The data shown in Table I indicate that tuberculous guinea pigs previously injected with Tutocain, and later with 0.4 cc. of old tuberculin, are afforded complete protection against a fatal dose of tuberculin. On the other hand, a simultaneous injection of the drug mixed with the tuberculin was fatal. This would appear to show conclusively that the Tutocain has no destructive effect upon the active substance of the tuberculin. In this connection it should be noted that the intradermal tuberculin reaction is not interfered with, even when the skin has been previously infiltrated with the drug.

Attention may be drawn to the possibility that the protective action of "tutocain" may not be directly dependent on its anesthetic properties, and in particular its effects on the autonomic system. The protection may be due to the oedema; in the protected animals, either a local mobilization of cells and ferments destroy the nucleoproteins of the tuberculin, or, the slow absorption favors a gradual but progressive desensitization of the animal, and so protects it from a fatal reaction.

[1] Fischel, Carl, *Am. Rev. Tub.*, 1927, xvi, 210.

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Effects of Anesthetics on Osmotic Resistance of Erythrocytes: I. Ether and Chloroform.

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Widely conflicting opinion exists with regard to the effect of anesthetics on the resistance of red blood cells to hypotonic saline solutions. Since little of this is based on quantitative data, it was thought worth while to restudy the problem, using the quantitative method introduced by Simmel,[1] in which actual count is made of the number of cells remaining after uniform periods of contact with different grades of hypotonic solutions. The results are conveniently expressed as percentages of the total number of erythrocytes per cubic millimeter, where Hayem's solution has been used as the diluent. The normal variations likely to be encountered by this method have been studied by Leake and Pratt.[2]

Dogs were used in all experiments. Blood was drawn by syringe

from the femoral artery, through the intact skin. Ether or chloroform was administered by the drop method, and further samples of blood were drawn at various intervals up to one hour after the induction of the surgical stage of anesthesia. These were prepared for determination as soon as drawn.

After about 10 minutes of ether anesthesia, an apparent increased resistance was noted on the part of the erythrocytes to the hemolysing action of the different strengths of hypotonic Simmel's fluid. This may have been due either (a) to destruction of weaker cells, leaving only the more resistant ones in the circulation, or (b) to an influx of cells, from such reservoirs as the spleen, resulting from struggling or partial asphyxiation during induction. Studies are in progress to determine which is the more likely. After 30 minutes of ether anesthesia, the osmotic resistance of the red cells was much below the normal level, indicating injury to the stroma of all cells following prolonged contact with the ether.

With chloroform, there was a prompt and marked lowering of the osmotic resistance of the erythrocytes, giving evidence of immediate damage to the stroma, both of cells already in circulation and of any which may have entered circulation after anesthesia was started.

Experiments *in vitro* are in progress.

[1] Simmel, H., *Deutsch. Arch. f. kin. Med.*, 1923, cxlii, 252.

[2] Leake, C. D., and Pratt, H., *J. Am. Med. Assn.*, 1925, lxxxv, 899.

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Effects of Anesthetics on Osmotic Resistance of Erythrocytes: II. Nitrous-oxide or Ethylene with Oxygen.

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Nitrous-oxide or ethylene in combination with oxygen were administered to dogs by the rebreathing technique developed by Dr. Ralph M. Waters, in which the carbon-dioxide produced by the body is removed by soda-lime. Nitrous-oxide with oxygen caused a slight reduction in the osmotic resistance of the red cells to hypotonic Simmel's fluids, which even after an hour's anesthesia, was not nearly as marked as that noted under ether or chloroform. Ethy-