

solicitude! friendly confidence!—Pasteur knew the sweetness of all these early human joys; the whole of his life was permeated by them. The books he loved added to this flow of generous emotion." Surely we approve these words; and thinking of his industry, artistic faculty, ingenuity and patriotism, see in the boy the father of the man!

Pasteur was ever, during his time of tutelage at Besancon, thinking of Paris—"Paris where," said he, "thinking is deeper." At twenty years of age he presented himself before the Dijon Faculty and was passed for entrance into the "Ecole Normale" at Paris. But the standing of nineteenth in the list dissatisfied him, and so going to one of the best Parisian schools for a year, he again passed, and this time stood fourth. Absorbed now in the study of Chemistry he made his first stroke of genius. Like Minerva, from the head of Jove, he became a fully armed and equipped investigator. The professor of Chemistry had merely described the method of making phosphorus. Pasteur obtained a quantity of bones, went through the chemical process, and obtained 60 grains of phosphorus. This was his first scientific ecstasy.

His friend Chappuis, like himself, a Franche-Comtian, and he walking in the gardens of the Luxembourg discussed a sentence of Mitscherlich, the Berlin chemist and crystallographer, that from the tartar found in wine barrels, there were two tartrates, seemingly the same in composition, but acting differently under polarized light. He had written two important essays for his professor, and a third was read before the Academie des Sciences. He saw in studying the tartrate crystals what no one had before noticed that on one class of them there were minute hemihedral faces, on the others none. Or applying the polarized light he was disappointed. A further examination showed him that there were mingled together as paratartrates a right and a left series of hemihedral crystals, which neutralized each other in the polariscope. He had made a great discovery. His excitement was intense. At this juncture the young chemist's mother died. He was for weeks unnerved. His work stopped.

The news of his discovery began to be whispered about. Prof. Biot, who for thirty years had worked at polarimetry, tested the experiments. Pasteur was right. The old man was overwhelmed at the sight and said: "My dear boy, I have loved science so much during my life that this touches my heart!" His fame at once spread, and with true French impulsiveness it was decided that a chair must be found for young Pasteur, and he was forthwith appointed Professor of Physics at Dijon Lycee. Shortly after he was promoted to the professorship of Chemistry at Strasburg, and here in a short time was married to the daughter of the Rector of the Academy, M. Laurent.

Determined to test the matter of the racemic or paratartratic acid to the furthest, like one of the aforetime Alchemists, he went abroad to Germany on his quest. He went on to Vienna and also to Prague. He succeeded by ingenious methods in transforming tartaric acid into paratartratic, a thing held before to be impossible. His discovery came before the Academy of Sciences, and he was awarded the red ribbon of the Legion of Honor. He visited Arbois, his home, with the true ribbon of distinction, his given in the arts of peace, as his father's had been in the struggles of war. He received a prize of 1,500 francs, half of which he turned over to the Strasburg faculty, which was poor. In his discovery he had obtained the clue, to the long series of triumphs which he achieved in the department of fermentative changes.

Fermentation.

To Pasteur, who had received for his researches the Rumford medal from