	41	15	14
21	Biochemistry of malignant tumours	49	29	15	11
22	Biochemistry of photosynthesis	52	50	10	29
23	Respiration and oxidation	74	39	27	10
24	Radiation effect on biochemical processes	72	39	9	40
25	Biogeochemistry and biochemistry of trace elements	28	61	3	22
26	New apparatus and methods	57	54	11	16
27	Varia	39	41	8	10
28	Biochemistry of lipids	64	25	21	11
Total		2218	39	559	546

Table 2. Topics of the twenty-eight sections. Bottom: sums and mean (in the case of the percentage of communications with a single author). The number of communications is counted according to the first author.

Таблица 2. Темы двадцати восьми секций. Внизу: суммы и среднее значение (в случае процента сообщений с одним автором).

Количество сообщений подсчитано по первому автору

eleven, is found in section 5 Enzymology. More interestingly, scientists experts on RNA, who were prime movers in the field of molecular biology in France, had communications at the congress: François Gros and François Jacob from Paris, Jean-Pierre Ebel from Strasbourg, Roger Monier from Marseille⁵. In May 1961, Gros, Jacob and colleagues, in two separate papers in *Nature*, had been publishing the discovery of the messenger RNA (Gros et al., 1961; Brenner et al., 1961). In July, Ebel and Marianne Grunberg-Manago organized an international symposium on RNA and polyphosphates in Strasbourg (Grunberg-Manago and Ebel, 1962). Among the 64 authors of communications at the Strasbourg congress, 20 were also authors of communications at the Moscow congress a month later. Among them, five had communications at symposia (H. Fraenkel-Conrat, F. Gros, G. Schramm, M.S. Smellie, A.S. Spirin). Later on, Ebel and Grunberg-Manago were key in the French-Soviet cooperation in molecular biology (Kisselev, 2008, p. 71). RNA was making headlines in science at that time and it was also at the heart of Nirenberg's announcement.

Case Studies

We will study more closely three abstracts taken from sections. The first one was an obvious choice, considering its fate in science. Compared with this one, the remaining two have fallen into oblivion. However, we have picked them because they reveal other aspects of this congress that were relevant during the Cold War.

Nirenberg & Matthaei

The abstract submitted by Marshall Nirenberg and Heinrich Matthaei, entitled “Comparison of ribosomal and soluble *E. coli* systems incorporating amino acids into protein”, was included in section 2, “Biochemistry of proteins and amino acids”. This was certainly relevant since the abstract was about their results with a cell-free bacterial extract incorporating amino acid, in other words, synthesizing proteins *in vitro*. Their abstract has two intriguing features. First, their system lacks a definite messenger RNA. In fact, the deadline for sending the abstract was December the 31st 1960 and at this point, the messenger RNA had not yet been discovered (*cf. supra*). When the abstract was submitted, as shown by Rheinberger (1997, p. 209), Nirenberg and Matthaei “shared the prevailing picture of the ribosome, whose RNA — or part of it— they believed played the rôle of a template <...>”. Second, it lacks the mention of the genetic code and includes nothing about the deciphering of the genetic code. Did they fail to mention it? The answer is no. At that time, the famous poly-UUU experiment, proving that UUU is coding for phenylalanine, was not yet performed. This occurred in late May 1961 (Kay, 2000, p. 252–253). It was communicated to the *Proceedings of the National Academy of Science* in early August, a few days before the congress and was thus published afterwards. As a consequence, most participants were unaware of their breakthrough. The story of how the public was stunned by their communication has been told many times⁶. Indeed, the fact that a team of two biochemists beat, so to speak, the

⁵ Historian Gaudillière describes those experts as an “RNA network” (Gaudillière, 1991).

⁶ See for instance Riddley (2018, p. 127): “<...> Nirenberg gave a 15-minutes talk in a classroom. The talk was sparsely attended, but Matt Meselson heard it and went straight to Crick, who quickly added Nirenberg to a session

RNA-tie club, which was including many influential scientists like Francis Crick or Edward Teller, at breaking the code could remind us the David and Goliath struggle (Kay, 2000). Let us quote Nirenberg (2004, p. 49) about what happened in Moscow:

I gave my talk in Moscow to an audience of ~35 people. However, Francis Crick invited me talk again in a large symposium that he was chairing on nucleic acids, which I did to an extraordinarily enthusiastic audience.

