part of the sphincter protruding into the lumen of the intestine in the form of a papilla separated from the intestinal wall by a groove. In high and in low focus the proximal arch of this groove appears as a transverse line at the base of the papilla. It is this line which stands out so strikingly under low magnification when the whole thickness of the larva is near focus at the same time and the optical impression of the part of the arch behind as well as the part in front of the papilla reaches the eye of the observer simultaneously. The sphincter itself being of a very low refractive index gives the impression of an open space between the transverse line mentioned above and the highly refractile distal part of the oesophagus.

124 (2647)

The specific effect of pneumococcus soluble substance on the growth of pneumococci in normal serum-leucocyte mixtures.

By RICHARD H. P. SIA. (Introduced by O. H. Robertson).

[*From the Hospital of the Rockefeller Institute for Medical Research, New York City, and the Department of Medicine, Peking Union Medical College, Peking, China.*]

In a previous communication[1] a method was described for demonstrating the growth-inhibitory and bactericidal action of normal serum-leucocyte mixtures for the pneumococcus. Serum and washed leucocytes, contained in small tubes, were seeded with varying numbers of pneumococci. The tubes were then sealed with paraffine and attached to a specially devised apparatus which produced constant agitation during incubation. By means of this method, it was found that the growth of small numbers of pneumococci of low virulence, for cats, was markedly inhibited by the cat serum and leucocytes. On the other hand, small numbers of a strain virulent for rabbits, were able to grow in the rabbit serum-leucocyte mixtures.

By employing avirulent strains of pneumococci for rabbits and cats with the same method, a study has been made to determine

[1] Robertson, O. H., and Sia, R. H. P., *J. Exp. Med.*, 1924, xxxix, 219.

the action of the pneumococcus soluble substance[2, 3, 4] on the growth of such strains of pneumococci in the rabbit or cat serum-leucocyte mixtures. It was found that whereas the growth of a small number of avirulent pneumococci was normally inhibited by such mixtures, the addition of a very small amount of the purified soluble substance of the homologous type was able to cause growth of the organisms in them. Such action of the soluble substance was shown to be highly specific to type. A type II substance assisted the growth of only type II pneumococcus, likewise a type III substance, the growth of type III pneumococcus only.

Experiments employing broth filtrates of young pneumococcus cultures in place of the purified soluble substances gave similar results, thereby established the identity of the purified substance with the substance originally described in the cultural fluids of pneumococcus cultures.

From the results of previous studies, such action of the pneumococcus soluble substance may be interpreted as having the power of rendering an avirulent pneumococcus of the homologous type virulent.

125 (2648)

The effect of chemical preservation of eggs upon the stability of their vitamin contents.

By ERNEST TSO. (Introduced by O. H. Robertson).

[*From the Department of Medicine, Peking Union Medical College, Peking, China.*]

The Chinese preserved eggs or "pidan" are produced on a commercial scale from fresh ducks' eggs, and are perhaps as much relished by the Chinese people as cheese is in Western countries. In preserving, each egg is coated with a layer about 7 mm. thick of a mixture containing pure soda 5, burned straw ash 25, table salt 4, slacked lime 40, and boiling water 26. This again is

[2] Dochez, A. R., and Avery, O. T., *J. Exp. Med.*, 1917, xxvi, 477.

[3] Heidelberger, M., and Avery, O. T., *J. Exp. Med.*, 1923, xxxviii, 73.

[4] Heidelberger, M., and Avery, O. T., *J. Exp. Med.*, 1924, lx, 301.