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Anemia Following Administration of Brilliant Vital Red.

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During experiments upon dogs in which brilliant vital red was administered, there appeared after a time an anemia. The use of this dye for clinical purposes as well as the recent work on the protective power of this and other dyes against certain toxins gives an added interest in any effect of this substance. This paper presents the data of certain effects which this dye has had upon the blood picture of dogs.

Several normal dogs were used, with controls for nutritional variations and hemorrhage. In each the body weight, red and white cell counts, cell volume, stained blood smears and hemoglobin determinations were made to establish normals. The hemoglobin was estimated both by the Newcomer colorimetric and the Van Slyke oxygen capacity methods. Blood for these determinations was drawn from the jugular vein. The amount of dye* used in each case was an intravenous injection of 15 mg. per kg. of body weight. The number of doses given and the intervals between them were varied according to the response which each animal made. Some dogs reacted readily and others were more refractory to the substance.

There appeared in no instance any immediate or delayed toxic or other systemic effects attributable to the dye other than that of the blood picture. The weights of the 7 dogs remained practically the same throughout the experiment.

There was no demonstrable fall of the blood constituents during the first 10 or 12 hours, but the tendency toward anemia began usually within 1 or 2 days and continued thereafter for several days. The maximum loss in most cases occurred at the 3rd or 4th day, after which there was a slow recovery. The hemoglobin value and the red corpuscle count fell together, but in each case the hemoglobin value dropped slightly faster than the red count, thereby progressively diminishing the color index. There was also a corresponding decrease in cell volume. In our most striking case, following 1 injection of the dye in the dosage and manner mentioned, the hemoglobin value fell in 4 days to 66% of its original amount, and the red count to 79% of its normal. In the other animals there were

* Brilliant Vital Red (Evans) National Aniline and Co.

losses varying from that stated above to a fall of 83% of its initial amount in the course of 8 weeks with administrations of the dye at intervals of 2 or 3 weeks. In this animal the red blood corpuscle count remained practically the same throughout the experiment.

Examinations of blood smears show progressive achromia paralleling the hemoglobin loss. Changes in the size, shape and staining reaction of the red cells were noted early in some and later in others, without apparent relation to the rate or degree of hemoglobin loss.

The white blood count varied from time to time in the same animal, but all the counts remained within normal limits for each animal. The smears studied showed nothing extraordinary, except that after dye injection it seemed that the small lymphocytes were rarer than before; there were no constant signs of effect of the dye upon any of the leucocytic series as demonstrable by the smear.

It may be well to bear this rather unsuspected effect in mind when clinical and experimental studies based upon the assumption that it is an inert substance are being made.

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Effect of High Temperature on the Gonads of Frog Larvae.

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Frog larvae *(R. sylvatica)* which had been raised under nearly optimal conditions up to the 7th week were subjected after the 34th day to the maximal temperature they can endure permanently, *i. e.*, 32° C. The gonads of both males and females grow much slower than those of normal controls. However, the spermatogonia of the testis are of about normal size and the seminiferous tubules differentiate in a typical way. The reactions of the ovaries are more complex and more important. At the time when the temperature was raised the ovaries contained large numbers of young ovocytes in the synapsis stage. Two weeks later this type of germ cells has completely disappeared. The ovogonia are still present and the deeper layers of the cortex contain now large auxocytes. The latter, however, are in way of degeneration. Their nucleoli are extremely large and basophilic and the ovoplasm contains coarse gran-