phenol is added and the precipitate dissolved. The volume measured and diluted with 0.5% salt solution containing 0.4% phenol to one tenth of the original serum used. The solution is kept in a cool place for at least 24 hours for any possible clouding or precipitation that may occur. It is then passed through paper pulp to clarify and one percent sodium chloride added to bring the salt content up to 1.5%. It is then filtered (Berkefeld) and tested for sterility and potency.

The method of concentrating the antisera without the primary dilution is as follows: Antiserum containing 0.4% trikresol is dialyzed in running tap water for 3 days and 0.2% of trikresol is added and sufficient sodium chloride to have the salt concentration 1/20 normal. It is then chilled to 5°C. after which the reaction is corrected to pH 5-5.1. The method described in the foregoing is now followed to conclusion.

As this work was finished the November *Journal of Immunology* was received. In it Doctor Kenneth Goodner reports on experiments on the concentration of antipneumococcus and antimeningococcic horse sera. His work and ours is somewhat similar. He stresses cold temperature and the necessity for determining by trial the amount of distilled water to be added to 5 cc. of the antisera to obtain the first cloud and then adding 8 cc. more. This he states will precipitate all the antibodies. His work indicates a purer antibody can be obtained than we report in this paper. He states, however, nothing about removing the chill producing substances which we believe to be in his product.

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A Practical Method for Concentrating Chill Free Pneumococcus Antibodies from Plasma Without Use of Salt Precipitations.

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Antipneumococcus plasma containing 0.4% trikresol is dialyzed in running tap water for 4 days. This will remove sufficient salts for the method to be described. The plasma and precipitate consisting mostly of fibrinogen, euglobulin and antibodies are removed from the dialyzing bags, sufficient sodium chloride or sodium sul-

phate is added to make the dialysate one-twentieth normal (50 cc. normal sodium chloride or sulphate to each liter) and placed in a cold room over night to lower the temperature to about 5°C. Two-tenths percent trikresol is then added and the mixture adjusted to pH 5 to 5.1, using gamma dinitrophenol 0.025% solution as indicator. The antibodies are soluble at this pH and salt content. This mixture is allowed to remain at about 8°C. for 4 hours, during this time the insoluble substance fibrin, fibrinogen, euglobulin and the chill producing substance will have flocculated and settled to about 1/20 of the fluid volume. At this cold temperature it is then filtered clear through paper pulp (filtration is very rapid, 20 liters within a half hour). The filtrate is adjusted to pH 6.8 using para nitrophenol 0.1% solution as indicator, and allowed to stand over night at cool temperature for further precipitation, principally fibrin like substance at this pH. It is then filtered through paper pulp and trial tubes set up to determine the amount of distilled water necessary to precipitate the antibodies. This rarely requires more than two and a half volumes of distilled water. The required water is added and the precipitate allowed to settle in cool room over night. The following morning the supernatant fluid is decanted and the remainder of the precipitate centrifuged. The centrifuged precipitate is roughly estimated in cubic centimeters and a like amount of one percent sodium chloride containing 0.8% phenol is added and the precipitate dissolved. The volume measured and diluted with 0.5% salt solution containing 0.4% phenol to one-tenth of the original plasma used. The solution is kept in a cool place for at least 24 hours for any clouding or precipitation that may occur. It is filtered through paper pulp to clarify and 1% sodium chloride added to bring the salt content up to 1.5%. It is then filtered (Berkefeld), tested for sterility and potency.

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A Modified Method for the Production of Antipneumococcus Serum in Horses.

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The method of preparing antisera consisting of the use of formalinized sediment of 18-hour pneumococcus broth culture injected