

## Parisian Affairs.

PASTEUR'S EARLY LIFE—HIS TASTE FOR NATURAL SCIENCE, MATHEMATICS, AND CHEMISTRY—HIS FATHER'S TAN-YARD AND THE OLD SIGN-BOARD—HIS FIRST PROFESSORSHIP—THE BEGINNING OF HIS EXPERIMENTS—THE PART PLAYED BY MICROBES IN CONTAGIOUS AND INFECTIOUS DISEASES—HYDROPHOBIA—FERMENTATION—THE STERILIZATION OR PASTEURIZING OF MILK—THE THEORY OF SPONTANEOUS GENERATION—LORD SALISBURY'S TRUMP CARD.

ARBOIS is a small village in the Jura mountains, of 5,000 inhabitants. After the Napoleonic wars, an old soldier without home or fortune, and but recently married, removed to the village in question, about 1819, and opened a very humble tanning factory. On 27 December, 1822, a son was born, and baptized "Louis." The lad grew up like other village boys; he had a marked taste for rod-fishing, drawing and painting. Being very poor, he could purchase no canvas, so he made his pictures on wood. He mixed his own colours—when he had them. Thirteen of his pictures still exist in Arbois, chiefly the portraits of the big guns of the village. Louis had also a taste for natural science; had a weakness for mathematics and chemistry. His father helped him to get off his home lessons for the common school. There is an old college in the town; the father said he would die happy if Louis could become a professor in that humble institution. He passed his examination for a sizarship in the college, and then qualified to compete for a higher sizarship in the College of Besancon, and where he took out his B.A. degree. Next he returned to the old College of Arbois, where he was appointed an assistant professor. The father of Louis had his wishes fulfilled; Louis made him also happy by repainting and re-touching the sign-board he originally painted for his father's tan yard. A few days ago Louis died in the 73rd year of his age; France weeps over his remains. Science deplores the loss for Louis was Pasteur.

In 1868 Pasteur had a paralytic stroke, but the immediate cause of his death was blood-poisoning. He has been an invalid since a quarter of a century, and anxiety respecting his vast and varied experiments, and the wear and tear of having to defend them against opponents, told in his health. In 1887 he went to Bordighera to pass the winter and enjoy repose, but hardly had arrived when an outbreak of earthquakes compelled him to return to Paris, and obtained rest—by renewed working. During his fatal illness, Pasteur was cared for by his celebrated pupils—all eminent physicians and scientists now; turn by turn, they watched the expiring lamp. When all was over they dressed the remains in tomb toilette. He reclines calm in death; his massive head looks more massive still; but death has developed a wonderful expression of resolute energy. He died at Garches, near St. Cloud, where the Municipal Council of Paris fitted up an old cavalry guard-house for the carrying on of his experiments. It is in a quiet, healthy spot, overlooking the one estate of Marshal Sault; there is stabling for one hundred horses and each stall is at present occupied by horses, reared and cared for the preparation of Serum, the preservative vaccine against diphtheria. Above the stables were Pasteur's summer apartments. His town rooms were in the Pasteur Institute, that establishment raised by the subscriptions of nations to the discoverer of the cure for hydrophobia. Only one picture is in his private residence, and that in his bed-room; the sign-board he painted when a lad for his father's tan yard. He will ultimately be interred in the court yard of the Institute.

A résumé of his life-work, and that may be taken up when he ceased to be a provincial professor and was nominated, in 1857, Scientific Director of the Ecole Normale in the Me d'Ulm. Then commenced his experiments. Many conclude that he was a politician, on account of his unobtrusive chauvinism; he ever accepted that while science had no country, savants had; it was thus, that when the Prussians, in 1871, during the sieges, bombarded the Zoo gardens—whose animals starved citizens had long previously devoured, and gratefully, with famine appetite—he returned the diploma of honour conferred on him by the University of Bonn for his discoveries. The University replied in begging Pasteur to accept "the expression of its most profound contempt." But Virchow and Molsen had previously attacked France,

