TABLES.

Anterior Mediastinitis with Purulent Pericarditis.

No.	Days	Ratio
106	8	0.00988
119	8	0.00812
123	6	0.00880
137	6	0.00854
138	6	0.00860
140	4	0.00886

Partial Synechia with Chronic Adhesive Mediastinitis.

No.	Days	Ratio
130	212	0.01330
147	108	0.01000
149	83	0.01310
132	81	0.00790
125	43	0 00956

Anterior Mediastinitis Chronic Without Visceral Adhesions.

No.	Days	Ratio
128	200(?)	0.00916
122	11	0.00914

Complete Synechia with Chronic Anterior Mediastinitis.

No.	Days	Ratio
150	252	0.01420
156	221	0.0133
148	116	0.0117
146	111	0.0114
145	97	0.0091
131	62	0.01030
140	45	0.01000
115	42	0.01180
135	33	0.0090
133	14	0.01000

presenting evidences of some cardiac hypertrophy, especially in dogs with the more extensive lesions for longer periods of time.

The dogs had complete synechia of the pericardium as well as anterior mediastinal anchorage for periods of 252, 220, 116, 111, 97, 62, 45, 42, 33, and 14 days, and these presented H. W./B. W. ratios of 0.0142, 0.0133, 0.0117, 0.0114, 0.0091, 0.0103, 0.0100, 0.018, 0.0090, and 0.01000, respectively. Thus, with two exceptions, there is evidence of considerable hypertrophy of the heart as a result of the experimentally produced chronic adhesive mediastinopericarditis. Pathologically increased work, of course, suggests itself as the etiological factor of the hypertrophy.

[1] Herrmann, G. R., *Am. Heart J.*, 1925, i, 2.

3834

Blood Volume Changes in Carbon Arc Irradiation.*

H. S. MAYERSON. (Introduced by Henry Laurens.)

From the Laboratory of Physiology, Tulane University, School of Medicine.

In previous communications[1, 2, 3] evidence was reported suggesting an increase in blood volume following carbon arc irradiation, which dilution was believed to mask actual increases in the physical and chemical blood constituents. In the present study we sought to

* Aided by a grant from the David Trautman Schwartz Research Fund.

determine the nature and extent of these changes in plasma and red cell volume.

Five short-haired, white dogs were irradiated abdominally with the "Pan Ray" carbon arc with dosages of 70 to 83 g. cal. per sq. cm. at intervals varying from 3 hours to 6 days for a total of 15 separate exposures. Total plasma volume was obtained by the dye method, using brilliant vital red; specific gravity by the falling drop method of Barbour and Hamilton; Hb by the Newcomer method and hematocrit according to Van Allen. Total cell volume was calculated indirectly from the hematocrit reading. The results, with minor exceptions, are uniform and confirm the previous evidence that the primary result of irradiation is an increase in plasma volume of 6 to 37%, depending on the dosage and the interval between successive exposures. The dilution usually reaches a maximum in each animal which is maintained but not exceeded by subsequent irradiation, except when massive exposures are given. In 2 such experiments where the animals were irradiated twice for 53 minutes at 80 cm. (each dose equivalent to 83 g. cal. per sq. cm.) with an interval of 3 hours between exposures, there was evidence of slight concentration at the end of the second irradiation following the usual previous dilution. Red cell destruction is frequently observed in preparations made immediately following massive irradiation. The increase in red cell number, volume, and Hb previously reported is independent of the blood volume changes and indicates a real stimulus to the hematopoetic organs as a result of the irradiation.

[1] Miles, A. L., and Laurens, H., *Am. J. Physiol.*, 1926, lxxv, 462.
[2] Mayerson, H. S., *Am. J. Physiol.*, 1927, lxxxi, 686.
[3] Mayerson, H. S., PROC. SOC. EXP. BIOL. AND MED., 1927, xxiv, 882.

3835

Ratio of Urea Nitrogen to Total Non-Protein Nitrogen in the Blood in Pregnancy.

W. DENIS, E. L. KING AND FRANCES BRIGGS.

From the Department of Bio-Chemistry and of Obstetrics of the School of Medicine, Tulane University.

In normal whole blood the urea nitrogen usually accounts for about 50% of the total non-protein nitrogen, although the variations found in this ratio (35-55)[1] scarcely justify the practice oc-