As a result, their communication was included in the proceedings of the first symposium, which were edited by Vladimir Engelhardt and entitled “Biological structure and function at the molecular level”, side by side with communications by other luminaries from the field of molecular biology like John Kendrew, Matthew Meselson, François Jacob, and many others. This communication states clearly, albeit in a scientific, cautious fashion, that the code has been broken:

Poly-U appears to function as a synthetic template, or messenger RNA, in this system. One or more uridylic acid residues appear to be the code for phenylalanine. Attempts are now being made to determine other letters of the code (Nirenberg and Matthaei, 1963, p. 189).

After the congress, there was a race to complete the code and the remaining «letters» were deciphered in the following years.

Molecular biologist Gunther Stent (1968, p. 394) wrote that after 1963, “By that time many of the details of the genetic code were known <...>”. According to Stent, Molecular biology, after having fulfilled the goal of understanding the two functions of DNA, replication and translation into proteins, was now moving to a more “academic phase”, lacking the thrill of the early time of the field when its theories were elaborated. In a TV report from December 1965, François Jacob stated that the genetic code was “<...> a very important result, a great achievement of human knowledge”⁷. Finally, Molecular biologist and Historian of molecular biology Michel Morange has recently depicted the communication as the “main event” of the congress (Morange, 2020, p. 134). Retrospectively, it is hard to overestimate the importance of this discovery which led Nirenberg to be awarded a share of a Nobel prize in 1968. But one may also notice that in a dense ten-pages report about the eight symposia published soon after the congress, there was not a single line about this breakthrough (Engelhardt, 1961). One may suggest as an explanation that perhaps, at that moment, the communication of Nirenberg and Matthaei was not expected to be published in the proceedings of the first symposium, whose program has been carefully prepared in advance. Anyway, one might also argue that this communication is an outlier among the 2218 abstracts which outshines the remaining abstracts. There is no doubt that many other abstracts deserve more attention. We shall add two more below, because they are related to the Cold War context.

he was chairing at the end of the meeting so that Nirenberg could repeat it”.

⁷ Original quote: “<...> un très grand résultat, une très grand acquisition de la connaissance humaine” (Barrère, 1965).

Kent & Slade

In section 20, “immunochemistry”, was included what seems to be at first a purely technical abstract entitled “20.19 Immunochemically-active cross-linked polystyrene preparations”. This communication is about an interesting method for adsorbing antigens from a solution thanks to antibodies linked to a substrate. The paper was coauthored by two scientists, L.H. Kent and J.H.R. Slade, both affiliated to Oxford. Despite this technical appearance, historian Robert Bud has shown that there is a fascinating story. In fact, L.H. Kent was a senior scientist from Porton Down:

The British delegation included four senior members of staff of Britain's secretive but very large Microbiological Research Establishment at Porton Down, part of the country's War Office, dedicated to preparing against the eventuality of biological warfare with the Soviet Union. The scientists at Porton were working on plague bacillus, producing large quantities to model an attack, for defensive purposes, but, truth to tell, the line between defence and offence in this technology was narrow. The group included the distinguished biochemist. Dr L. H. Kent, who was also the Establishment's distinguished Deputy Director, with the rank of Major (Bud, 2014, p. 452).

Was the visit a spy operation? No, because according to Bud (2014, p. 452): “There was no secret as to who they were (...)”.

Indeed, although it was not written in the Moscow abstract, in two previous papers describing the method, Kent and Slade were affiliated to Porton (Kent, Slade, 1959, 1960). In these very two papers, their method was applied to plague toxin and anthrax antigens. Their Moscow communication was an incremental improvement of an already published method. One may thus ask what was the goal of their visit. According to Bud (2014, p. 453), they visited in the meantime their “Comintern counterparts” and up to “eight visits to Soviet biochemical and microbiological laboratories were arranged”.

Thus, Bud shows that a large congress like this one may be used to organize behind the scene activities in an inconspicuous fashion.

