

Ecole Normale, and stood fifteenth out of twenty-two candidates. He did not enter, but decided to spend a year in further preparation, so as to secure a higher average standing on entrance. He spent this year in general study and attending the "open" or popular lectures then given and which are still given by the Paris professors. It was here that, in listening to the lectures of the noted chemist, J. B. Dumas, he became fired with enthusiasm for this subject and ever after was pleased to call Dumas "Master." At the end of the school year, 1843, when in his twenty-first year, Pasteur again took the entrance examination, ranking fourth. I am certain that the great majority of students would have been content with the rank of fifteenth rather than spend an added year for the honor of taking a higher entrance rank. This in itself gives us a good indication of the character of Pasteur. Thoroughness of preparation, patience in carrying on work and steady perseverance in it, mark him at this time and throughout his later life. It was at this time he adopted as his motto "Laboremus" — "let us work," for Pasteur believed thoroughly in work, and that work was and is the key to unlock the secrets hidden by nature's doors. Probably some of you will have read Prof. Osler's address some few years ago, entitled "The Master Word in Medicine", wherein Osler elaborates on this theme, and I would recommend this to the perusal of any who have not yet had an opportunity of seeing the same.

At the Ecole Normale Pasteur took a special pleasure in the lectures on chemistry of J. B. Dumas and Balard, the physics classes of Pouillet, and mineralogy of Delafosse, though careful not to neglect mathematics and other sciences. Pasteur was successful at the "Agregation" or examination, in 1846, ranking third, but decided to wait and take his degree of "Docteur es Sciences." It was while working for this that he began to direct his attention to the study of the tartaric acids, especially their crystalline form, as he had decided to make his doctor's thesis on a subject of crystallography. Let me give you Prof. Frankland's (Professor of Chemistry, Mason College, Birmingham) appreciative description of Pasteur's work on this subject. "The phenomenon which attracted the attention of young Pasteur was the existence of two tartaric acids apparently identical in chemical composition, in chemical properties, in crystalline form, and in fact in every detail excepting alone that the solution of one of these tartaric acids had no effect on polarized light, whilst the solution of the other turned the plane of polarization to the right. Submitting these