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An investigation as to the etiology of azoturia.

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Azoturia is a disease affecting horses. There are various synonyms of which "Hemoglobinuria" and "Monday Morning Sickness" are common. It is most common in working horses. Animals that are worked hard during the week and allowed to stand in the stable over the week end without exercise and without any decrease in the ration given on working days are most often affected. When exercise begins they are apt to show stiffness and lameness in muscles of the hindquarters. Paralysis of quarters is common and animals get down. They often die as a result of the changes having taken place in the tissues and in spite of any treatment.

The disease has been attributed to several different causes such as myogenic autointoxication, the formation of an hemolytic ferment, a very profuse formation of urea and other extractives, an abnormal amount of dextrose producing a myositis and secondary nephritis. Uremic poisoning is also given as a cause. Much emphasis has been laid upon the abundance of extractives either as a result of tissue changes or as a product of digestion.

Average readings in mgms. per 100 c.c. of blood for normal horses and four cases of azoturia reported in 1921 as well as twelve cases of azoturia from which samples were obtained in 1922-1923 and not as yet reported are appended.

1921	Total non-protein nitrogen	Urea	Uric acid	Pre-formed Creatinine	Sugar
Normal	33.9	18.71	2.45	1.81	102.9
Blood at height of azoturia	30.	18.8	2.3	1.7	102.6
Blood at recovery.....	28.5	17.1	2.31	1.87	88.2
Ave. twelve cases of azoturia	38.34	16.79	2.81	1.74	121.
1922-23					

In the data submitted blood-sugar shows the greatest increase. It is well to bear in mind that excitability is a marked symptom in many cases and such a state often indicates a hyperglycemia *per se*. The average increase in the extractives does not seem large enough to indicate that the increase is any more a cause of the disease than it might be a result of the tissue activity taking place.

Urine examinations do not indicate any more nephritis than might be expected to accompany such violent pathological changes in the tissues as take place in axoturia. Hemoglobinuria is so characteristic that the urine of typical cases is coffee colored rather than the color normal to the urine of the horse.

A German, Dr. Hertha, has recently advanced the theory, with what he considers abundant proof, that the condition is due to excessive lactic acid formation in the tissues. Dr. P. A. Fish, Dr. J. N. Frost and the author are now working on this theory and hope to report results in the near future.

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Further studies on "posterior paralysis" in swine.

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"Posterior paralysis" is one of the terms rather loosely used to designate a trouble in swine which is characterized by stiffness, particularly in the hind legs, inability to rise or stand, the occasional swelling of the joints and fractures of the leg bones. Some preliminary studies relative to this trouble were made the subject of a previous communication.¹

In continuation of these studies, 24 pigs, around 30 pounds in weight, were placed on experiment in the summer of 1922. The characteristic symptoms were produced on a ration of yellow

¹ Maynard, L. A., PROC. SOC. EXP. BIOL. MED., 1922, xix, 427.