

Translation of Markovnikov's *Magistr Khimii* Dissertation: A Progress Report



Alexander R. Davis and Eugene Walsh III

[Faculty mentor: David E. Lewis]

Department of Chemistry, University of Wisconsin, Eau Claire, WI 54702



Introduction

Dr. Vladimir Vasilyevich Markovnikov

- In 1869 Markovnikov elucidated a rule for the nucleophilic addition of H-X species to alkenes which was extremely influential to the field of organic chemistry and is still widely used today.
- The majority of Markovnikov's work was published in Russian, with only a select few published in German and French, and none in English.
- We thought that the chemistry community could benefit from reading Markovnikov's Master's dissertation in English, and set out to translate it.
- We were fortunate enough to be invited to Kazan Federal University in Russia, where Markovnikov did both his undergraduate and graduate studies.

Project Overview

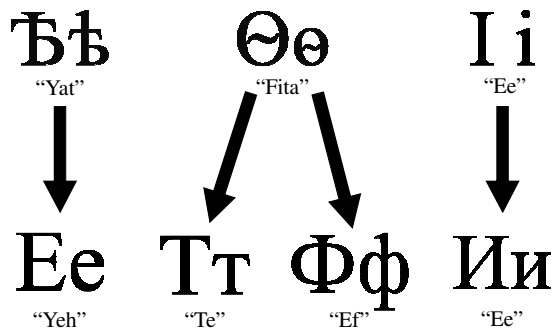
- In May of 2015 we traveled to Kazan Federal University (KFU) in Kazan, Russia in order to digitalize several historical works.
- When we returned to Eau Claire we began to transcribe the digitized versions of the works into modern Russian.
- As we update sections of the works to modern Russian we are then able to complete the process and translate them into English.



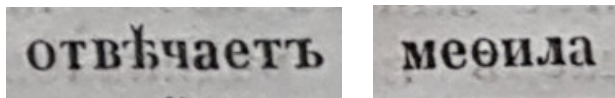
Challenges of Translation

- Many technical chemistry words do not appear in most English-Russian dictionaries.
- The Grammar Reform of 1918 eliminated several redundant characters from the alphabet and changed several spelling rules.
- For the modernized Russian transcription these archaic letters needed to be removed and the spellings needed to be corrected.

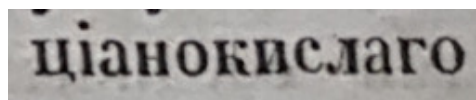
Challenges of Translation – Continued



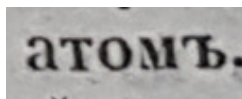
While it was originally a distinct sound, by the time of 1918 reform the letter *yat* made the same sound as the letter *yeh* and was eliminated. The dotted *i* made the same sound (ee) as the Russian letter *и*, and so it was also eliminated. *Fita* originated with the Greek *theta* and then was split into *te* and *ef*.



Several spelling changes were also made after the revolution. The singular genitive adjective ending “-oro” appears in Markovnikov's works as “-aro” and needed to be changed in the modern transcription.



The hard sign (Ѣ/ѣ) was used extensively in archaic Russian; it was found at the end of every word that did not end in a soft sign (Ь/ь) or a vowel. In the grammar reform it was decided that any word ending in a consonant was automatically considered a “hard” ending and therefore did not need the hard sign to signify its hardness.



Results/Observations

- It is fascinating to read a work from a period in time when organic chemistry was being revolutionized at a breakneck pace.
- So far, much of the dissertation has been an overview of the state of chemistry in 1865.
- We are currently have approximately one-third of the M. Khim. dissertation translated with more being done every day.



Future Plans

- We will continue to modernize and translate Markovnikov's Master's and Doctoral dissertations with the intent of publishing them in a book.
- A better understanding of the “current” ideas in chemistry during the 1850s allows us to depict the history and timeline of organic chemistry more clearly than before.

Acknowledgements

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