

phenolized salt solution. For the gram-positive bacteria the standardizing was done by using Wright's method and counting chamber; the influenza bacilli were counted by ratio with standardized pneumococci." The toxicity of the bacteria was tested on laboratory animals, and also on human volunteers for the *Streptococcus hemolyticus*, large doses producing no untoward effects. Each cubic centimeter of the mixed vaccine contained 5 billion *B. influenzae*, 3 billion each of pneumococcus Types I. and II., various strains; 1 billion of Type III., and 100 million *S. hemolyticus* of two strains. These were sterilized separately for an hour at 56 C., and then mixed with 0.5 per cent. phenolized salt solution to make the desired amount. In addition to this they prepared a lipovaccine, to weighed portions of which a sterile mixture of 10 per cent. lanolin in oil of sweet almonds was added and the mass again triturated for three hours. Each cubic centimeter contained 2 mg. of the bacterial powder. One c.c. of this mixture caused no serious results in a guinea-pig, and the same amount caused moderate reactions in inoculated volunteers. Of the civilian population 1,080 were inoculated, also 1,950 marines. These circulated freely in Vallejo and San Francisco. The 3,100 men from the San Pedro Naval Camp were inoculated about November 15, when the epidemic was in its recrudescence in Los Angeles and vicinity. The observations included white and differential blood counts, and agglutination tests. The reactions were comparatively trivial, beginning about six hours after inoculation and abating within thirty-six, in no case lasting over forty-eight hours. The writers state that in view of the low incidence of the disease in the inoculated persons the facts undoubtedly indicate a noteworthy protection against influenza and its complications, given by the mixed vaccines freshly prepared from the chief etiologic bacteria, and should encourage further work in this line. An attempt is now being made to regroup the Type IV. pneumococcus so as to add it to a mixed vaccine when needed.

INFLUENZAL BRONCHOPNEUMONIA

E. R. LeCount, Chicago (*Journal A. M. A.*, March 29, 1919, says the first feature observed in the lungs in influenzal pneumonia to attract the attention of the practitioner in fatal cases is the relatively small portion of the organ involved, and, with this, a perhaps even more noticeable feature, the huge watery and often bloody exudate in the lung tissue and bronchioles. It forms one of the most interesting and tell-tale signs of influenza. There is also some fluid of the kind in one or both pleural cavities. It is scant in fibrin, and unlike the pleural exudate of any other form of acute pneumonia. The pneumonia is commonly called