distinctly convulsive effects, even without the addition of strychnin. From an analysis of their observations to the present time, the authors feel justified in making the following statements: The toxic effect of bile from normal rabbits shows an individual variation; the effect of the bile from some animals is predominantly coma, and from others tetanus. Heating the bile seems to reduce the stupefying, paralyzing effect, and to favor the appearance of the tetanic element. In the bile of nephrectomized rabbits the tetanic element was distinctly more pronounced than in the bile of normal rabbits.

The bearing which these observations might have upon the understanding of the complex symptoms of cholemia and uremia was not discussed.

23 (69). **"A preliminary communication on the pharmacology of thorium": E. D. BROWN** and **TORALD SOLLMANN.** (Presented by **WILLIAM J. GIES.**)

Thorium nitrate precipitates proteins and is intensely astringent. Its intravenous injection is promptly fatal by embolism. Applied subcutaneously, it causes local necrosis. Administered by the stomach, even large doses have no appreciable effect.

Solutions in sodium citrate were found to be nonprecipitant and nonastringent. As much as 1 gm. of thorium nitrate, per kilogram of dog, injected subcutaneously and intravenously in citrate solution, had little acute action; however, the animals appeared depressed and became emaciated. The postmortem examination, made after several weeks, showed extensive and widespread calcification of tissues. Thorium could not be demonstrated in the calcified areas.

A method for the quantitative estimation of thorium was elaborated; this gave satisfactory results with urine, to which known quantities were added. But in actual experiments on animals it was found inaccurate, a large proportion of the injected thorium escaping detection. However, it was found that on intravenous or subcutaneous injection, the thorium appeared in the urine, and not in the feces. When administered by mouth, it appeared in the feces, but not in the urine. The conclusion appears justified that absorbed thorium is excreted by the kidneys, but that the metal is neither absorbed nor excreted through the intestine.