

food ingestion and body weights were kept to see what relation these have to hemoglobin formation.

The results of the investigation indicated that carbohydrate milk modifiers used in infant feeding differ in their ability to bring about hemoglobin formation. In rats lactose and sucrose seemingly have no influence since hemoglobin values for those receiving milk diets with these additions were no higher than for those receiving milk alone; Dextri-Maltose, corn syrup, Vitavose, or Mellin's Food, when used at a 7% level in conjunction with milk resulted in hemoglobin values which were only slightly below the optimum. Orange juice and tomato juice, when fed at the level recommended for infants, had no effect on hemoglobin production, and the autolyzed yeast addition resulted in only slightly higher values.

The addition of iron and copper in the amounts shown to be effective in increasing the hemoglobin formation in rats was without significant influence in infants. Egg yolk in the amounts fed produced no beneficial effects on the hemoglobin in the infants studied; liver increased the hemoglobin values only slightly. These results would seem to be due to the fact that the values observed, 11 gm. to 13 gm. per 100 cc. of blood before the additions of egg yolk and liver are very nearly optimum for the age group under observation.

The highest hemoglobin values observed in the infants studied were those receiving wheat embryo extract. This was contrary to the findings with rats, for in these the wheat embryo extract appeared to have no effect in increasing the hemoglobin values. A possible explanation for the results with infants is the better absorption of certain hemapoietic stimulating substances. This however was not tested.

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Treatment of Experimental Trichinosis in Rabbits with Neutroflavine.

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In connection with tests of certain drugs in treatment of experimental trichinosis in rabbits, two series of experiments were carried

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out with neutroflavine. After determining that neutroflavine is well tolerated by normal rabbits which received 10 daily intravenous injections of 1.5 cc. of a 1% aqueous solution of this drug, the writers tested neutroflavine in cases of experimental trichinosis in rabbits as follows:

Series 1.—Each of 3 rabbits was fed about 8,000 decapsulated larvae of *Trichinella spiralis* obtained by digesting the muscles of a trichinous rabbit in an acidified solution of scale pepsin U. S. P. Two of the rabbits were given 12 daily injections of about 1.5 cc. of a 1% aqueous solution of neutroflavine, beginning on the seventh day after artificial infection. The third rabbit remained untreated. The first 7 treatments given to rabbit No. 1 were by the intravenous route, and the remaining 5 treatments were administered intramuscularly. Rabbit No. 2 received 12 consecutive injections intravenously.

The 3 rabbits were killed 25 days after experimental infection and examined for the presence of trichinae. Fourteen microscopic preparations were made from each of the following muscles: Tongue, masseter, diaphragm, intercostals, and thigh. The muscle preparations examined were fairly uniform as regards the bulk of muscle tissue in each preparation, and it is believed that the comparative larval counts, obtained in the various preparations examined, afford a good basis for judging the comparative degree of infection in the various rabbits involved in these experiments. Previous unpublished observations by the senior author, showed conclusively the reliability of this method for estimating the intensity of an infestation with *Trichinella spiralis* in rabbits. The total number of larvae counted in 14 preparations of each of the above mentioned muscles in the 2 treated and in the untreated control rabbit are given below:

NUMBER OF TRICHINAE FOUND IN SERIES 1.

	Tongue	Masse- ter	Dia- phragm	Inter- costals	Thigh	Total
Rabbit 1 (7 intravenous and 5 intramuscular injec- tions)	5	9	5	0	1	20
Rabbit 2 (12 intravenous injec- tions)	0	0	0	0	0	0
Rabbit 3 (Untreated)	69	51	34	5	5	164

Series 2.—Ten rabbits were used, of which 6 were treated with neutroflavine and 4 were kept as controls. Each rabbit was fed a quantity of trichinous rabbit meat containing approximately 2,400 encysted larvae. Treatments were begun 7 days after the meat was fed and continued for various periods. Each treatment consisted of an intravenous or an intramuscular injection of about 2 cc. of a 1% aqueous solution of neutroflavine. The results obtained were essentially similar to those of Series I.

Summary.—The data show that injections of neutroflavine into rabbits experimentally infected with *Trichinella spiralis* produced what appears to be a marked diminution in the number of larvae or the total destruction of the larvae. Presumably the larvae were destroyed in the circulation by the drug, since the best results were obtained with 10 to 12 consecutive daily intravenous injections of neutroflavine at a stage of the disease when the larvae are most abundant in the circulation.

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Influence of Morphine on Intestinal Activity in Experimental Obstruction.

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Two factors have previously been emphasized by this laboratory as contributing to late diagnosis in acute bowel obstruction, absence of local physical findings¹ in simple obstruction and mistrust in the value of enemas as a diagnostic criterion.² We here emphasize a third factor, namely, that in a large number of cases of intestinal obstruction at the University Hospital the administration of morphine has been responsible for delay in diagnosis.

This study is concerned with the effect of morphine in experimental intestinal obstruction, with particular reference to whether or not the sentinel warning of audible peristaltic rushes is ablated by the use of morphine.

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¹ Wangensteen, O. H., and Lynch, F. W., *PROC. SOC. EXP. BIOL. AND MED.*, 1930, **27**, 674.

² Wangensteen, O. H., and Goehl, R. O., *Arch. Int. Med.*, 1930, **46**, 669.