

The guiding principle, the pole star and compass combined of all its practical details, was the germ theory of putrefaction. This theory declares that putrefaction in organic substances under atmospheric influences is effected by living organisms, developed from germs floating in the atmosphere as constituents of its dust and not to the oxygen of the air, as was formerly supposed.

The proofs of the theory were, step by step, traced up, going back to Harvey's law, "*Omne Vivum Ex Vivo*," that all animals and plants are derived from eggs and seeds, and vitality is transmitted, never created. Many scientific people have from time to time doubted the truth of this law, and the reasoning deduced from it and upheld,—spontaneous generations as opposed to homo genesis, or generation from parents. Curiously at that time in Edinburgh University, John Hughes Bennett, the able Professor of Physiology, was a strong upholder of abiogenesis, as were Huxley and Charlton Bastian. But on the other side there was a growing weight of evidence from the time of Cogniard La Tour, who, in 1836, detected in yeast the *Torula Cervisia*, which seemed to be the essential constituent of the ferment; next came Schwann; lastly, and greatest of all, Pasteur.

Lister's experiments were very similar to Pasteur's. One only I would like to give in his own words, because that experiment I am sure clinched in his own mind the basic principle of his work, affording as it did the strongest evidence in favor of the germ theory.

Writing in 1869 he says:

"Two years ago last month I introduced portions of the same specimen of fresh urine into four flasks—(urine being a fluid combining transparency with a high degree of putrescibility). The body of each flask was about one-third filled with the liquid. After the introduction of the fluid the necks of three of them were drawn out into tubes rather less than a line in diameter, and then bent at various acute angles. In the other the neck was drawn out to a calibre if anything rather finer, but cut short and left vertical. The liquid was then boiled for five minutes, the steam issuing freely from the open end of the narrow neck of each flask. The lamp being removed, air, of course, passed in to take the place of the condensed aqueous vapor, and during the two years that have elapsed a considerable portion of a cubic inch of fresh air has entered every night into the body of each flask to exert its influence on the liquid. In the case of the flasks with contorted necks, the air moving to and fro through the tube soon