Genevois & Flavier

Louis Genevois (1900–1989) published two contributions in the proceedings. The first and the main one, entitled “Biochemical improvement of crops” was part of the symposium “Biochemical principles of the food industries”⁸. This was indeed the area of specialization of the French biochemist, who, as a professor of biological chemistry and plant physiology at Bordeaux University, had already worked on fermentations and wines (Genevois, Ribéreau-Gayon, 1947). However, we would like to focus on the abstract he had submitted together with Henri Flavier, his doctoral student, and which was incorporated in the 25th section “Biogeochemistry and Biochemistry of Trace Elements”. This abstract is entitled “25.8 Radioactivité des végétaux en terrains sablonneux” [Radioactivity of plants in sandy soils]. In this communication, Genevois relies on his expertise in the field of ion exchanges in plants which dated back in the

⁸ Original title in French “Amélioration biochimique des plantes cultivées”. Translated by the author.

1920s (Le Roux, 2019). But here, this expertise was applied with a special focus on ^{90}Sr , a radioactive Strontium isotope, which was a concern in the nuclear fallout issue for the Medical Research Council in the UK and the Atomic Energy Commission in the USA (Jolly 2002; de Chadarevian 2006). In this communication, Genevois and Flavier stress that due to the fallout of 1958 and 1959, the level of radioactivity in plants growing in sandy soils in the South of Bordeaux are high in 1960. To our knowledge, such a communication about radioactivity was unusual for Genevois and he started publishing in this field a few months prior the congress, in March (Genevois, Flavier, 1961). Henri Flavier had started collecting data about radioactivity from the fallout in the Bordeaux area at least since 1958 (Flavier, 1963). One may conclude that this is a typical whistleblower communication, in which a scientist, based on his expertise, aims at stressing an issue for a broader (but still a scientific one here) audience. In Moscow, this was to our knowledge the first time that Genevois reached an international audience about this issue. This kind of research was not new because Linus Pauling had already published a scientific paper about the hazards of low dose of ^{90}Sr fallout in 1959. Even earlier, in 1957, many scientists were involved in the Pugwash conferences, but they were concerned with nuclear disarmament. At the Moscow congress, this communication was not the sole about ^{90}Sr . Three others were dealing explicitly in their title with ^{90}Sr but there was no communication including the English term fallout in the title and this communication seems to be the only one explicitly speaking about ^{90}Sr fallout in the abstract. In this respect, this was another contribution to a collective effort by scientists toward preventing future contamination. These efforts were timely, both on a national stage — since February 1960, France had joined the nuclear power club by testing its first atom bomb- and an international stage. But they were at first ineffective since aerial tests continued after the congress (Jahn, 1963). Fortunately, a Limited Test Ban Treaty was signed in 1963 and Pauling was awarded a Nobel Peace prize in 1963.

Discussion

Such a large congress is so multifaceted that it is impossible in a short communication to discuss all its features. We would like to consider here two issues. The first one is how molecular biology, with its new theories and its claims, its techniques sometimes imported from fields outside biochemistry, was a challenge for biochemistry. The second one is about the very meaning of the word *international* in the case of this International Congress of Biochemistry.

The challenge of molecular biology

Molecular biology could be perceived as a challenge for a more ancient and established discipline like biochemistry. Indeed, the very first communication in volume 1 of the proceedings is made by a physicist (based on his methods, X-ray cristallography), John Kendrew, who was the founding editor of the *Journal of Molecular Biology*. We have seen how Edsall at the 1964 congress considered molecular biologists as “fellow workers in the same field”. At that time, Jacques Monod was advocating a unifying view of molecular biology stating that it was not a new branch of biology but that rather (Barrère, 1965):

<...> one must consider Molecular biology as unifying biology, as being the basic discipline, the basic theory of biology. All the important results of molecular biology are true both for animals, plants or bacteria <...>⁹.