but in time were pardoned. In honour of the Kiel rejoicings, Pasteur also returned a decoration Emperor William sent him. Pasteur never graduated in medicine; he was a physiological chemist, wholly given up to experiments; he would rise in the middle of the night, or stop up all night, to supervise an experiment; he would remain days in his laboratory and take a bite of food at the corner of an operating table. It was by the employment of chemical processes to medicine, that he discovered the part played by microbes in contagious and infectious diseases. He isolated these microbes by successive "cultures" that purified them, that eliminated the *petits*, till he obtained the nourishing liquid the microbes sought. That exacted imagination, judgment, and perseverance, the constituents of scientific genius, which Pasteur possessed. He attenuated, turned the virus of disease, and rendered the vaccinated refractory to malady. In discovering the vaccine against human hydrophobia, Pasteur sealed his triumphs and glories. He paid every homage to the anterior work of Jenner, but the latter was not the chemist proceeding upon methodical principles. Pasteur demolished the old theories of fermentation, that of Liebig included, by showing that ferment was caused by microbes, minute beings, that developed and multiplied at the expense of the fermentable substances; these microbes he designated *anaërobia*, the only new term Pasteur invented to define the *petits* that lived without air, that is, without oxygen. Thus two and a half pounds of leaven will decompose two hundred and twenty pounds of sugar, converting it into alcohol and carbonic acid, and wholly excluding air. They are the dust and germs in the atmosphere, that contain the microbes of diseases. Pasteur also showed that it was a ferment—microbes—which converted the sugar of milk into lactic acid or sourness, and that by heating the milk, these microbes that produced so many infantile disorders, were rendered harmless. That process is called "sterilization" or "Pasteurizing" the milk, and which has saved thousands of infants lives. It is the same process that Pasteur employed, that of heat, to prevent beer and wine becoming sour. It is prepared vaccine that has prevented millions of cattle and sheep from being carried off by anthrax and malignant pustule; it is a vaccine that has conquered hydrophobia. Pasteur fought during ten years to demolish the theory of spontaneous generation, but it may be said to have given us the science of hygiene, by demonstrating that the germs of infection exist in the air, and hence the necessity to destroy them by disinfectants in the case of clothes, furniture, bedding, and apartments when polluted by contagion. It was owing to ignorance about the nature of the microbes, by employing no disinfectants that so many surgical operations hitherto failed. The surgeon who would now operate without disinfecting his instruments and hands would be tried for attempting to commit homicide. Before Pasteur's discovery, 33 per cent. of the patients in the maternity hospitals died; thanks to the employment of antiseptic processes, the death rate at present is almost nil. Such is the life-work of the great deceased. A state funeral or a private pantheon, seems poor rewards for such benefits to his fellow creatures; every new rescue from disease, will be the daily souvenir-list of Pasteur's glory. What subscription lists could be filled up, to erect a monument to his humanity, did only the thousands of lives saved or enriched by his genius only contribute a mite.

By sending the British fleet to Nankin—forgetting to ever call them back—Lord Salisbury has played a trump card; he chastises China most effectually, and restores the prestige of England. Nankin is the heart with all the vital arteries of the Empire. Hong Kong commands Canton, and Shanghai is a common head centre. After making the Son of Heaven do *Katow* to the Union Jack, and to indemnify the families—on the broad gauge basis—of her murdered missions' subjects let Britain compel China to undo the part of the treaty she made with France, handing over to the latter the Shan states she conditionally allocated to John Chinaman, and to rest at Nankin till that be accomplished, making the Celestials pay for the expenses, too, of the blockading squadron. That will give new work to Russia to discover more cash. The Muscovite must be in a terrible brown study at present seeing himself cast into the shade by the stalwart policy and admirable trap baited and laid by the British premier. If the Japs ever laugh, now is the moment for them to split their sides.

Z.