

With this apparatus dialysis, at least in so far as the inorganic substances are concerned, is rapid and satisfactory.

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On the alleged rôle of hematin in the production of the malarial paroxysm.

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The view has been advanced that the symptoms of the malarial paroxysm are due to the toxic action of hematin¹. The basis for this view rests, (1) in the alleged identity of hematin and malarial pigment, and (2) in the effect produced by intravenous injections of hematin solutions in rabbits. Inasmuch as hematin has not yet been isolated from the fresh organs of an undoubted case of malaria, malarial pigment cannot be justly identified with hematin. The present communication deals chiefly with the temperature curve in rabbits after intravenous injection of from 0.0023 g. to 0.0370 g. of hematin per kilo body weight.

The hematin was prepared from hemin by the method of Piloty.² The hemin was prepared from ox blood by the Piloty modification³ of the Schälfejeff method and recrystallized from pyridin. The hematin was dissolved in 0.9 per cent. NaCl solution containing 1.5 per cent. NaHCO₃. All solutions used contained 0.5 g. hematin in 100 c.c., were microscopically clear, and were sterile.

The rectal temperatures of the rabbits were taken every 30 minutes after injection, with a clinical thermometer which had been checked against a P. T. R. thermometer. Two minutes was allowed for the registration of the maximum temperature. Fresh rabbits were used for each series of experiments; no animals were reinoculated.

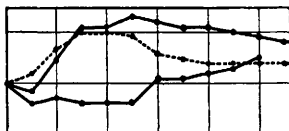
Twelve rabbits received hematin solution, eight rabbits received the solvent (0.9 per cent. NaCl solution containing 1.5 per cent.

¹ W. H. Brown, *Journal of Exp. Med.*, XV, p. 579, 1912.

² Piloty, *Ann. d. Chemie*, CCCLXXXVII, p. 358, 1910.

³ Piloty, *l. c.*, p. 344.

NaHCO_3) intravenously in corresponding volumes, and five rabbits were used as controls for accidental temperature fluctuations. The maximum rises in temperature for the individual hematin animals were, 3.5, 2.4, 1.8, 1.8, 1.7, 1.7, 1.5, 1.3, 1.2, 0.8, 0.7, and 0.6 degrees Fahrenheit. There was no relation between the dosage and either the temperature rise or the general course of the temperature curve. For example, the highest and lowest rise from the initial temperature, 3.5 and 0.6 degrees Fahrenheit, were obtained by nearly the same dosage, 0.013 g. and 0.016 g. per kilo body weight respectively. For animals receiving the solvent alone the maximum rises were, 2.5, 2.2, 1.7, 1.5, 1.2, 1.2, 1.0, and 0.4. The greatest temperature variations in the controls were from -0.8 to $+1.0$ of the initial temperature in Fahrenheit degrees. A composite curve of the variations in temperature of the animals of each series is given. The initial temperature before inoculation is taken as point of origin.



CURVE I. 1 cm. abscissa = 1 hour. 1 cm. ordinate = 1 degree Fahrenheit. Upper full line represents the composite curve of the temperature variations in the hematin animals. Middle dotted line is the composite curve of the solvent animals. Lower full line is the composite temperature curve of the control animals.

After intravenous injection of hematin solution in rabbits there is no resemblance in either temperature curve or in other respects to the malarial paroxysm in man. Both the solvent and the hematin solution cause an elevation of temperature in rabbits. There is no significant difference between the temperature curve of the hematin animals and that of the solvent animals.

Large volumes of the hematin solution, 30 c.c. to 40 c.c. that is over 0.04 g. per kilo body weight, kill rabbits almost immediately. Death is caused by intravascular precipitation of hematin with consequent embolism of the smaller vessels. The heart blood of animals autopsied immediately after death contains masses of granular hematin. The lungs are brown and their capillaries plugged with masses of granular hematin. If the animals

survive the injection several hours or longer there is a profound drop in temperature (as much as 6 degrees Fahrenheit) and numerous petechiæ are found in the heart muscle and in the gastro-intestinal tract. The intravascular precipitation of hematin can be reproduced in vitro by allowing the venous blood of a hirudinized rabbit and 0.5 per cent. hematin solution to flow together. The precipitation is not quantitative and its mechanism is not yet clearly established, but it is probably due to some constituent of the blood serum or plasma. Hematin itself is insoluble in blood serum of the rabbit. Injected intraperitoneally hematin is precipitated from alkaline solution in the peritoneal cavity of the animal.

In addition to the experimental work on rabbits, the blood sera of 19 patients with malarial organisms in the blood were examined for hematin. The blood was taken before and after the paroxysm and before the administration of quinine. In no case was hematin demonstrable. The quantity of hematin which can be detected spectroscopically in human blood serum in 7 cm. layers is less than 1 part in 3,000.

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The effect of pituitary extract on the secretion of milk in the cow.

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Ott and Scott (1), Schäfer and Mackenzie (2), Mackenzie (3), and Hammond (4) are agreed that the intravenous, intramuscular or subcutaneous administration of pituitary extract (posterior lobe) to lactating animals causes a marked increase in the rate of secretion of the mammary gland. The effect appears within twenty or thirty seconds after injection and lasts for three or four minutes.

In order to find out what effect the extract might have on the total quantity of milk per diem and on its quality Gavin (5) experimented with dairy cows under ordinary farm conditions; he