Early Attempts in Classification of Elements

Dobereiner's Traids:

When Elements arranged in order of their increasing atomic mass , the atomic mass of the middle element was approximately the arithmetic mean of the other two elements of the traid.

Dobereiner's traid Examples:

Triad	At. wt. of middle element
1. Li^{7} Na^{23} K^{39}	$\frac{7+39}{2} = 23.0$
2. Ca^{40} $Sr^{87.5}$ Ba^{137}	$\frac{40+137}{2} = 88.5$
3. $Cl^{35.5}$ Br^{80} I^{127}	$\frac{35.5+127}{2} = 81.25$

Significance of Dobereiner's Triads:

This classification of elements in triads had greater significance in predicting the atomic mass and properties of the middle element. However, only a few elements could be arranged in such triads.

Drawbacks:

Dobereiner's method of classification could arrange only a limited number of elements out of those known at that time in the form of triads. Therefore, the idea of triads could not be applied to all the elements then known.

Newland Law of octaves:

When elements are arranged in the increased order of their atomic weight, the eight element resembles the first in physical and chemical properties just like the eighth note on a musical scale resembles the first note. According to this law, sodium, the eighth element from lithium has similar properties to that of lithium, the first element and similar observation have been made for Be & Mg, B & Al and so on.

1.	Li^{7}	Be^{9}	B^{11}	C^{12}	N^{17}	O^{16}	F^{19}
2.	Na^{23}	Mg^{24}	Al^{27}	Si^{28}	P^{31}	S^{32}	$Cl^{35.5}$
3.	K^{39}	Ca^{40}					

Drawbacks of Law of Octaves:

(i) This law could be best applied, only up to the element calcium.

(ii) Newly discovered elements could not fit into the octave structure.

(iii) It failed to exhibit this feature with heavier elements.