Monod reasoned that, as a result, at the University, the former separated topics like zoology, plant biology, embryology, were no longer relevant if one was looking for the basic causal explanation, which, according to him, was provided by molecular biology¹⁰. To tackle this molecular level, Monod thought that biochemistry should be part of the training of young molecular biologists but should not define their professional identity. A striking comparison could thus be made between the situation of biochemistry and zoology in the early 1960s. In her study of the 1963 International Congress of Zoology held in Washington, Johnson (2009, p. 428) shows that Zoology was facing the challenge of the claims of molecular biology:

E.O. Wilson has recounted how in the 1960s the heady claims of the molecular biologists, led by James Watson, made the atmosphere in the department of biology at Harvard so stifling that the organismal biologists planned a mass exit.

There was also a second issue for zoology: its very size and diversity. In this respect, zoology and biochemistry were also very similar and what Johnson (2009, p. 419) wrote about zoology could be written for biochemistry, *mutatis mutandis*:

“zoology” had always encompassed a range of research styles and approaches to the study of animal life. Zoologists not only studied a huge variety of organisms, from birds to protozoans, but they also worked in museums, industry, medical faculties of universities, and a range of academic departments. To make matters even more complicated, what zoologists of seemingly the same type did often varied within different countries due to the idiosyncratic historical development of institutions, patronage networks, and links between science, national culture and politics.

As a result, attendances at International Congresses both in zoology and in biochemistry were in the same range with between three and four thousands scientists expected at the 1963 congress (Johnson, 2009, p. 426). However, zoology and biochemistry had different fates. The next International Congress of Zoology was held only in 1972 in Monaco, and was more than ten times smaller. This was the last one until a revival in Athens in 2000. Johnson concludes that zoology “had imploded under the weight of its many sub-disciplines and specialties”, but the challenge of the reductionist view of molecular biology bore also a responsibility (Johnson, 2009, p. 451). In biochemistry, congresses were held much more regularly, albeit their attendance decreased also (Slater, 2000). They cope too in a better fashion with molecular biology because it was a challenge from within: the key results of the early 1960s, like the messenger RNA, the deciphering of the genetic code, the sequencing of the first

⁹ Original quote: “<...> il faut considérer la biologie moléculaire comme établissant l’unité de la biologie et constituant la discipline fondamentale, la théorie fondamentale de la biologie. Tous les résultats importants de la biologie moléculaire s’appliquent aussi bien aux animaux, aux végétaux ou aux bactéries <...>.” Translated by the author.

¹⁰ However, Monod did not include biochemistry, in this list.

tRNA, were mainly got by biochemists. In France and in the Soviet Union, biochemists like Monod and Engelhardt were leading scientists in establishing molecular biology.

Internationalism in science

The world “international” may reflect different conceptions of “internationality”. For our purposes, Somsen distinguishes the “The Republic of Letters” of the early modern period in which “Men of learning were supposed to form a cosmopolitan Republic that transcended national rivalries and conflicts”, the “Scientific Nationalism” which after the French Revolution combines patriotic values with scientific research, the “Olympic Internationalism” with its international conferences much like Olympic games both as a pacification mean and as allowing to assess the results of different countries, the rise of “Socialist Internationalism” between the two World Wars, according to which science is by essence international (Somsen, 2008).

One would thus expect a “socialist internationalism” tone in the opening and the closing address of the congress. Indeed, the Chairman of the State Research Co-ordination Committee of the Council of Ministers of the USSR, K.N. Rudnev (1963, p. 2), said that “Large scientific gatherings in a country, or on an international scale, are as necessary for the successful development of research as is the publication of scientific papers or exchange of opinions with one’s colleagues”.

But at the same time, Rudnev (1963, p. 2) emphasized that Soviet Union was “<...> the first to solve the problems of the peaceful uses of atomic energy, creation and launching of artificial satellites <...>”.

True, several speakers (Sissakian, Rudnev, Keldysh) had emphasized the achievement of Soviet cosmonaut Titov. Beside these statements, our data fit more clearly an “Olympic Internationalism” pattern, because of the low number of international communications, not to mention the lack of joint paper between the two sides of the Iron Curtain. Promoting understanding, peace, fruitful applications of scientific research in medicine, in agronomy, in human welfare as a whole, was for sure stated as it was in New York in 1964. Yet research remained mostly national in terms of authorship. Still, one important advantage of international congresses is to promote new contacts among biochemists and in this respect, the bigger the congress, the higher the probability of new contacts, here even through the Iron Curtain. At the height of the Cold War, this scientific international congress was maintained and one could contrast it with the situation in the 1930s where some international congresses in Germany and the Soviet Union were cancelled (Doel, Hoffmann, Krementsov, 2005). One may even add that in the case of the symposia, their programs were scheduled according to a process which involved notably both a Soviet scientist and a foreign one in the field of the symposium (Engelhardt, 1961, p. 1109).

