unreliability of the Baumann and Preusse[1] method and not to the absence of mercapturic acid in the urine.

Summary. 1. Bromobenzene was fed to mongrel pups, to a Dalmatian Coach pup and injected into growing mice. 2. p-brom-phenylmercapturic acid was isolated from the urine of all pups studied and from the urine of growing mice.

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Synthesis of p-Brom-phenylmercapturic Acid by the Fasting Growing Dog.

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The literature on the subject of mercapturic acid synthesis in animals under various dietary regimes has been reviewed by White and Lewis.[1] One group of workers is of the opinion that exogenous cystine sulfur alone determines the synthesis of mercapturic acid,[2] while others maintain that the body tissues are capable of supplying cystine to meet the needs for detoxication of administered brom-benzene.[3] McGuinn and Sherwin,[4] contrary to Abderhalden,[3] have demonstrated that acidity or alkalinity of the diet has no effect on the synthesis of phenyl-mercapturic acid in rabbits. By chloroform extraction method, McGuinn and Sherwin[4] were able to isolate mercapturic acid from the urine of rabbits fed brom-benzene while maintained on either acid or alkaline diets.

Thomas[2] was unable to detect mercapturic acid in the urine of fasting dogs. Abderhalden,[3] however, isolated mercapturic acid from fasting dogs' urine, but he believes that the cystine requirements for more essential functions of the body limit the degree of mercapturic acid synthesis.

In all of the above mentioned experiments on fasting dogs, including that of Nishimura's on fasting rabbits,[3] the period of fasting was rather short. The experiments did not exclude the possi-

1 White, A., and Lewis, H. B., *J. Biol. Chem.*, 1932, **98**, 607.

2 Thomas, K., and Straczewski, H., *Arch. Anat. u. Physiol., Physiol. Abt.*, 1919, 249; Kapfhammer, J., *Z. physiol. Chem.*, 1921, **116**, 302; Muldoon, J. A., Shiple, G. J., and Sherwin, C. P., *J. Biol.*, 1924, **59**, 675.

3 Abderhalden, E., and Wertheimer, E., *Z. physiol. Chem.*, 1931, **198**, 18; **201**, 267; Nishimura, K., *Acta Schol. med. univ. imp. Kioto*, 1929-30, **12**, 73.

4 McGuinn, A., and Sherwin, C. P., PROC. SOC. EXP. BIOL. AND MED., 1933, **30**, 1115.

bility of liberation of cystine from the so-called circulating or stored protein which, as has been shown long ago,[5] is not depleted after short periods of complete fasting. Ashworth and Brody[6] have further shown "that the previous level of dietary protein has a marked influence on the time necessary to reach the endogenous level of nitrogen excretion in the rat."

Experiments were undertaken in order to test the ability of the animal to synthesize mercapturic acid after a prolonged fast of at least 4-5 weeks. It seemed of interest also to ascertain whether a growing animal is capable of furnishing cystine for detoxication of brom-benzene in spite of the need of the animal for the essential factor and in spite of the prolonged fast.

Animals raised in this laboratory on Cowgill's synthetic diet[7] were used. The dogs were confined to individual metabolism cages. At the age of 5-6 months the food was withdrawn and the animals were fasted for 26-35 days. Water was allowed *ad libitum.*

"Adolph," a male pup of 5.9 kilos of weight, was given 1.0 gm. of brom-benzene in a gelatin capsule on the 26th day of fast and the urine was collected on the days following the feeding, every 24 hours. On the 28th day of fast, a similar dose of brom-benzene was given again. Phenyl-mercapturic acid was isolated directly from the urine on the day of collection by the method of McGuinn and Sherwin.[4] We were able to isolate 35 mg. of mercapturic acid from the urine for each gram of brom-benzene fed. The analysis of the product gave the following results:

Found: M.P. 152-153°C. (uncorrected)	Theory:
S—10.2%	S—10.08%
N— 4.46%	N— 4.40%

The isolated product gave a positive thiophenol reaction with concentrated sulfuric acid.

Similar results were obtained with "Isolda," a female pup which was fasted for 35 days.

The data on the distribution of various nitrogenous and sulfur constituents of the urine of fasting dogs which were fed brom-benzene are not presented here because no reliable information as to

[5] Voit, C., *Z. f. Biol.*, 1866, **2**, 307; Voit, C., L. Hermann's "Physiologie," Leipzig, 1881, 6, Pt. 1, p. 300, as quoted by G. Lusk, Science of Nutrition, 4th edition, p. 80.

[6] Ashworth, U. S., and Brody, S., Missouri Res. Bul. 190, 1933.

[7] Cowgill, G. R., Deuel, H. J., Jr., and Smith, H. H., *Am. J. Physiol.*, 1925, **73**, 106.

the meaning of the fluctuations in the values, especially of the neutral sulfur, can be derived therefrom. The animals showed unmistakable symptoms of intoxication on the days of feeding of brom-benzene, such as depression, loss of vitality and even prostration.

The isolation of phenylmercapturic acid from the urine of fasting growing dogs seems to indicate that the body tissues are capable of supplying cysteine for the detoxication of brom-benzene, even under such drastic conditions as employed by us.

Summary. 1. Brom-benzene was fed to growing dogs which were fasted for 4-5 weeks prior to the administration of brom-benzene. 2. Mercapturic acid was isolated from the urine of pups on the day following the feeding of brom-benzene and identified by analysis. 3. Fasting growing dogs apparently are capable of supplying cysteine for detoxication purposes at the expense of tissue.

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Effect of Anterior Hypophysis Emulsion on Natural Resistance of Hypophysectomized and Normal Rats to Histamine Poisoning.

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In previous work we studied the effect of partial and complete hypophysectomy in rats on the natural resistance to histamine poisoning and correlated the anatomical changes in the suprarenal gland with the variations in resistance.[1] We noted that the natural resistance of completely hypophysectomized rats to histamine poisoning was depressed during a period of one to ten weeks after operation. The M.L.D. was one-fifth to one-third that for normal rats. This decrease in resistance, we found, was associated with involutional changes of the suprarenal gland, such as hemorrhage into or atrophy of the inner zones of the cortex.[2] Rats in which the posterior lobe and a large portion of the anterior lobe were removed showed a similar drop in resistance and atrophic changes in the suprarenal cortex occurred, but where a large fragment of the anterior lobe remained no depression in resistance to histamine occurred and the suprarenal glands were normal. We concluded that the drop in

1 Perla, D., and Rosen, S. H., *Arch. Path.* In press.

2 Perla, D., PROC. SOC. EXP. BIOL. AND MED., 1935, **32**, 655.