

mathematics, poetry, music, sculpture, the investigation of nature, philosophy, etc. In the family of Bach there have been no less than twenty-two eminent musicians. Of course the transmission of such peculiarities of mind depends upon the material process of reproduction, as does the transmission of mental qualities in general. In this case again, the vital phenomenon, the manifestation of force (as everywhere in nature), is directly connected with definite relations in the admixture of the material components of the organism. It is this definite proportion and molecular motion of matter which is transmitted by generation.

Now, before we examine the numerous, and in some cases most interesting and important, laws of transmission by inheritance, let us make ourselves acquainted with the actual nature of the process. The phenomena of transmission by inheritance are generally looked upon as something quite mysterious, as peculiar processes which cannot be fathomed by natural science, and the causes and actual nature of which cannot be understood. It is precisely in such a case that people very generally assume supernatural influences. But even in the present state of our physiology it can be proved with complete certainty that all the phenomena of inheritance are entirely natural processes, that they are produced by mechanical causes, and that they depend on the material phenomena of motion in the bodies of organisms, which we may consider as a part of the phenomena of propagation. All the phenomena of Heredity and the laws of Transmission by Inheritance can be traced to the material process of *Propagation*.

Every organism, every living individual, owes its existence *either* to an act of unparental or *Spontaneous Gene-*