Our tour of the Fifth International Congress is now completed. We have only scratch the surface of such a large congress and one may be confident that thousands of stories remain to be told.

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Пятый международный конгресс по биохимии, Москва, 1961 г.

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60 лет назад в Москве, с 10 по 16 августа проходил Пятый международный конгресс по биохимии. На тот момент это было самое крупное мероприятие: в нём приняли участие тысячи участников, а сборник материалов конгресса составили более 3 500 страниц. При его сравнении с предыдущим и последующим конгрессами, проведёнными в Вене в 1958 г. и в Нью-Йорке в 1964 г., можно проследить тенденции в биохимии как в качественном, так и в количественном отношении. Более того, Пятый конгресс представляет собой поворотный момент в истории молекулярной биологии, потому что именно на нём Ниренберг объявил о взломе генетического кода. Однако остальные тезисы, безусловно, заслуживают большего внимания. Такие конгрессы, учитывая их размер, способствуют плодотворному обмену между учёными, но в большей степени в духе «олимпийского интернационализма». В начале 1960-х гг. международные конгрессы по биохимии и зоологии столкнулись с теми же проблемами (их неоднородность и размер, проблема молекулярной биологии), но первые решали их более успешно, чем последующие.

Ключевые слова: международный конгресс, биохимия, молекулярная биология, генетический код.

ХРОНИКА НАУЧНОЙ ЖИЗНИ

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Историко-биологическая секция XLI годичной конференции «Учёный и эпоха» (Санкт-Петербург)

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В конце октября 2020 г. в стенах Института истории естествознания и техники РАН (Санкт-Петербургский филиал) состоялась очередная, сорок первая по счёту годичная конференция, посвящённая в этот раз юбилеям двух выдающиеся учёных — Н.И. Кареева и С.В. Ковалевской. Одним из ключевых мероприятий конференции стало традиционное заседание секции Истории биологии, прошедшее в непривычном очно-дистанционном формате. С опорой на опубликованные тезисы конференции¹, в статье описываются основные тематики докладов и обсуждений участников секции.

Ключевые слова: годичная конференция, СПбФ ИИЕТ РАН, история биологии, доклады.

26–30 октября 2020 г. на базе СПбФ ИИЕТ РАН состоялась XLI Международная годичная конференция Российского национального комитета по истории и философии науки и техники Российской академии наук. Мероприятие было приурочено сразу к двум знаменательным для отечественной истории науки датам: 170-летию со дня рождения Николая Ивановича Кареева и Софьи Васильевны Ковалевской, в память о которых участникам конференции было предложено обратиться к теме взаимовлияния эпохи и учёного.

¹ Наука и техника: Вопросы истории и теории. Материалы XLI Международной годичной научной конференции Санкт-Петербургского отделения Российского национального комитета по истории и философии науки и техники Российской академии наук «Ученый и эпоха: к 170-летию со дня рождения Н.И. Кареева и С.В. Ковалевской» (26–30 октября 2020 года). Выпуск XXXVI. СПб.: СПбФ ИИЕТ РАН; Скифия-принт, 2020. 316 с.

В связи с перипетиями коронавирусной пандемии большинство мероприятий конференции впервые проводились в непривычном для участников смешанном, очно-дистанционном формате. Не стало исключением и заседание секции истории биологии, состоявшееся 29 октября в конференц-зале института. Среди докладчиков и гостей заседания, по доброй традиции, были не только сотрудники сектора Истории эволюционной теории и экологии ИИЕТ РАН, но также специалисты Зоологического института, Архива РАН и даже зарубежные исследователи.

