

He opened twenty sealed flasks containing organic infusions in the pure air of the Mer de Glace, and only one thereafter showed signs of life; but eight out of twenty opened on the plains, and all of the twenty opened in town, developed germs. By these and other experiments, which are commonplace already—*e.g.* finding the germs which were caught in the cotton wool filters, and proving that they developed when placed in suitable solutions—he was led to his brusque conclusion that “spontaneous generation is a chimera”, which, as a statement of fact, is true.

Although the great achievements of Tyndall (1820–93) were in physical, not biological research, his work in connection with spontaneous generation must always have honourable mention. As early as 1869 he had made ingenious experiments in regard to the particles which float in the air, and for some years afterwards he continued to apply the exact methods of experimental physics to the question, “Can air, retaining all its gaseous mixtures, but cleaned from mechanically suspended matter, produce putrefaction?” The result was to show that when dust was present, rotting occurred in the exposed infusions; when dust was absent, there was no rotting.

In the course of his experiments Tyndall made the important discovery, which has been recognized by all bacteriologists, that to secure absolute sterility in infusions it is safer to have an *intermittent* application of heat. In other words, what a single boiling may not ensure, since the spores of some bacteria are much more resistant than the full-grown cells, is certainly effected by subjection to high temperature on three consecutive days.

In concluding his experiments, Tyndall said, with justifiable confidence: “There seems no flaw in this reasoning; and it is so simple as to render it unlikely that the notion of bacterial life developed from dead dust can ever again gain currency among the members of a great scientific profession”.

In his presidential address to the British Association in 1870 Huxley declared his conviction that the fact of