

When a solution of hem (prepared by dissolving hemin crystals in dilute sodium carbonate) is added to an equivalent amount of globin and the mixture is buffered to pH 7.4, the absorption band between C and D ($\lambda = 634$) characteristic of methemoglobin can be seen. In 2% Na_2CO_3 solution the 3 bands of alkaline methemoglobin mentioned by Hill and Holden can be seen. When compared with a natural methemoglobin solution of the same concentration, however, the intensity of the bands given by the globin-hem mixture is very much weaker. In fact, the difference in color between the methemoglobin and the globin-hem mixture in carbonate solution is apparent to the naked eye. The globin solution prepared according to Hill and Holden behaves in the same way as one prepared by our method. We are not prepared to interpret this finding at present, and we are studying further the relationship between hem, globin and methemoglobin.

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Method for Concentrating Protein Solutions Without Denaturation.

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In the preparation of natural globin by the method described in the preceding paper the solution obtained is too dilute for certain purposes. It has been found impossible to concentrate the solution by any of the usual methods without great loss as the globin is very susceptible to denaturation by a variety of agents. Finally a method is found which works well for globin and should be applicable to any protein solution.

The principle of the method is simple, but it does not seem to have been employed as a laboratory technique. The protein solution is concentrated by dialysis against a concentrated solution of another protein or some other substance which cannot diffuse through the membrane. Fresh egg white serves this purpose very well. It is convenient to insert into the tube a rubber stopper with a large hole. The tube is tied to the stopper with a string which serves for hanging the tube.

A collodion tube such as is used for dialysis is prepared. Transfer to the tube a measured volume of water and place the tube in about 10 volumes of fresh egg white. The dialysis is allowed to take place in the ice chest.

After 24 hours the water in the tube will have decreased to a small fraction of the original volume. This water is removed with a pipette and tested for protein. If the test is negative, the collodion tube is suitable for use.

The dilute protein solution to be concentrated is transferred to the tube and dialyzed against egg white. As the solution becomes concentrated more of the dilute solution is added to it from time to time. The dialysis is continued with frequent change of the egg white until the desired concentration is reached. If it is necessary to remove the crystalloids which have come into the solution from the egg white, this can be accomplished by dialysis under pressure against distilled water in the usual way.

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Behavior of Adrenal Transplants in the Transparent Chamber Inserted into the Rabbit's Ear.

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Adrenal transplants were made into the ears of 6 adult rabbits by means of Sandison's technic.¹ The left adrenal gland was removed aseptically from the rabbit and placed in warm saline for 10 to 15 minutes. Thin pieces of both cortex and medulla were taken and inserted into the chamber adjacent to the blood vessels. Immediate observation showed that the transplant consisted of cell masses too opaque to be clearly seen, with a few isolated cells at the edge. These individual cells appear to live for 2 to 4 weeks, exhibiting some migrating activity but never active amoeboid movement. They are quite large and show vacuoles and a number of highly refractile granules. In 4 days to a week the vacuoles became more numerous and many of the cells began to shrink, fragment and disappear. No cells were seen to be growing and multiplying.

The main transplant showed some living cells along the margin but the center when visible appeared to be necrotic and became slowly absorbed in the course of about 4 weeks.

The transplant apparently retards the growth of the connective tissue and blood vessels in the chamber. No adrenal cells were seen to live in among the connective tissue, nor was there any indication

¹ Sandison, J. C., *Am. J. Anat.*, 1928, xli, 447.