

History of Periodic Table

Through the number of experiments and observations, scientists were able to group elements by developing periodic law and periodic table in a systematic approach.

通过大量的实验和观察，科学家们能够通过系统的方法发展周期律和元素周期表来对元素进行分组。

Johann Dobereiner, the German chemist in the early 1800s was the first person to saw the trend and pattern in properties of elements. In 1829 he noted the similarity among the physical and chemical properties of elements, he grouped the elements in three called a triad.

19世纪德国化学家**Johann Dobereiner**是第一个发现元素性质间联系的人。1829年，他发现元素的理化性质存在相似性，便把元素三三分组，即三耦律（law of triads）。

In this triads he observed that mean of atomic weights first and last elements were equal to the atomic weight of the middle element. He also observed that the properties of the middle element were similar to the properties of the first and last element.

他发现每组的三个元素按原子量排列时，第二个元素往往大约是第一和第三个元素的平均，并且中间元素的性质与第一个和最后一个元素的性质相似。

Element	Atomic Weight	Element	Atomic Weight	Element	Atomic Weight
Li	7	Ca	40	Cl	35.5
Na	23	Sr	88	Br	80
K	39	Ba	137	I	127

Figure 1: Dobereiner's Triads

Dobereiner's periodic law also referred to as the **law of triad** was only applicable to few elements, when new elements have discovered the law of triad failed to justify the periodicity of elements.

然而，Dobereiner的三耦律只适用于少数元素，许多新发现的元素并不符合。

Another attempt of building the periodic table made by **A.E.B. de Chancourtois** a French geologist in 1862. He arranged element in increasing order of the atomic weights and created a cylindrical table in which elements with similar properties were close to each other, but he failed because it was not an efficient solution.

1862年，法国地质学家A.E.B.de Chancourtois再次尝试建立元素周期表。他按照相对原子质量的递增顺序排列元素，并设计了一个圆柱形表格，其中具有相似性质的元素彼此接近，但他最终失败了，这不是一个有效的方案。

After that in 1865 the English chemist, **John Alexander Newlands** profounded the **Law of Octave**. He made a periodic table by placing elements in increasing order of their atomic weights and noted that every eighth element in the table has similar chemical and physical properties to the first element.

1865年，英国化学家John Alexander Newlands发现当元素按原子量递增的顺序排列时，每隔8个，元素的理化性质就会呈现周期性变化。

Element	Li	Be	B	C	N	O	F
At. Wt.	7	9	11	12	14	16	19
Element	Na	Mg	Al	Si	P	S	Cl
At. Wt.	23	24	27	29	31	32	35.5
Element	K	Ca					
At. Wt.	39	40					

Figure 2: Newlands’ Octaves