

thought which has been carried into every field of scientific research during the latter half of the century. To comprehend how the scientific imagination was directed into a hitherto untrodden field, we have to turn to the labors of a school of workers in France, soon to become famous through the discoveries mainly due to the labors of Pasteur, known to his countrymen, as to all others, as *le Grand Maître*. He may, indeed, in the Carlylean sense, be called a "Poet of the Unseen." Following, as a chemist, the studies of Spallanzani and Gay Lussac in the field of fermentation and putrefaction as applied especially to beer, he was soon attracted by Cagniard Latour's and Schwann's experiments proving the relation of the yeast-cells present, to beer fermentation at a time when Helmholtz had seemingly been forced to again support Liebig's stoutly maintained oxygen theory. But in 1857 Pasteur had established the vitalistic theory beyond question, when he proved the presence of rod-like cells distinct from yeast-cells by cultivating a new species of germ in sugar as present also in the souring of milk, wholly apart from albuminoid substances. It became his firm conviction that the fermentative process depended upon the life of the organisms present; and by the introduction of culture solutions gave us the first step in that science which we now term bacteriology. Following this came that other remarkable discovery that certain organisms to which he gave the name *anaërobes*, were paralyzed by the presence of that very oxygen which, till now, had been supposed to be the very essence of fermentative changes in organic substances, and soon proved that the real change was that of the fixation of oxygen during the growth of the bacteria themselves. But this germ theory had many battles to fight before it succeeded against the school of Liebig, especially prominent amongst whom was Pouchet, who taught an old doctrine of spontaneous generation. Not till the battle was renewed in England by Dr. Bastian, as late as 1876, again to be driven out of court by the beautiful experiments of Tyndall on germless air, as shown by rays of light, was the germ theory of *omnis cellula a cellula*, or *omne vivum ex ovo*, to take its place as the discovery which has absolutely transformed medical and surgical practice during the last quarter of the century and given us a practical working basis for that isolation and disinfection in contagious diseases which has reduced the prevalence and mortality to an extent beyond the most sanguine dreams of the early apostles of the new doctrine. Never was prophecy being more truly fulfilled than that of Pasteur: "*Il est au pouvoir de l'homme de faire disparaître de la surface du globe les maladies parasitaires, si, comme c'est ma conviction, la doctrine de la génération spontanée est une chimère.*" All will recall those experiments, published first in 1877, when this savant, who, at first with such trepidation, trespassed on the field of medicine—for as he said he