

After Spallanzani's experiments the discussion took another turn. It was objected by the chemists, who had now discovered oxygen, that life could not be expected where this gas was more or less absent, and that the boiling process might irretrievably injure the "organic molecules". Schultze and Schwann (1836, 1837) were thus led to make fresh experiments; they carefully boiled the infusions and supplied air which had been passed through red-hot tubes,—no animalcules appeared; they then supplied air which had not been so purified, and in the same infusions the animalcules appeared. This was improved upon by Schröder and Dusch (1854-59), who did what we now so often do as a class experiment: they boiled infusions, and while the steam was coming off plugged the neck of the flask with cotton-wool. This allows the passage of oxygen, but keeps back germs; and in most cases the sterilization is quite effective. Meanwhile Schwann and Cagniard de la Tour had been working towards the conclusion for which Pasteur did so much to win conviction, that all putrefaction and many kinds of fermentation are due to the activity of minute living organisms. Thus the discussion narrowed till there was, it might have seemed, no debatable point left.

But error dies hard, and in 1859 Pouchet published his *Hétérogénie*, in which almost all that could be said in favour of spontaneous generation was Pouchet and again said. In 1858 he had claimed before Pasteur. the Academy of Sciences that he had succeeded in proving the origin of microscopic organisms apart from pre-existing germs. The historical interest of Pouchet's work in this connection is simply that it provoked Pasteur, against the advice of his friends, to some of his fine work. Pasteur knew more than Pouchet as to the insidious ways of microbes; he showed the weak point of his antagonist's experiments, and gained the prize offered in 1860 by the Academy, for "well-contrived experiments to throw new light upon the question of spontaneous generation". Pasteur threw light on the subject by his study of the organized particles—many of them living or dead bacteria—which float in the air.