In the Laboratory

Bone Marrow of Horses and Cattle

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In a recent cytological study of the bone marrow of 7 horses and 14 head of cattle the range and mean cell counts were determined (Table 1). These figures compare favorably with those of other investigators (*1–5*).

A satisfactory procedure for extracting the marrow is presented below:

The 11th rib in the cow or the 11th to 16th ribs in the horse, at a level just below the long muscles of the back, are the best sites at which to secure the marrow sample. Confine the subject in a stock or restrain it against the side of the stall. Brush the back and side of the animal with a grooming brush and wipe with a damp cloth. Shave or clip the hair over the area, wash with soap solution, apply iodine, and

TABLE 1

SUMMARY OF BONE MARROW DATA ON THE COW AND HORSE

Cells	Cow		Horse	
	Range	Mean	Range	Mean
Stem cell	0.0 – 5.0	2.14	0.4 – 3.4	1.6
Erythroblast	11.8 –42.8	30.26	8.0 –32.0	20.94
Normoblast	7.2 –39.2	21.69	5.0 –24.2	13.71
Total erythroid cells (E)	21.0 –72.2	52.66	19.0 –47.6	34.66
Promyelocyte	0.0 – 6.8	1.51	0.0 – 5.0	1.83
Neutrophilic myelocyte	10.4 –32.0	19.39	26.2 –56.0	38.06
Neutrophil	1.2 –12.2	5.73	1.8 –20.2	13.31
Eosinophilic myelocyte	1.8 –10.4	6.69	0.4 – 3.6	2.34
Eosinophil	0.0 – 7.6	1.92	0.2 – 1.2	0.60
Basophils (all)	0.0 – 1.0	0.34	0.0 – 1.0	0.60
Total myeloid cells (M)	19.6 –60.4	35.59	45.0 –71.6	56.74
Monocyte	0.0 – 7.6	2.64	1.2 – 4.8	2.46
Plasma cell	0.2 – 2.0	0.79	0.0 – 0.8	0.63
Lymphocyte	1.4 –16.8	6.68	2.0 – 5.6	3.91
Megacaryocytes in 300 sq. mm.	0–121	25.14	0–8	1.71
Mitoses/500 cells	0– 11	4.9	0–8	2.71
Myeloid-erythroid ratio (M/E)	0.27– 2.5	0.676	0.94– 3.76	1.64

anesthetize the skin, fascia, and periosteum with 2 per cent procaine hydrochloride. Using a hand drill equipped with a 3/32-inch jobbers' drill, bore into the center of the rib in order to hit the marrow cavity. The drill "gives" when it enters the cavity. Caution should be exercised not to miss the marrow cavity, because there is danger of entering the thoracic cavity. Remove the drill and insert a needle trocar with the same outside diameter as the drill. Remove the needle, attach an airtight syringe, and aspirate 1 cc. or less of marrow. Pure marrow is more viscous than blood and greyish red. The sample is diluted more or less with blood, depending upon the amount of blood aspirated with the marrow.

The operative wound heals without leaving any visible scar once the hair has grown over it.

Obtain blood samples at the same time the marrow samples are taken. It is possible to carry out routine pipette filling and smear technics at the side of the animal, but a better method is to use oxalate tubes and take the material to a laboratory for examination.

It is hoped that this technic and the data presented may encourage other investigators to include the marrow in routine hematological studies of both normal and disease processes of horses and cattle.

A more detailed report will be published elsewhere.

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A Simple Vaporizing Device for the Attainment of Bactericidal Concentrations of Glycol Vapors in Air[1]

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It has been well established that bacteria and viruses retain their infectious properties when dried in air, and that such air-borne organisms can transmit respiratory infections over considerable intervals of space and time. Since this mode of transmission, as against direct contact and droplet transmission, is responsible for a considerable percentage of all respiratory infections, both sporadic and epidemic, and since it is not affected by the ordinary hygienic precautions even where they are applied, the disinfection of air in enclosed spaces is a major problem in the control of respiratory diseases.

The demonstration of the lethal effect of certain glycol vapors on air-borne bacteria (*6*) and influenza virus (*5*) obviously suggested another means of ap-

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