

is hard labor that engenders results. In this sense Dr. Miller possesses talent of a high order, for he has accomplished what few men have done, mainly because he has worked as few men have worked. He is a most indefatigable student, and almost regrets the hours that are spent away from his laboratory and books.

He has, at times, seriously jeopardized his health by his intense application, for he has not the appearance of a robust man. Yet there is stamina in him, or he could not successfully have labored as he has. In height he is, perhaps, five feet nine inches, and his weight may be 150 pounds. He has a large professional practice to conduct, besides his professorial, his laboratory and his literary work. The latter is by no means confined to his English writing, for Dr. Miller is conversant with several languages. German, especially, is as familiar to him as his native tongue, and he not only speaks and writes it fluently, but he has a technical knowledge of it, and his contributions to German periodicals are frequent and important. He has probably published more in that language than in English.

Willoughby D. Miller was born near Alexandria, Licking Co., Ohio, August 1st, 1853. The first twelve years of his life were spent upon a farm, and it is to that fortunate circumstance he owes his physical capacity for work. It is from the farm-house that the healthiest and most stalwart American minds have emerged. The pure air, the active exercise, and the intimate communion with nature, often develop a mentality which possesses a grasp and power unknown to the overstimulated youth of cities and large towns.

At twelve years of age young Miller could swing an axe or wield a hoe as well as the average workman. In 1865, with his family, he moved to Newark, Ohio, and in 1871 graduated from the High School at that place. He then matriculated with the University of Michigan, at Ann Arbor, graduating as Bachelor of Arts in 1875. In the autumn of that year he went to Edinburgh, Scotland, where he went through a special course of chemistry, natural philosophy and applied mathematics. From there he went to Berlin, pursuing the same line of study, having in view the profession of a mining engineer. But in 1877 he became seriously ill, through over-application, and was forced to suspend his studies for a time.