mentation time. A sample of powdered human-blood serum-albumin shortened the sedimentation time when it was suspended in Locke's solution, and prolonged it when suspended in plasma. A solution of beef-blood serum-fibrinogen suspended in Locke's solution and in plasma did not significantly affect the sedimentation time. Witte's peptone suspended in Locke's solution or in plasma prolonged the sedimentation time insignificantly. Talc or kaolin were without effect on the sedimentation time. Dog-bile suspended in plasma prolonged the sedimentation time.

9068 P

Propylene Glycol: Rate of Disappearance from the Blood Stream.

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The increasing use of propylene glycol as a solvent for various pharmaceutical preparations[1] and coloring extracts,[2] and its possible use as a food, indicates the need for a better understanding of the actions of this alcohol. The known production of oxalic acid in the metabolism of ethylene glycol[3, 4] has been responsible for the substitution of propylene glycol for the former, since oxalic acid is not a possible metabolite of the latter.[5] The properties, general actions, and acute and chronic toxicities of propylene glycol have been investigated by Seidenfeld and Hanzlik[5]; toxicity was unusually low.

The concentration of propylene glycol in the blood was determined by treating the protein-free filtrate with a solution of potassium dichromate in strong sulphuric acid, and estimating the amount of reduced dichromate iodometrically. From this value was subtracted the amount of oxidizable material normally present in the blood, a variable which remains relatively constant in fasting animals. In urine, the glycol was estimated directly by using an aliquot portion

1 Brown, C. L. M., *Quart. J. Pharm. Pharmacol.*, 1935, **8**, 390.

2 Rae, J., *Pharm. J.*, 1935, **135**, 539.

3 Hunt, R., *Ind. Eng. Chem.*, 1932, **24**, 361.

4 Hanzlik, P. J., Seidenfeld, M. A., and Johnson, C. C., *J. Pharm. Exp. Therap.*, 1930, **41**, 387.

5 Seidenfeld, M. A., and Hanzlik, P. J., *J. Pharm. Exp. Therap.*, 1932, **44**, 109.

of a 1:100 dilution, and subtracting the blank value for normal urine from the final result.

The concentration of propylene glycol in the bloods of 2 dogs and 10 rabbits was followed for variable periods after giving doses from 1 to 12 cc. per kilogram body weight, intravenously or orally; the dogs were used repeatedly.

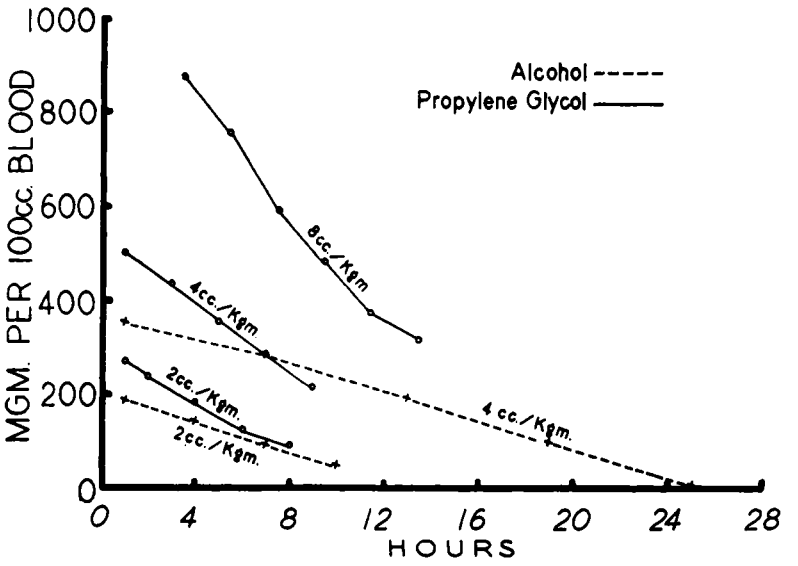

FIG. 1.

The rate of disappearance of propylene glycol from blood of dogs as compared with alcohol.

Figure 1 shows the rate of disappearance of propylene glycol from the blood of dogs following the administration of 2 cc. and 4 cc. per kilo intravenously, and 8 cc. gastrically; the intravenous doses are compared with similar doses of ethyl alcohol.

The rate of disappearance of propylene glycol from the blood is proportional to its concentration in the body, as contrasted with alcohol, which disappears at a constant rate.[6] This difference may possibly be accounted for by excretion of the propylene glycol by the kidneys, since it was possible to recover one-half the amount injected from the urine.

The concentration of propylene glycol in the blood after gastric administration indicates rapid absorption of the compound. Once it has entered the blood stream, it escapes rapidly and apparently diffuses throughout the body.

[6] Newman, H. W., and Cutting, W. C., *J. Pharm. Exp. Therap.*, 1936, **57**, 388.

The depressant effect is much less than that of alcohol. About 1100 mg. % of propylene glycol in the blood was required to attain the same degree of narcosis produced by a blood-alcohol concentration of 350 mg. %. The results on rabbits were essentially similar to those on dogs.

9069 P

A Graphic Representation of Thyroid Response to Stimulation by Thyrotropic Hormone.

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This is a report of a method of studying the hypertrophy of the thyroid gland in response to stimulation by the hypophyseal thyrotropic hormone. Other methods in use are: a study of the histological picture as used by Junkman and Schoeller[1] and by Aron[2]; Collip's method of determining the metabolic rate of the test animal[3]; McCullagh's method of determining the iodine content of the thyroid gland[4]; and Loeb's method of estimating the mitotic index of the thyroid.[5] During the past year Dr. Earl Blanck[6] has at the suggestion of Dr. Paul Starr, been making micrometric studies of the acinar cell heights of surgically removed thyroids, and correlating the micrometric histology with the clinical picture. Our method is based on the same principle and is analogous to the Price-Jones[7] blood curve.

As test animals we use female guinea pigs which have been kept on a standard laboratory diet and weigh from 180 to 225 gm. The procedure consists of administering 3 daily subcutaneous injections of Antuitrin T. The preparation was prepared and furnished us by Parke, Davis and Co. In this study we have used daily dosages corresponding to 0.0025 cc., 0.005 cc., 0.01 cc. and 0.02 cc. On the

1 Junkman and Schoeller, *Klin. Wchsft.*, 1932, **11**, 1177.

2 Aron, *Rev. franc. Endocrin.*, 1930, **8**, 472.

3 Collip and Anderson, *J. A. M. A.*, 1935, **104**, 965.

4 McCullagh, *J. Pharm. and Exp. Therap.*, 1935, **57**, 49.

5 Loeb and Kippen, *J. Pharm. and Exp. Therap.*, 1935, **54**, 246.

6 Blanck, personal communication.

7 Price-Jones, *Red Blood Cell Diameters*, Oxford Medical Publications, London, 1933.