

which have new and definite fixed characters and which constitute a new species. The chief work in connection with the Mutation Theory has been that done by de Vries, a Dutch botanist, who published the results of his twenty years' labour in two volumes in 1901 and 1903.

One of the chief factors in Evolution is Heredity. To Gregor Mendel is due the credit of throwing a new light upon this most important subject. He was born in 1822, of Austro-Silesian parents, and at an early age entered the monastery of Brünn. There, in the seclusion of the cloister garden, he carried out a series of experiments with the common pea which have since become famous. He published the results of his work which had taken eight years, in the *Proceedings of the Natural History Society of Brünn*. His brief paper of only some forty pages, upon inheritance in peas, has now become one of the classics in Biological literature. By a strange accident, Mendel's paper remained unknown for thirty-five years. At length, in 1900, it was discovered almost simultaneously by three distinguished Botanists who at once perceived its extraordinary importance. The result was that it was soon re-published in several languages. It is a great pity that the original paper did not fall into the hands of Charles Darwin, for had it done so no doubt its rare merit would have been early recognized. Before Mendel's time, Biologists had made laborious experiments in crossing different races of animals and plants, but they had always looked upon the individual as the unit. Their investigations led them to believe that mongrels or hybrids are usually intermediate between the parents, so that they resemble one in some features and the other in others: but they failed to discover any definite laws of inheritance.

Mendel, however, noticed that each variety of pea has a number of differentiating characteristics or unit characters. As examples of such unit characters, one may mention seed-colour, seeds being either yellow as in some varieties, or green as in others. In some varieties the seeds are round and smooth; in others, they are wrinkled. In some, the flowers are purple; in others, white. In some the plants are tall, 6 or 7 feet high; in others, dwarf, $1\frac{1}{2}$ to 2 feet high. Mendel, instead of regarding whole plants as units, selected certain pairs of these unit charac-