Впервые за несколько лет работа секции прошла без участия Эдуарда Израилевича Колчинского — её многолетнего руководителя, ушедшего из жизни в начале 2020 года. Даже в отсутствие Эдуарда Израилевича заседание прошло своим чередом: гарантом преемственности традиций стал новый руководитель секции — Александра Львовна Рижинашвили, — отметившая в своём вступительном слове важность продолжения подобного рода научных встреч в условиях перемен. Привлечение новой аудитории и докладчиков благодаря широким возможностям формата дистанционного общения, по словам Александры Львовны, хотя и не заменяет специфику личного общения, существенно сглаживает негативные стороны вынужденной удалённой работы.

За исключением краткого напутственного слова, основное время работы секции — составившее без малого четыре часа — было уделено научным докладам. Первый из них был представлен Максимом Викторовичем Винарским (СПбФ ИИЕТ РАН) и построен вокруг методологии наукометрического подхода в истории отечественной зоосистематики. Предложив оригинальный статистический взгляд на проблему, М.В. Винарский проследил в своём докладе динамику малочисленных кейсов применения биометрии и биометрик в первые 40 лет существования Зоологического журнала (с 1916 по 1955 г. включительно). Анализ публикаций за указанный период позволил автору элегантно доказать гипотезу о низком уровне популярности количественных и статистических методов в сравнении с подавляющим большинством работ, выполненных в классической для того времени качественной, описательной методологии.

Следующий, дистанционный доклад по теме «Новые страницы биографий отечественных герпетологов XX в.» был подготовлен сотрудником Зоологического института Игорем Владимировичем Дорониным в честь столетнего юбилея подразделения герпетологии ЗИНа. В центре его рассказа оказались ранее неизвестные биографические данные о нескольких отечественных зоологах, внёсших существенный вклад в изучение земноводных и пресмыкающихся. За время доклада И.В. Дорониным были представлены: студенческие документы, ранние фотографии и публикации Л.Д. Морица; архивные материалы о С.В. Царевском и Б.В. Пестинском.

Проблематика восполнения пробелов биографии известных отечественных зоологов была продолжена в докладе Марины Анатольевны Дорониной (ЗИН РАН), посвящённом карьере и коллекциям систематика лацертидных ящериц Георгия Фёдоровича Сухова. Как отметила Марина Анатольевна, данное исследование было бы невозможным без помощи дочери Георгия Фёдоровича и старшей сотрудницы ИИЕТа — Натальи Георгиевны Суховой, опубликовавшей биографию своего отца в 7-м томе журнала «Историко-биологические исследования». Благодаря сопоставлению библиографического списка учёного с отдельными этапами его научной

биографии М.А. Дорониной удалось наглядно проследить судьбу типового материала, описанного Суховым, в музеях Петербурга, Киева и Лондона.

Несколько иной взгляд на фигуру учёного в контексте эпохи был предложен Светланой Игоревной Зенкевич (Библиотека РАН) в докладе «О составе походной библиотеки доктора Д.Г. Мессершмидта». Полагаясь исключительно на данные описи 150 книг из библиотеки немецкого естествоиспытателя, привезённых им для путешествия по России, С.И. Зенкевич в полной мере описала не только научные интересы Мессершмидта (включавшие, по большей части, естествознание, медицину и ботанику), но также его личные предпочтения в литературе (в том числе интерес к богословию, лингвистике и даже музицированию).

Дистанционный доклад Михаила Борисовича Конашева (СПбФ ИИЕТ РАН), посвящённый неизвестным фотографиям в архиве Ф.Г. Добржанского, позволил слушателям ближе познакомиться с деталями научной и личной биографии учёного. Среди снимков, привлёкших наибольшее внимание аудитории, следует отметить в том числе фотографии раннего американского периода, запечатлевшие знаменитого генетика в кругу коллег и друзей (1920-е гг.), а также фотоснимки из его более поздних зарубежных поездок.

Сотрудники Санкт-Петербургского филиала архива РАН — Валентина Владимировна Лебедева и Мария Вячеславовна Мандрик — в своём докладе «К биографии биолога Ф.Х. Бахтеева» описали кейс незавершённой обработки фонда этого известного историка биологии. В связи со смертью бессменного обработчика данного архивного материала — Антонины Николаевны Анфертьевой — ценнейшие с точки зрения историков науки источники (включая неопубликованные статьи, переписку, официальные документы к биографии) всё ещё находятся вне доступа исследователей.

