

Handwritten notes on a piece of paper, likely a draft of the periodic table, showing atomic weights for various elements. The notes are arranged in a grid-like fashion, with some elements having question marks next to their atomic weights, indicating uncertainty or discovery status.

Be=9,4	Mg=24	Zn=65,2	Co=56	Ni=58,7	Ro=104,4	Zr=198
B=11	Al=27,4	Fe=56	Cu=63,4	PL=106,6	CS=199	
C=12	Si=28,1	Ca=40	Ny=108	Ny=200	Os=197?	
N=14	P=31	As=75	Os=112			
O=16	S=32	Se=79,4	Sb=122	Ni=210?!		
F=19	Cl=35,5	Br=80	Te=128?			
Na=23	K=39	Rb=85,4	I=127	Cs=133	Hl=204	
	Ca=40	Sr=87,6	Ba=137	Pb=207		
	?=45	Ce=92				
	Er=56?	La=94				
	Yt=60?	Di=95				
	Zn=75,6?!	Hl=118?				

# The father of the periodic table

Kamran Khodaparasti

Aug. 2024

Dmitri Mendeleev grew up in Siberia. His home, Tobolsk, is 1000 Km nearer to Beijing than to Paris, and his pathway from there to scientific eminence was difficult.

He was the youngest of more than a dozen Mendeleev siblings, and soon after his birth in 1834 ill-health forced his father Ivan, a high-school teacher, into retirement.



The inadequacy of Ivan's pension drove his wife Maria to take on the management of a semi-derelict glass-works, formerly run by her brother.

This enterprise supported the family until 1848, when it burnt down.





Then Ivan died, and in 1849 Maria took her two youngest children to Moscow, hoping that her brother would help Dmitri enter university there.

When this plan failed, they moved to St Petersburg and in 1850 Dmitri was accepted (somewhat reluctantly) by the college where his father had trained as a teacher.

A lecturer there encouraged Dmitri's interest in chemistry.

He graduated in 1855, and his dissertation – on isomorphism and other relationships between physical form and chemical composition – was published in a mining journal.

By then both his mother and sister had died, and he himself was suffering from what appeared to be tuberculosis.

However, a year teaching in the more benign climate of the Crimea improved his health significantly, and a new doctor confidently dismissed the previous diagnosis.



In the autumn of 1856 Mendeleev successfully defended a master's thesis on relationships between the specific volumes of substances and their crystallographic and chemical properties.

Shortly afterwards the University of St Petersburg licensed him as a chemistry tutor, allowing him access to its laboratory.

In 1859 he received state funding for two years of advanced study abroad.



At Heidelberg University in Germany, Mendeleev did research on several topics.

After returning to St Petersburg in 1861 Mendeleev resumed teaching at the university, while also lecturing at the city's Technological Institute.

In addition, he published an organic chemistry textbook and several articles for a technical encyclopaedia.





Mendeleev's doctoral thesis (on solution theory) was accepted in 1865, and in 1867 the university appointed him professor of general chemistry.

