struction and perhaps for the occurrence of bleeding in the gastro-intestinal tract. Typical extraction curves from human feces are shown in Fig. 1.

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Blood Potassium Changes as a Result of Partial Asphyxia in Dogs.

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This work grew out of previous studies showing that ischemia of the functioning heart leads to a marked rise in the potassium content of the coronary venous blood.[1] This report is concerned primarily with the effects produced in anesthetized dogs on clamping off the tracheal cannula for periods of from 2 to 4 minutes. Twelve dogs anesthetized with nembutal were used. In half the dogs only one asphyxial period was produced, in the others 2 or more were obtained. Blood was drawn from the external jugular vein in 10 of the dogs. In 2 dogs the chest was opened and artificial respiration administered, the blood being obtained from the superior cava in one and from the right auricle in the other. The method of Breh and Gaebler[2] was used in the potassium determinations, the analysis being completed by the diazotization procedure of Briggs.[3] The condition of the blood samples was unknown to the analyst, since they were given blind numbers when they were drawn.

The results are given in Table I. They show that during asphyxia the plasma potassium increases 22% and the whole blood potassium 16% over the normal control values. There is an increase of 43% for the plasma and 14% for the whole blood potassium during a second asphyxial period, as compared to its control taken immediately before. The second asphyxial period was produced from 10 to 20 minutes after the first one.

These figures show the increase in blood potassium during asphyxia. Data on the effects of over-ventilation are as yet inconclusive. Fenn has shown that muscular activity causes a decrease in

1 Dennis, Joe, and Moore, R. M., *Am. J. Physiol.*, in press.

2 Breh, F., and Gaebler, O. H., *J. Biol. Chem.*, 1930, **87**, 81.

3 Briggs, A. P., *J. Biol. Chem.*, 1923, **57**, 351.

TABLE I.
Blood Potassium Changes in Asphyxia, Expressed as Mg.%.

Dog No.	Normal Control		At End of Asphyxial Period		Control After Recovery from Asphyxia		Further Asphyxial Period	
	Plasma	Whole Blood	Plasma	Whole Blood	Plasma	Whole Blood	Plasma	Whole Blood
1	21.5	30.8	23.4	31.9	22.5	36.5	31.3	43.2
2			21.6		9.2		21.4	
3	19.5		22.5					
4	15.8		20.6					
5	20.6		19.0					
6	21.7		33.2	35.0	18.9	29.9	25.7	34.8
7	17.4	24.1	18.7	25.0				
8	20.6	23.9	22.7	29.0				
9	12.4	19.2	18.3	21.9	12.3*			
10	19.4	23.0	26.3	27.8				
11	15.5		19.8		16.9*			
12	15.2	22.6	19.9	24.8	16.1	26.9	17.2	28.1
Avg	18.1	23.9	22.2	27.9	16.0	31.1	23.9	35.4

*Not used in computing changes caused by second asphyxial period.

muscle potassium.[4] Presumably this would be accompanied by an increase in blood potassium. Producing tetany in the anesthetized dog by reducing the cerebrospinal fluid calcium ions or increasing the potassium ions in the cerebrospinal fluid,[5] has caused a rise in blood potassium in some experiments we have recently performed. We have reason to believe that the increased potassium ions do not escape from the cerebrospinal fluid into the blood under the conditions of our experimental procedure. Furthermore, even if all the potassium injected into the cisterna magna passed immediately into the blood stream, it would not be sufficient to account for the increase in potassium in the blood that we observed. Seemingly, asphyxial conditions or muscular tetany cause a release of potassium into the blood stream.

[4] Fenn, W. O., *Am. J. Physiol.*, 1937, **120**, 675.

[5] Mullin, F. J., Hastings, A. B., and Lees, W. M., *Am. J. Physiol.*, 1938, **121**, 719.