Из-за небольших технических трудностей, связанных с показом презентации, доклад Андрея Игоревича Ермолаева об этапах развития микробиологии в Казанском университете был лишён иллюстративного материала. Подобная «накладка», однако, не сказалась на качестве рассказа, охватившего более чем 170 лет истории микробиологических исследований в Казани: от изучения болезней животных на кафедре скотолечения в середине XIX столетия до создания отдельной кафедры микробиологии и современного этапа её развития.

История изучения и охраны природы Кольского Севера в контексте личной истории одной семьи была раскрыта в докладе Риммы Германовны Парновой — сотрудника Института эволюционной физиологии и биохимии им. И.М. Сеченова. Героями её рассказа стали Герман и Евгений Крепсы, внёсшие огромный вклад в создание и функционирование природоохранных зон Кольского полуострова, а также ставшие столпами биологических исследований русского Севера.

Доклад руководителя секции, Александры Львовны Рижинашвили, послужил примером совмещения методологии библиометрического анализа с методикой экспертного опроса профессиональных биологов. В своём исследовании экологии второй половины XX в. на материалах советско-российских экологических публикаций А.Л. Рижинашвили пришла к выводу, что в последние 50 лет объектом отечественной экологии выступают скорее конкретные виды, а не надорганизменные системы. Сходные выводы были представлены автором также по результатам опроса российских биологов, многие из которых придерживаются видоцентристских взглядов.

Тематика совмещения библиографического метода и изучения социальной истории науки была продолжена в докладе сотрудника ИИЕТ РАН Анны Александровны Фёдоровой. На примере ситуации современного пересмотра заслуг физиолога и гинеколога Джеймса Мариона Симса в сообщении была раскрыта проблема пересмотра истории наук о жизни в ключе современной неолиберальной идеологии движения в защиту прав расовых меньшинств.

Наконец, завершающим штрихом заседания послужил совместный доклад Сергея Викторовича Шалимова (СПбФ ИИЕТ РАН) и французского историка науки Жерома Пьерелля (университет г. Бордо) о советско-французских научных связях в 60–80-е гг. XX столетия. С опорой на метод устной истории в докладе были детально раскрыты ключевые трудности, связанные с двусторонним сотрудничеством стран в указанный период, а также описаны основные позитивные результаты научной дипломатии.

По традиции завершение заседания секции ознаменовалось заключительным словом руководителя, в рамках которого А.Л. Рижинашвили поблагодарила участников и ещё раз выразила надежду на скорое возвращение привычных форматов научной работы и коммуникации.

Всего в программу секции вошли 11 докладов из 12 заявленных в предварительной программе, что, несомненно, является показателем высокого интереса специалистов к проблемам историко-биологических исследований.

History of biology section of the XLI Annual Conference “The Scientist and the Epoch” (St. Petersburg)

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At the end of October 2020, the St. Petersburg Branch of S.I. Vavilov Institute for the History of Science and Technology of the Russian Academy of Sciences hosted a regular forty-first annual conference, dedicated this time to the anniversaries of two outstanding scientists: N.I. Kareev and S.V. Kovalevskaya. One of the main events throughout the conference was the traditional meeting of the History of Biology section, which combined face-to-face and online formats due to pandemic. Based on the published abstracts of the conference, the article describes the main topics of the reports and discussions of the section participants.

Keywords: annual conference, S.I. Vavilov Institute for the History of Science and Technology, history of biology, scientific reports.

Читайте в ближайших номерах журнала

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Т.А. Курсанова. Между биохимией, физикой и политикой. Особенности молекулярной биологии в СССР (30-е – 60-е гг.).

М.В. Ковалёв. Русский эмигрант и советизация чехословацкой науки: случай профессора Б.С. Костомарова.

Н.В. Слепкова. Академик Александр Фёдорович Алимов (1933–2019) — учёный и художник: материалы к биографии.

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