Their number varies from a few organisms, far outnumbered by other bacteria, to countless numbers in almost pure culture. If small purulent masses are carefully separated from the sputum and washed in sterile salt solution or bouillon, and this washed sputum is smeared on blood-agar tubes, minute dewdrop-like colonies are found often only with the aid of the hand lens after twenty-four to forty-eight hours in the incubator. The colonies show most plainly in the neighborhood of colonies of other organisms developing on the surface of the blood-agar. They thus grow most luxuriantly about colonies of staphylococcus pyogenes aureus, a biological peculiarity first described by Grassberger.29 The colonies thus growing in symbiosis are more opaque and granular than when the organism grows in pure culture, and it is probable that a failure to recognize this different type of colony explains to some extent the infrequent finding of influenza bacilli. In pure cultures, the bacilli not infrequently fail to develop after several generations, but in symbiosis with the staphylococcus aureus transplantation may be indefinitely continued and abundant growths obtained. Transplantation from the larger and more opaque colonies growing in symbiosis with the staphylococcus always succeeds in reproducing the minute dew-drop colonies of Pfeiffer's description, if the succeeding culture is pure.

No growth is obtained on plain agar without blood.

In their viability and temperature optimum these bacilli conform in all respects to Pfeiffer’s organisms. They are also identical in their non-pathogenic effect on animals.

Variation in the morphology of the bacilli may be observed on different media and with the age of the culture, but from pure cultures of such divergent types of the organism, a reversion to the typical form can be observed after transplantation to more favorable conditions.

The influenza bacilli in these cases, occurring outside of an epidemic of influenza, are, so far as our present knowledge goes, identical in their biological characters with the influenza bacilli described by Pfeiffer.

CONCLUSIONS.

1. Of 186 non-tuberculous infections of the respiratory tract, observed clinically, for the most part, bronchitis:

(a) A mixed infection with various organisms has been found in 120 (64%).

(b) A comparatively pure infection with one group of organisms was found in 66 cases (36%).

Of these pure infections those due to influenza bacilli comprise the largest group, with a smaller number of cases of pure infection with the pneumococcus, micrococcus catarrhalis, etc.

2. The pure infections, however, tend to become mixed, as the case progresses, and the observer must then remain in doubt, in the presence in the sputum of two or more groups of organisms, as to the relative importance of any one of the infecting agents.

3. In the clinical picture, the symptoms of onset, the course and duration of the different pure infections, there seems to be nothing distinctive. They all tend to set up diffuse or local bronchitis and a varying degree of broncho-pneumonia. The amount of prostration may be as great in one as in the other.

4. The pathological picture in cases of broncho-pneumonia, due to the different organisms, likewise seems to be similar in the character of the exudate, its varying extent and intensity and the tendency, in a small proportion of cases, to end in permanent damage to the pulmonary substance.

5. These results of pulmonary invasion are not infrequently mistaken clinically for pulmonary tuberculosis. Of 85 cases of pneumonia, associated with various organisms, well marked localized pulmonary abscesses or induration or both, were found in 8. No tuberculosis could be demonstrated at autopsy.

6. From the clinical resemblance of such cases to pulmonary tuberculosis, the presence of the tubercle bacillus in the sputum must be regarded as the only infallible indication of this condition.

New Instrument.

KNIFE AND BLUNT DISSECTOR COMBINED.

BY J. C. COLLINS WARREN, M.D., BOSTON.

The advantages of a blunt instrument in separating loose tissue in the neighborhood of vascular parts are apparent to all surgeons who are accustomed to use a blunt dissector. When it is not at hand the handle of the scalpel is a frequent substitute, the instrument turning easily in the hand of the operator. The knife handle is, however, usually too thick to be well adapted for this purpose.

It occurred to me some time ago to have an appendage made to the handle to overcome this objection. The result is the instrument here depicted which has been made for me by Mr. Gived of Codman & Shurtleff. The “dissector” may be made of any shape or thickness desired, and I have had made some patterns that are much thinner than the usual blunt dissector, and others that have been slightly curved so as to push easily under a large vessel. By turning the instrument on edge the vessel can then be clamped before dividing it.

The instrument facilitates dissection in confined spaces such as the neck, the pelvis, or the axilla. I have found it most useful in the latter region in operations for the removal of the breast. It can also be used with advantage in separating the bundles of muscular fibers in operations for chronic appendicitis, and indeed in any part of the body where extensive dissections are required, as in the removal of goitre or other large tumors.