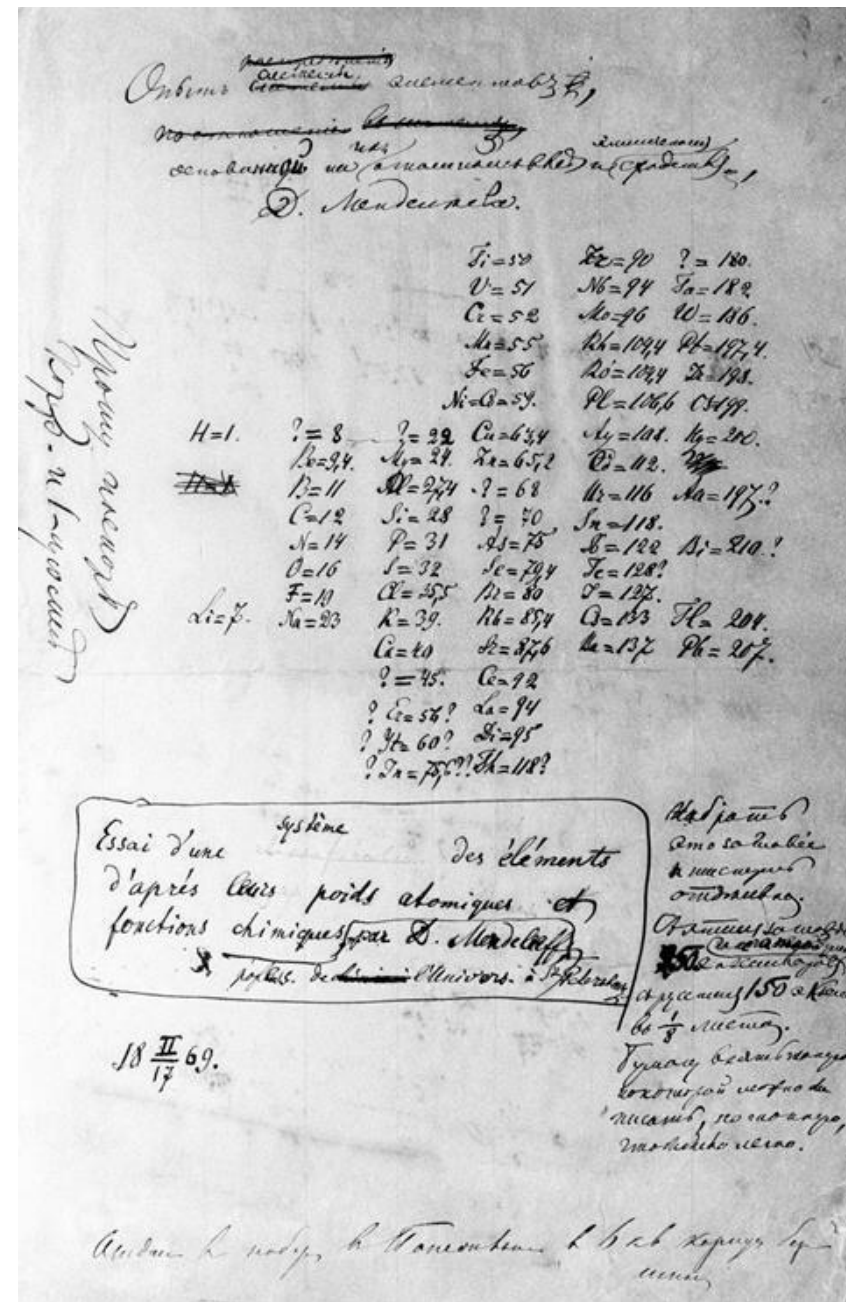
He was required to lecture on inorganic chemistry, and since there was no satisfactory Russian textbook, he began writing one. This focused his mind on the challenge of arranging the chemical elements in an orderly pattern.

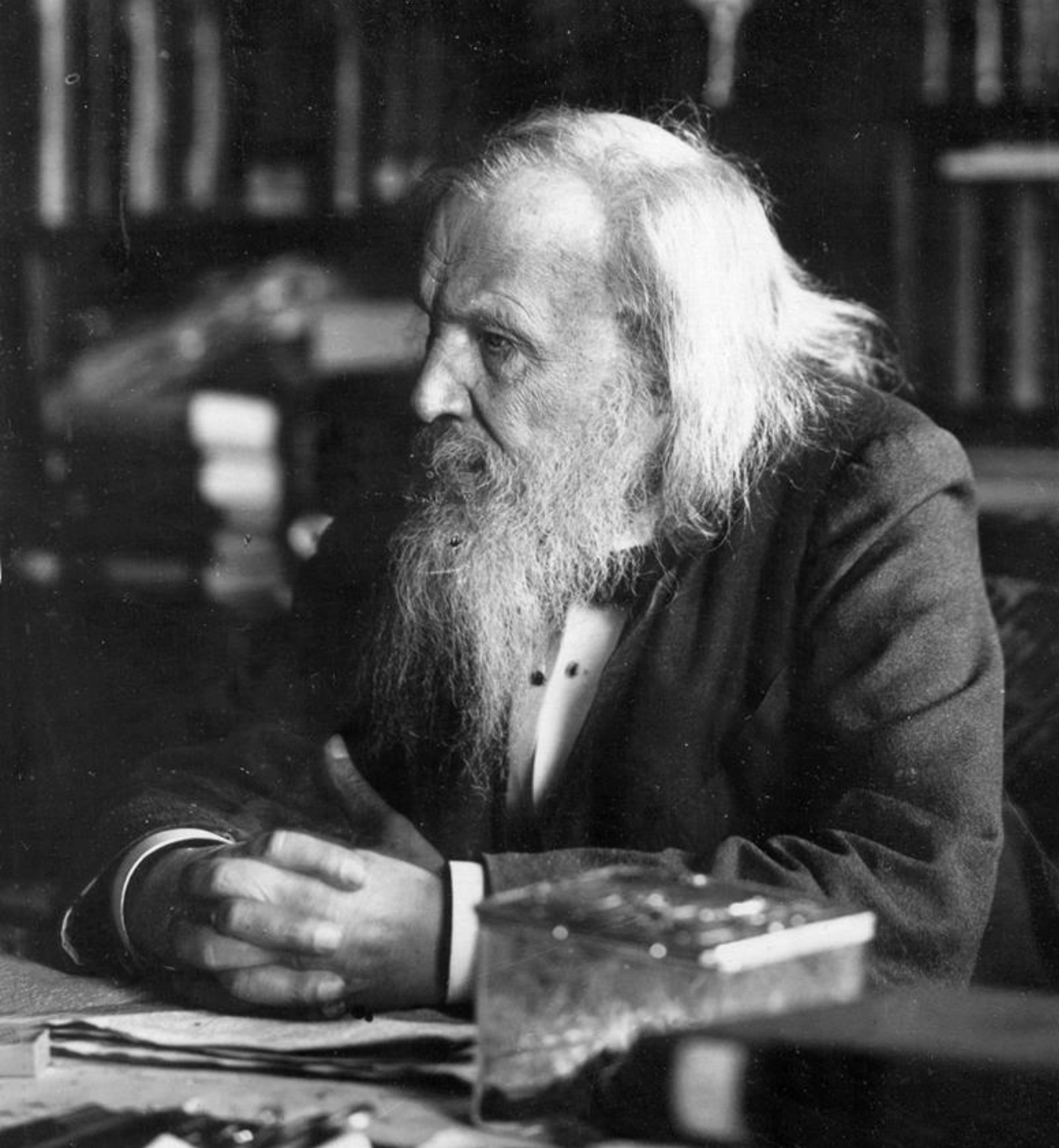
Several others had attempted this, with limited success. Mendeleev was aware of some of these efforts, but his own approach was distinctive in important respects.



