Fortunately for the success of the demonstration, those which have so far been discovered are all parasitic and consequently experiments can be made by animal inoculation and the presence of the hypothetical parasites demonstrated by the disease produced in the animal. In addition to this, however, we have in the laboratories, filters which can successfully filter out the vast majority of known bacteria and which have been used regularly for this purpose for many years. These filters are all of the same type, in that they have pores so small that bacteria cannot be washed through them. The first to be manufactured consisted of an unglazed porcelain and was called the Pasteur-Chamberland filter, but there are now a number of different forms such as the Berkefeld which consists of compressed infusorial earth, and which are equally successful. The impermiability of a Pasteur-Chamberland or a Berkefeld filter to bacteria is due to the fact that the minute passages or pores are not only small but tortuous and consequently the first organisms which pass on to the surface or into the mouths of the pores are caught and form a film which assists in rendering the filters even more effective. On the other hand it has been shown that many bacteria which cannot be driven through these filters by pressure can grow through their walls if given time and especially if they have the power of independant motion. The effectiveness of the filter is therefore due to the thickness of the walls and the tortuosity of the passages as well as to their minuteness.

An organism which could pass readily through such a filter would probably be of ultra microscopic size and it has consequently been by a combination of the method of animal moculation and filtration through such a filter that these organisms have been discovered.

Practically the first knowledge which we have of such minute living creatures resulted from the work of Loeffler and Frosch upon foot and mouth disease. These investigators undertook for the German Government a study of this disease which is a serious menace to the stock raising industry of various parts of the world and has for the human race the additional interest in that it is communicable to man.

In this disease, the characteristic feature is the presence of small vesicles or blebs upon the mucous membrane of the mouth and lips, and also about the hoofs of the forefeet. The eruption of vesicles is accompanied by more or less constitutional evidence of disease. The disease is exceedingly contagious, sweeping through a herd or from herd to herd with great rapidity. The vesicles on puncture yield a small amount of clear serous fluid and Loeffler and his colleague found that the contagion, whatever it was, was present in this serum. Micro-