The reaction is arrested by adding 0·15 ml. 75 per cent phenol–water mixture. For analysis 4 μl. of each mixture is used. The chromatogram is developed with 75 per cent phenol – water mixture on Whatman No. 1 paper. After drying for 1 hr. in an oven at 80° C., the paper is sprayed with 0·1 per cent ninhydrin in butanol. After drying in an air current at room temperature for 5 hr., the chromatogram is photographed.

It can be seen from the chromatogram that (1) is catalysed by *T*(0–50) but not by *T*(50–65), as opposed to (3) which is catalysed by *T*(50–65) as well as by *T*(65–80). Hence alanine transaminase is not identical with the enzyme which catalyses (3). Furthermore, judging from the intensities of the glutamic acid spots, *T*(50–65) is more effective for (2) than for reaction (3), whereas the opposite holds for *T*(65–80). These results are consistent with quantitative results which will be published in due course.

Thus one can conclude that an enzyme, cysteic acid transaminase, exists, which is different from alanine transaminase and aspartic acid transaminase.

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Fœtal Fructose in Various Mammals

FRUCTOSE has been reported to occur in the fœtal fluids of a variety of animals, and it has been implied that this sugar is present generally in mammalian fœtuses[1]. However, the earlier claim that fructose occurs in the human fœtus[2] has been refuted[3]. The problem has been re-investigated here during a comparative study of carbohydrate metabolism and related disease problems in the new-born.

Mixed blood samples were obtained mainly from the umbilical cord, or, in the case of the carnivores, from throat blood after decapitation, at birth. Sheep and rodent samples were from the cord and throat blood respectively of near-term fœtuses. After collection over potassium oxalate, the blood was deproteinized at once with sodium hydroxide and zinc sulphate, except for foal blood, when barium hydroxide and zinc sulphate were used. In a proportion of foal samples, difficulties resulting from inconvenient foaling times necessitated sampling over sodium fluoride to check glycolysis during several hours delay before protein precipitation.

Fructose was measured colorimetrically by a modification of the Seliwanoff reaction, using glycerol as solvent and copper as catalyst, in a boiling water-bath. The method developed, on the average, 1·5 mgm. of fructose colour from 150 mgm. of glucose. Standard fructose solutions were included with each boiling, and blanks of reagents plus distilled water were subjected to identical procedures. Total sugar was measured by a modification of the method of Somogyi[4] and correction made for the unequal reducing powers of fructose and glucose. Both methods, as employed here, had a standard deviation of 1 mgm. per cent on 20 similar samples.

The findings are shown in the accompanying table. The classification into orders, although not strictly exact, aids description in the text.

Order	Animal	No. of pregnancies	No. of young	Blood fructose
Ungulata	Horse	20	20	Positive in all
	Pig	12	60	Positive in all
	Ox	1	1	Positive
	Sheep	8	11	Positive in all
	Goat	1	1	Positive
Carnivora	Dog	1	4	Negative in all
	Cat	2	5	Negative in all
	Ferret	1	3	Negative in all
Rodentia	Guinea pig	5	9	Negative in all
	Rabbit	2	11	Negative in all
	Rat	1	Pooled blood from 8	Negative

In addition, fructose was not found in the amniotic fluid of the hen's egg after eight, nine and eleven days incubation.

Actual fructose-levels in blood are not given for the ungulates, as these must be related to parturition and other factors; but they were of the order as those previously reported for the sheep and, with few exceptions, fell between 25 and 130 mgm. per cent.

Slight fructose values which are obtained in the non-ungulate group are difficult to interpret, because the interfering colour from glucose and other chromogens is slightly variable as, also, is the blank colour. From the fact that this colour never exceeded an equivalent as fructose of 3 mgm. per cent above that calculated to be present from glucose, and was frequently much less, fructose has been assumed to be absent, or present only in such trace amounts as might exist in adult blood.

These results suggest that the presence of substantial quantities of fructose in the fœtal blood of land mammals, at or near term, is peculiar to ungulates.

I have had much kind assistance in this work, which will be acknowledged when a more detailed account is presented.

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Activation of the Fluorescence of Chlorophyll Solutions

CHLOROPHYLL dissolved in pure dry hydrocarbons is (practically) non-fluorescent[1–3]. The addition of traces of water, alcohols or amines to solutions of chlorophyll restores their fluorescent intensity to that observed in solvents such as methanol, ether, etc. It was demonstrated by Livingston, Watson and McArdle[1] that this increase in the fluorescent yield is the result of the formation of an addition compound between a molecule of chlorophyll and one of the 'activator'. These authors postulated that the addition compound was formed by the establishment of hydrogen bonds between labile hydrogens of the activator and the keto oxygens of ring V [4] of the chlorophyll molecule. Afterwards, Evstigneev, Gavriola and Krasnovskii[3] presented evidence sup-