weighed 404 mg. The pituitary weighed 2.3 mg, about twice the normal weight in this strain. The adrenals showed the brown degeneration described by Cramer[8] in animals treated with large amounts of oestrin.

The second tumor occurred in a mouse injected 5 months before with a single crystal of oestrone. This animal also showed a distended bladder and bilateral hydronephrosis but in contrast to the first animal the seminal vesicles were atrophied. There was a very marked enlargement of the pituitary to at least 5 times normal size. Histological sections showed this to be more a diffuse hypertrophy rather than an adenoma, all 3 types of cells lying scattered throughout the gland. The adrenal showed a less degree of brown degeneration than occurred in the first mouse. The breast tumor grew progressively in one of 2 animals into which it was transplanted, confirming the histological diagnosis of adenocarcinoma.

Fourteen virgin littermate females have shown as yet no spontaneous mammary tumors at 3 to 7 months of age. The treatment received by the 2 males developing tumors not only induced the formation of carcinomas but produced them sooner than any such tumors occurred spontaneously in their sisters. Mammary carcinoma does not occur spontaneously in male mice.

Since this article was submitted for publication, 13 additional male mice similarly treated have developed mammary tumors.

10443 P

Possible Effects of Vitamin K on Prothrombin and Clotting Time in Newly-born Infants.

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Three deaths from hemorrhagic disease of the newly-born occurring recently on the pediatric service of the University of Virginia Hospital prompted studies to determine the normal prothrombin level in a group of newly-borns with the hope that some agent could be found which might materially effect prothrombin levels. Very early in this investigation 2 cases with abnormally high prothrombin

[8] Cramer, W., and Horning, E. S., *J. Path. and Bact.*, 1937, **44**, 633.

time and clotting time were observed. Because of the striking results which followed the administration of Vitamin K in these 2 instances, it seems wise to report our findings, the completed study to be reported at a later date. The 2 cases are recorded only as a preliminary report of work now in progress concerning prothrombin levels in the newly-born and the possible relationship of such levels to hemorrhagic disease of the newly-born.

Case I. Baby D. A female infant weighing at birth 3345 g was born 2-12-39 in the University of Virginia Hospital. On physical examination the infant appeared normal in every respect. On the third day after birth at 3:30 p.m. blood was removed from the longitudinal sinus. The prothrombin time was found to be 6 minutes. Blood from a puncture wound of the heel showed a coagulation time of 9 minutes. Slow oozing from the puncture wound of the heel occurred over a period of 12 hours. At 10:45 the following morning fontanel puncture was again done and the prothrombin time of the blood was found to be 7 minutes and the clotting time 11 minutes. Two cc of a concentrate rich in so-called Vitamin K was administered by mouth. Two hours later the prothrombin time had dropped from 6 minutes to 55 seconds and the clotting time had dropped from 11 minutes to 4 minutes. Oozing from puncture wound of heel ceased promptly after administration of Vitamin K. Throughout hospital stay prothrombin time and clotting time remained consistently low and on the seventh day prothrombin time was 23 seconds and clotting time was 3 minutes.

Case II. Baby girl T. Born in the University of Virginia Hospital 2-12-39 of a luetic mother who had received suitable treatment. At the time of the baby's birth, the mother's Wassermann test was negative. On physical examination the infant appeared normal in every respect and the weight was 2770 g. On the afternoon of February 15, the fourth day of life, the prothrombin time was found to be 3½ minutes and the coagulation time 11½ minutes. Two cc of a concentrate rich in so-called Vitamin K was administered by mouth. Two hours later the prothrombin time had dropped from 3½ minutes to 40 seconds and the coagulation time had dropped from 11½ minutes to 5 minutes. Throughout hospital stay prothrombin time and clotting time remained consistently low and on the seventh day prothrombin time was 24 seconds and clotting time was 3 minutes.

Prothrombin determinations were done according to the method of Quick.[1]

[1] Quick, Armand J., Stanley-Brown, Margaret, and Bancroft, Frederic W., *Am. J. Med. Sci.*, 1935, **190**, 501.

Summary. In 2 infants an abnormally high prothrombin time and clotting time was strikingly reduced by administration of a concentrate rich in so-called Vitamin K. The dramatic results in 2 cases suggest that concentrates of this nature may prevent the occurrence of hemorrhagic disease of the newly-born and its tragic consequences.

10444 P

Comparative Effects of Sulfapyridine and Sulfanilamide in Type II Pneumococcic Infection of Mice.

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Whitby[1] described a new derivative of sulfanilamide, M & B 693, or sulfapyridine, as being effective in both experimental pneumococcic and streptococcic infection in mice. Whitby found with Type I pneumococcic infection, that a dose of 10 mg of sulfapyridine given to mice by mouth permitted an average survival of 4.6 days. On the other hand, in a similar experiment, a dose of 10 mg of sulfanilamide gave an average survival time of 1.9 days.

Several clinicians have found this product effective in the treatment of human pneumonia due to pneumococci of Types I, II, and III.

Chemically, sulfapyridine is 2-(*p*-amino-benzene-sulfonyl)-aminopyridine. It is sparingly soluble in water at room temperature and somewhat more soluble on heating. The authors used a product prepared in their laboratories, which was purified by several recrystallizations from 50% alcohol and melted at 193-194°C. Analysis showed nitrogen, 16.4%; sulfur, 12.6%; theory, N, 16.8%; S, 12.8%. In addition, sulfapyridine obtained from commercial houses, which had the same chemical properties, was included in our studies.

The toxicity of sulfapyridine was studied on rabbits. Two g per kg of body weight administered *per os* were tolerated by 4 of 6 animals. We had found[2] that 2 g of sulfanilamide were tolerated by

1 Whitby, L. E. H., *Lancet*, 1938, 1210.

2 Raiziss, G. W., Severac, M., Moetsch, J. C., and Clemence, L. W., *J. Chemoth.*, 1938, 91.