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Pneumococcus grouping on a thousand cases.

By L. W. FAMULENER and LUCILE ROBNEY.

[From the Pathological Laboratory, St. Luke's Hospital, New York City.]

An analysis of the results obtained by the pneumococcus grouping test (Rockefeller Institute method) performed upon 1,000 sputa from hospital patients suffering from acute respiratory infections showed, roughly, that only 80 per cent. of the specimens submitted for examination yielded a sufficient number of pneumococci for group determination. The washed sputum was either injected intraperitoneally into a mouse, or cultured in the Avery medium, or by both methods in some instances, for a growth of the organism. The presence of the pneumococcus was determined by its morphological characteristics in stained preparations, and by its bile solubility. The remaining 20 per cent. of sputa either failed to show the pneumococcus in culture, or it was present in such scant numbers that the serological test was considered to be of a negative character. In general, those sputa yielding negative results came from patients suffering from influenza, bronchopneumonia, pulmonary tuberculosis, etc. Stained preparations of materials or cultures from such cases usually revealed either the streptococcus, staphylococcus, *B. influenzae*, or *B. Friedlander* (very rarely), as the predominating organism. Not infrequently the specimen submitted to the laboratory consisted principally of saliva, so it could not be considered a true sputum, as only the usual mouth organisms developed in culture. Therefore the latter group of tests will be excluded from further consideration in this report, and attention will be directed to the group where the laboratory tests gave positive results.

The study embraces approximately 800 cases which were admitted to St. Luke's Hospital during the years 1918 to 1921, inclusive. The average percentage incidence of each group of pneumococci for this period was as follows: Group I, 11.5 per cent.; Group II, 4.9 per cent.; Group III, 13.6 per cent.; and

Group IV, 70 per cent. The highest incidence for all groups was during the months of January, February, and March, with a decided drop in the late spring and summer months. It is interesting to note that during these four years, no Group II pneumococcus cases, in a series of 40, occurred in the months of June, July, and August. But 12.9 per cent. of the cases (93) belonging to Group I, 8.2 per cent. of cases (110) belonging to Group III, and 8.7 per cent. of the cases (570) belonging to Group IV, occurred during these summer months.

Further analyses of the data mentioned in the foregoing preliminary report are in preparation, the results of which we hope to report more fully later.

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The hemolytic properties of the pneumococcus.

By **JULIA A. W. HEWITT** and **L. W. FAMULENER.**

[From the Pathological Laboratory, St. Luke's Hospital, New York City.]

Recently an interesting phenomenon was observed in culture plates made with the blood from a fatal case of septicemia with meningitis, which followed mastoiditis. The blood culture after 24 hours' incubation showed a considerable number of characteristic green colonies which proved to be pneumococcus, Group IV. One of the culture plates which had been used for demonstration purposes before a class of students was stored in the ice box to be preserved for a later section. Some days later, upon its removal from the refrigerator, it was found that marked zones, simulating hemolysis, had appeared about the colonies, giving an appearance almost identical to that produced by hemolyzing types of streptococci. In our previous experience with pneumococcus blood-culture plates, no hemolyzing effect of this nature had been noted, although no continued observation under similar conditions had been followed. The standard reference- and text-books on bacteriology consulted failed, with one exception, to note that pneumococcus colonies might produce hemolysis in blood-agar plates. Zinsser¹ states that hemolysin production, which occurs

¹ Hiss-Zinsser-Russell, "Textbook of Bacteriology," 1922, 5th Ed., p. 445.