after one hour. Results for phenol red are reported in terms of the fraction of the dye remaining in the stomach after one hour. In all cases except one the volume of the fluid and bread in the meal was 230 ml. In one instance 150 ml. of fluid were given. The volume of gastric contents withdrawn at the end of an hour averaged 54.8% of the meal, between extremes of 38 and 97%. The volume of sediment was noted after standing at room temperature until the maximum sedimentation has been obtained. In 13 cases the average normal of sediment was 61% of the volume of gastric contents, between extremes of 36 and 71%. The average phenol red concentration of gastric contents was 23.13% of the amount ingested (a. d. $= \pm 5.7$ A.D. $= \pm 1.6\%$).

No effort is made at this time to interpret these results, nor to review the literature on this subject covering this age group.

4968

On the Dialysability of Proteins.

ARTHUR F. COCA.

From the Department of Serology, New York Hospital, and the Department of Bacteriology, Cornell University Medical College.

In several of his recent studies upon atopic hypersensitiveness (Idiosynkrasie), W. Jadassohn[1, 2] has reported the fact that the excitants of the hypersitiveness (to celery, guinea pig serum and egg white) are dialysable. In the dialysate from egg white, the presence of protein could not be demonstrated with any of the chemical tests for protein. From these observations, this author draws the conclusion that the atopens in the materials mentioned are not proteins and not antigens. He considers them therefore as belonging in the group of the haptens (Landsteiner).

Jadassohn did not directly test any of the dialysates for the presence of antigen, and he seems therefore to base his conclusion that the dialysable atopens are not antigenic, upon the universally accepted assumption that the antigens are colloids and therefore not dialysable.

Jadassohn does not state in any of his reports, what kind of membrane he used in his experiments.

[1] Jadassohn, W., *Schweizerischen Med. Woch.*, 1926, No. 27.

[2] Jadassohn, W., *u. Zaruski. Marg., Arch. f. Derm. u. Syph.*, 1926, cli, 93.

I have used both animal membrane (fish bladder), and the collodion sac, and with these I have been able easily to confirm Jadassohn's results with pseudoglobulin, albumin, and mucoid of egg white. Other materials were not used. Each sac was tested for leakage, under moderate pressure in a dark room, with hand lens.

The dialysates collected in distilled water were concentrated by fanning to about 1/500 volume and tested with 3 antisera, which were quite specific for the 3 proteins mentioned above. All 3 proteins could be identified in the concentrated dialysates. In 2 instances, the concentration of the dialysed substance was sufficient to permit the chemical demonstration of biuret.

In one experiment with ovo-mucoid, the dialysed solution (5-10%) was quantitatively compared with the concentrated dialysate, with the specific precipitation method, and the biuret test (colorimetric); with the former, the concentrated dialysate appeared about 1/8 as strong as the dialysed solution, and, with the latter, the ratio was 1-7.

The coagulable proteins show a tendency to spontaneous coagulation after they have passed through the membrane and have been concentrated by fanning.

The antigenic property of the protein in the dialysate from pure ovo-mucoid, was demonstrated by injecting the concentrated dialysate into 2 guinea pigs. Two weeks later, one of these animals died in typical shock, on the intravenous injection of 0.2 cc. of the concentrated dialysate, and the other died, typically, after the intravenous injection of 0.2 cc. of the dialysed ovo-mucoid diluted 1-10. Two normal guinea pigs received 0.4 cc. of the two solutions intravenously, without symptoms.

The proteins in the dialysate are therefore not haptens.

The question of the permeability of the collodion membrane to protein, has been previously considered by Antropoff[3]; and Sörensen[4] found coagulable egg protein "in the outer liquid," in his experiments with the collodion cap.

The experiments here reported could not be carried out with parchment sacs because none was found, of the larger size, that did not leak under pressure.

[3] Antropoff, A. von, *Z. f. physik. Chem.*, 1911, lxxvi, 721.

[4] Sörensen, S. P. L., *Compt. Rend. Carlsberg*, 1915-17, xii, 323.