

## “Celebrating D.I. Mendeleev’s Periodic System. A Historical Perspective”



The symposium «Celebrating D.I. Mendeleev’s Periodic System. A Historical Perspective / «Юбилей Периодической системы Д.И.Менделеева. Исторический аспект», was organized as a satellite meeting in the frame of the XXI Mendeleev Congress at the Saint Petersburg State University (Russia), on 10-13 September 2019. This international symposium gathered scholars to tackle questions pertaining to the historical emergence, development and use of the Periodic System (PS), and its most powerful scientific icon, the Periodic Table (PT). While there are still much debates and ongoing discussion about the nature of the PS, the best arrangement of the elements, and the underlying laws that govern such a classification, this symposium specifically held a historical perspective. Beyond the story of discovery, and its context, it was the opportunity to also examine the response and the appropriation processes that explain the longevity of this classification across time, space and culture. In particular, this symposium aimed at providing space for less discussed topics such as the use of PT in textbooks and the pedagogical context, the presence of the PT in popular culture, and the role of women scientists in the development of the PS and the PT.

The symposium was bilingual, with translation to English provided when papers were given in Russian, which provided a unique opportunity to meet with the Russian community of historians of science.

Prof. Martyn Poliakoff (University of Nottingham, England) opened the meeting with his talk *Mendeleev's gift to Education*. On the second day, Prof. Bernadette Bensaude-Vincent (Université Paris 1, Panthéon-Sorbonne, France) spoke over *Mendeleev's notion of chemical element: a key actor in the construction of the periodic table*, and Prof. Helge Kragh (Niels Bohr Institute, Denmark) gave a talk on *Astrochemistry, New Elements, and Mendeleev's Periodic Table*. The third day, which focused on the Russian context, was inaugurated with a paper on *Mendeleev, Markovnikov and the Zhurnal Russkago Khimicheskago Obshchestva: Celebrating Three Sesquicentennials* by Prof. David E. Lewis (University of Wisconsin-Eau Claire, USA). A short movie on Boblovo, the Mendeleev Estate museum, that has been undergoing renovation, was also shown.

Besides the keynote lectures, 22 papers were delivered, several posters discussed during a coffee break and a roundtable organized. Historical papers touched upon the teaching of chemistry before Mendeleev (T. N. Zhukovskaya), the periodic law (Igor S. Dimitriev), Lothar Meyer (G. Boeck), the Russian contribution to the PS (E. A. Zaitseva-Baum and V.V. Lunin), the dissemination of the PS in Russia (T. V. Bogatova) and in Portugal (I. Malaquias), and the contrasting uses of the PS by Lise Meitner and I. Noddack (B. Van Tiggelen and A. Lykknes). More philosophical approaches were provided with talks on the use of colours in periodic tables (B. Bock von Wulfingen), the chemical space and the construction of the periodic system (G. Restrepo), and Nechaev's method (S. V. Teleshov). Papers on the PS beyond chemistry (E. Babaev), the Metrological Institute memorial complex (E. B. Ginak) as well as the roundtable dedicated to the memorialisation, expanded the topic to cultural approaches and the staging of the PS in Museums and other buildings.

The full program is to be found at the symposium website:

<https://hystsymposium.wordpress.com/>

ПЕРИОДИЧЕСКАЯ СИСТЕМА ЭЛЕМЕНТОВ Д. И. МЕНДЕЛЕЕВА											
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5		Cu	Zn	Ga	Ge	As	Se	Br			
6	Kr	Rb	Sr	Y	Zr	Nb	Mo		Ru	Rh	Pd
7		Ag	Cd	Jn	Sn	Sb	Te	J			
8	Xe	Cs	Ba	La	Ce	Pr	Nd	Jl			
9		Sm	Eu	Gd	Tb	Dy	Ho	Er			
10		Tu	Yb	Lu	Hf	Ta	W	Re	Os	Jr	Pt
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				RH <sup>4</sup>	RH <sup>3</sup>	RH <sup>5</sup>	RH				

The periodic wall near the Metrological Institute, St Petersburg (Picture by Erich Boeck)



The cultural and social programme was the most dense and rich, and provided the participants with the opportunity to visit the main sites of Mendeleev's life and work (St Petersburg University and the Metrological Institute) as well as scientific and cultural heritage such as the Kunstkamera and the Lomonosov Museum. Among the high points was a visit to a little-known periodic wall chart devised by Mendeleev himself for his teaching in 1876, and still to be seen in the lecture hall where it was in 1894.



Caption: The 1876 PT wallchart, flanked with busts of Alexander Mikhaïlovitch Butlerov, on the left hand side, and D.I. Mendeleev, on the right hand side (picture by B. Van Tiggelen).



Caption: Focus on the wallchart (picture by B. Van Tiggelen)

The fruitful exchange on the periodic system and the discovery of the amazing heritage related to D.I. Mendeleev and the history of chemistry still to be seen, prompted the participants to issue a recommendation at the end of this meeting. This recommendation plead for IUPAC and the chemical societies celebrating the IYPT across the world to foster attention to the heritage of D.I. Mendeleev, to encourage support for archives, museums and other historical and scientific exhibitions concerning his work, and related fields, and to help implement international historical and chemical projects (educational, research and publishing projects) in order to further study the legacy of D.I. Mendeleev, and make it available to the wider community. The participants also recommend to apply to UNESCO for a recognition of Mendeleev's Museum and Archive as a World Heritage Site, with the support of the Mendeleev Russian Chemical Society and other national and international chemical and scientific organizations.



Caption: Visit to the library of the Metrological Institute (picture by Erich Boeck)

The Organizing Committee consisted of prof. Valery V. Lunin (Moscow State University, Chemical Department, Russia), and Dr. Brigitte Van Tiggelen (Science

History Foundation, USA/ Mémosciences asbl, Belgium), chairs; prof. Aslan Ju. Tsivadze (A. Frumkin Institute of Physical Chemistry and Electrochemistry Russian Academy of Science, Russia), chair of the Mendeleev Congress and Dr. Elena Baum Zaitseva (Moscow State University, Chemical Department, Russia), scientific secretary. The symposium was supported by the EuChemS – Working Party on the History of Chemistry, the Russian Academy of Sciences, the Ministry of Science and Higher Education of the Russian Federation, the Mendeleev Russian Chemical Society, the St. Petersburg state University and Russian chemists Union. This specific edition of the Mendeleev Congress was also supported by IUPAC, since 2019 was declared the International Year of the Periodic Table.

The setting up of the symposium also involved several members of the EuChemS WPHC: Gisela Boeck, Isabel Malaquias and Elena Zaitseva.

Brigitte Van Tiggelen, Science History Institute/Mémosciences asbl