duodenum. The hepatic artery was not tied. The results of a typical experiment are given in Table IV.

TABLE V.
Average hepatic and portal "blood sugar" and lactic acid in 7 amytalized dogs.

Hr. after Glucose	Hepatic		Portal	
	"Blood Sugar"	Lactic Acid	"Blood Sugar"	Lactic Acid
1	152	22	120	30
2	240	34	180	51
5	122	18	90	26

We find, therefore, that shortly after injection of moderate amounts of glucose there may or may not be more glucose in portal than in hepatic blood; after an hour, however, while absorption is still proceeding, there is more glucose in hepatic than in portal blood, and at the same time there is more lactic acid in portal than in hepatic blood, although not enough to account for the differences in the sugar content of blood entering and leaving the liver.

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Effect of Intravenous Acacia on Physio-Chemical Properties of the Blood.

AMOS CHRISTIE, NILKANTH M. PHATAK AND MARY B. OLNEY.
(Introduced by C. D. Leake.)

From the Department of Pediatrics and the George Williams Hooper Foundation, University of California Medical School, San Francisco.

Stimulated by the reports of Hartmann[1] on the intravenous use of acacia, we were encouraged to give a clinical trial to certain cases of intractable nephrotic edema. This was followed by such marked diuresis and unusual reactions that it was deemed advisable to accumulate further knowledge on the subject. Extensive observations of these phenomena have been recorded by Bayliss,[2] Henderson,[3] and Hanzlik[4] but with few observations on the oxygen content of the blood.

This preliminary report of the effects of intravenous acacia solu-

[1] Hartmann, A. F., Senn, M. J. E., Nelson, M. V., and Perley, A. M., *J. Am. Med. Assn.*, 1933, **100**, 251

[2] Bayliss, W. M., *J. Am. Med. Assn.*, 1922, **78**, 1885.

[3] Henderson, Y., and Haggard, H. W., *J. Am. Med. Assn.*, 1922, **78**, 697.

[4] Hanzlik, P. J., De Eds, F., and Tainter, M. L., *Arch. Int. Med.*, 1925, **36**, 447.

tion on gaseous exchange and incidental findings, is to be followed by other observations on the physio-chemical factors of the blood.

Dogs were used as the experimental animals. The standard apparatus of Van Slyke[5] was employed for the gasometric content determinations by manometric method. Ten experiments were completed, which were uniformly consistent. A typical result is indicated in Table I.

TABLE I.
Experiment No. 7, Weight of Dog 11.8 kg., Acacia 15% in Distilled Water Given Intravenously 2.75 gm. per kg. of Body Weight.

Determinations	Initial	½ hr.	1 hr.	2 hr.	4 hr.	24 hr.	1 week
Hemoglobin	115%	97%	92%	107%	107%	105%	107%
Red Blood Cells	8.04	7.32	7.34	7.64	7.09	6.76	6.3 M
Hematocrit	44.0	41.5	39.0	45.0	45.0	42.0	41.0
Sedimentation Rate	24 hr.+	12 min.	14 min.	25 min.	32 min.	21 min.	3 hr.+
CO_2	39.16	33.46	35.01	34.24	33.11	39.43	39.11
O	14.19	8.66	9.38	8.66	9.90	9.86	10.13

It will be noted that the hemoglobin fell with the red blood cells in direct proportion to the decrease in hematocrit value or increase in blood volume, which uniformly follows the use of intravenous acacia. Rapid sedimentation of the red blood cells following intravenous acacia was early noted and stimulated the report of Lucia and Brown[6] in a recent issue of this journal.

Although the carbon dioxide content of the blood decreased following the use of intravenous acacia, proportionate to the blood dilution observed by Hanzlik,[4] the oxygen content fell at the end

TABLE II.
Experiment No. 10, Weight of Dog 9.6 kg., Acacia 15% Solution in Distilled Water Given Intravenously, 4.5 gm. per kg.

	Determinations. Initial	1 hr.	4 hr.	24 hr.
Hemoglobin	87%	70%	52%	50%
Hematocrit	34.0	27.5	21.0	20.5
Arterial Blood				
CO_2	36.01	33.89	34.42	35.82
O	20.99	13.12	9.76	10.94
Venous Blood				
CO_2	41.83	35.75	36.01	38.66
O	11.96	12.21	9.28	9.28
Venous Blood Saturated with Air				
CO_2	35.48	37.28	32.39	
O	17.82	12.79	10.94	

[5] Peters, J. P., and Van Slyke, D. D., Quantitative Clinical Chemistry Methods. The Williams and Wilkins Co., Baltimore, 1932.

[6] Lucia, S. P., and Brown, J. W., PROC. SOC. EXP. BIOL. AND MED., 1934, **32**,

of one hour to a more marked degree and persisted over a 24-hour period.

We had already noted the effect described by Walker,[7] which makes N/10 HCl necessary to dissolve the red blood cells in doing routine white blood counts following the infusion of acacia and we assumed that the acacia coated the cells and hindered normal blood cell respiration. Since fragility tests were constantly normal, we decided to attempt to resaturate the red blood cells by exposure to air. The results of this are shown in Table II.

It will be noted that it was possible to resaturate the red blood cells to a point which would preclude any possibility that the low oxygen saturation of the venous blood following intravenous acacia was not due to coating of the red blood cells.

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Nutritional Factors of S. Lactis.

C. S. MUDGE AND F. R. SMITH.

From the Division of Dairy Industry, College of Agriculture, University of California.

Whenever one is dealing with 3 variables, the trilinear chart is often found to be useful. Such a chart is based upon the thesis that in an equilateral triangle the sum of the perpendiculars from any point to the sides is equal to the altitude of the triangle. If this altitude is designated as 100%, then the position of the point within can be expressed in terms of per cent since $x + y + z = 100$.*

In our studies with *S. lactis* we have used 1% Difco peptone, 1% Difco yeast extract and water as variables. These solutions are prepared and adjusted electrometrically to pH 6.5. Media 1, 21, and 16 (see Fig.) are these 3 solutions. Each of these media contained 0.5% lactose. By properly mixing these solutions, 18 other media are made which are represented in the figure by the various numbers. Each medium varies from the other in some small degree. Thus the media in the base line (16 to 21) have no peptone. This is the zero line for peptone.

If the altitude of the triangle is now divided into 5 equal parts and lines drawn parallel to the base through these points a series of

[7] Walker, M. A., *Am. J. Clin. Path.*, 1932, **2**, 347.

* For further discussion of the theory see Haskell: How to Make and Use Graphic Charts. Codex Book Company. Page 30.