

Having thus collected by observation and controlled experimentation a sufficient number of data to enable him to recognize the orderliness & regularity of his results Mendel then constructed a working hypothesis referring the phenomena of segregation & the independent assortment and recombination of factors to account for the observed facts. He postulated that there are determiners called genes in the gametes. Each gamete carries a factor for each and every inheritable character that the future individual may exhibit. and thus an individual arising from the union of two gametes has a double set of factors, each gamete a single set. There will be two sorts of gametes, one carrying the factor for one character of a pair, the other the factor of its alternative, and these two kinds will be elaborated in equal numbers.

If, of the two characters, one is dominant, if at the time of fertilization there are equal numbers both of male and female gametes carrying the dominant and recessive factors respectively, and if the fertilization is at random, then chance will yield on the average of every four, three individuals exhibiting the dominant character of a pair and one exhibiting the recessive. Mendel's law of segregation refers to this clean separation of factors during the formation of the gametes.

What is important in the theory of Mendelian inheritance is not the dominance but the orderly reappearance of the characters in definite numerical proportion.

Mendel's second law is that of independent assortment of factors. This is illustrated when in one and the same