ganglionic components of the vagus which terminate in ganglia located farther distally. These results confirm the physiological evidence of the existence of efferent cells in the nodose ganglion recently reported by Morgan and Goland.[4]

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Estimation of Hemoglobin on a Basis of Protein Iron.

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There have been several micro-methods in the recent literature for the determination of total iron in blood,[1, 2, 3] and it has been suggested that these determinations be used for the calculation of hemoglobin. On account of the constant breakdown of hemoglobin to bilirubin there is a variable quantity of liberated inorganic iron which may amount in certain anemias to more than 5% of the hemoglobin iron.[4] Consequently it would seem advisable to make a preliminary separation of inorganic iron from hemoglobin. Riecker[4] has observed that such a separation may be accomplished by means of a trichloracetic acid precipitation.

In the present study hemoglobin has been calculated from the iron determined in the trichloracetic precipitate from whole blood according to the following technique: A 1 cc. sample of blood is transferred to a 50 cc. centrifuge tube, baked with N/10 HCl and precipitated with trichloracetic acid. After centrifugation the supernatant fluid is poured off, the precipitate dissolved in a minimal quantity of NaOH, transferred to an Erlenmeyer flask, and digested with 5 cc. of nitric acid and 0.5 cc. of 60% perchloric acid. The digest is dissolved in 5 N H_2SO_4, transferred to a 50 cc. volumetric flask and the prussian blue color developed, using gum ghatti as a protective colloid. A standard of known iron content for comparison is prepared at the same time. This technique for determination of protein iron has been used to standardize a dry hemoglobin preparation which is used for the determination of hemo-

[4] Morgan, L. O., and Goland, P. P., *Anat. Rec.*, 1932, **52**, 26.

[1] Wong, S. Y., *J. Biol. Chem.*, 1923, **55**, 421.

[2] Kennedy, R. P., *J. Biol. Chem.*, 1927, **74**, 385.

[3] Reis, Frederick, and Chakmakjian, H. H., *J. Biol. Chem.*, 1931, **92**, 59.

[4] Riecker, Herman H., and Winters, Mary E., *Am. J. Physiol.*, 1930, **92**, 197.

globin by means of the acid hematin color, somewhat according to the plan of Elvehjem[5] and Arnow.[6]

The hemoglobin powder is prepared from blood by precipitating the hemoglobin and other proteins with NaCl at saturation after acidification with hydrochloric acid. The precipitate is washed with strong NaCl solution, dried and pulverized. In use a weighed quantity of the powder is dissolved in N/10 NaOH and transferred to a volumetric flask. In another flask the test sample of blood is treated similarly with NaOH. After a few minutes the contents of both flasks are diluted to the mark with water and sufficient HCl to make the final concentration N/10.

TABLE I.
Hemoglobin by Protein Fe and O_2 Capacity.

Subject	Basis of Protein Fe		Basis of O_2 Capacity
	Direct as Prussian blue	Indirect as acid hematin	
B. P.	17.35	17.10	17.00
W. L. N.	17.09	16.70	16.58
J. G.	18.11	18.05	18.00
Pernicious Anemia	5.28	5.32	4.56*
Leukemia	9.82	9.72	9.72
Malaria	9.37	9.26	9.68
Pneumonia	13.41	13.32	13.85
Jaundice	14.15	14.26	14.13
Nutritional Edema	12.00	11.82	12.15

* Low result due to poor quality saponin.

In the accompanying table are data on three normal individuals and a few patients, showing close agreement between hemoglobin values calculated from oxygen capacity and from protein iron. Figures represent gm. percent.

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Effect of Theelin Injections upon the Castrated Woman.

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These experiments were an attempt to determine the effect of various dosages of theelin upon human female castrates of different ages and for varying periods of castration with particular interest

[5] Elvehjem, C. A., *J. Biol. Chem.*, 1931, **93**, 203.

[6] Arnow, L. Earl, PROC. SOC. EXP. BIOL. AND MED., 1932, **29**, 569.