grow at 36 degrees C. for 24 hours, and inoculating the resulting culture into the animals chosen for experimentation. In this connection the reports of Norris and Pappenheimer (2), of Duval and Lewis (3), and of Buerger 4), on the relation of allied and associated organisms are of great interest. It is possible that the question of symbiosis must be solved before our difficulties concerning lobar pneumonia have cleared away.

The symbiotic organisms are Streptococcus pyogenes, Friedlander pneumo-bacillus, staphylococcus aureus and albus, influenza bacillus, pseudo-diphtheria bacillus, and streptococcus mucosus capsulatus. Anyone who has worked at the isolation and segregation of pure cultures will realize how gigantic is the task here represented.

A third difficulty lies in the relation of the leucocytes to this infection. One of the most striking clinical phenomena in lobar pneumonia is the polynuclear leucocytosis, carrying with it good prognosis varying directly with its degree, and yet a glance at some of the haze surrounding it shows how little we understand it. For instance: In spite of the favorable aspect of a leucocytosis in these cases there is grave doubt that this favorable influence is due to the phagocytic power to which we usually ascribe it, for Rosenow (5) found that 75 strains of pneumococci from the blood in pneumonia were insusceptible to phagocytosis when first isolated, a point associated, as he and others have shown, with virulence of the organism. Rosenow (Loc. cit.) ascribes much of the difficulty in obtaining phagocytosis of virulent pneumoccocci to a substance contained in the organism which he calls "virulin." This he is able to extract by autolysis in salt solution. Hiss and Zrisser (6), on the other hand, have laid great stress on the attitude of the leucocytes themselves in this infection, and have endeavored to solve some of the difficulties by the use of leucocytic extracts, and, within a month or two, Ruth Tunnicliffe (7) has published results of experiments from which she draws the following conclusions:

I. There is an increase in phagocytic power of leucocytes in mild cases of pneumonia.

2. In sever cases the power of phagocytosis is diminished until the patient improves, when it rises above normal.

3. There is no specificity in the phagocytic power of the leucocytes.

I must not enter this discusion further, but what I have said will serve to indicate how uncertain is our knowledge on this side of the question.

A fourth difficulty arises from lack of knowledge of the chemical processes which occur in the lobe of the lung which bears the assault of the infection and passes through the stages of congestion, red and grey hepatization, and resolution. In this field our knowledge has within the past few years gained some headway. Most interesting, probably, is the