On the 6th of March 1869 the first rough sketch of his table was presented to the Russian Chemical Society (an organization he had helped to found a few months previously).

Later that year the society's journal published a more considered version, a short abstract of which appeared in German translation.



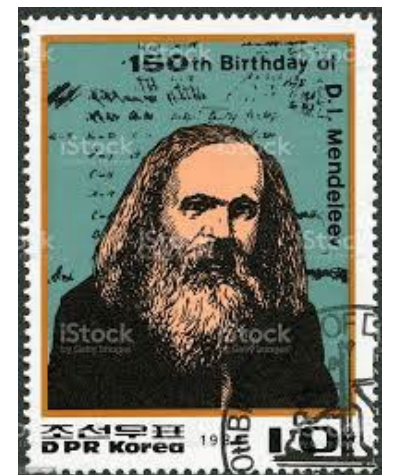
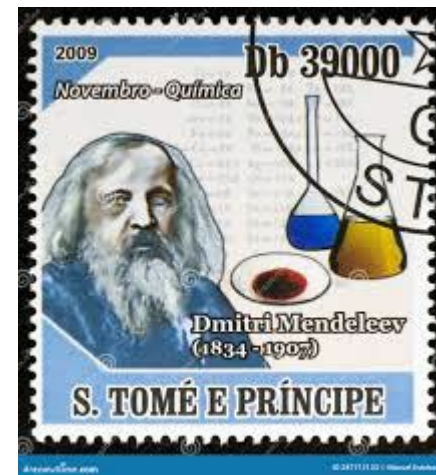
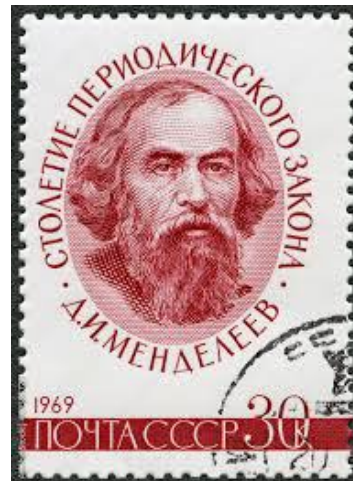


In his private life, Mendeleev was defiantly unconventional.

He had his hair cut and beard trimmed only once a year, declining to vary this custom even for an audience with the Czar.

Armed with this conviction, he gave his table coherence by boldly revising the positions of some known elements, and by leaving gaps for others as yet undiscovered.

Although some of his predictions were incorrect, he scored enough hits to establish his table as the basis for our understanding of the elements, and to confirm his status as one of the founders of modern chemistry.







**Kamran Khodaparasti**

**Materials Engineer**

## Info.



This presentation was developed by Kamran Khodaparasti.  
Publication date: August 2024

 [kkhodaparasti@yahoo.com](mailto:kkhodaparasti@yahoo.com)  
 [kamrankhodaparasti.ir](http://kamrankhodaparasti.ir)  
 Kamran Khodaparasti

## Ref.



- [chemistryworld.com/features/the-father-of-the-periodic-table/3009828.article](http://chemistryworld.com/features/the-father-of-the-periodic-table/3009828.article) Personal experience
- Materials Handbook, a Concise Desktop Reference, François Cardarelli, 2017
- [siberiantimes.com/other/others/news/mendeleevs-final-conundrum/](http://siberiantimes.com/other/others/news/mendeleevs-final-conundrum/)