TABLE B.

DETERMINATIONS ON AMERICAN RESIDENTS AT CERRO—14,300 FEET.

Subject.	K.	Do_2.	
P.....	7.86	43.4	
McL.....	9.76	44.9	All of these persons have lived two or more years at high altitudes carrying on their work, free from symptoms.
Cu.....	7.85	44.7	
Co.....	11.37	41.5	
R.....	12.22	65.3	

A further series on five acclimatized persons, none of whom had ever suffered from seroche, all gave values for the diffusion constant for oxygen (Do_2) above 40.

122 (1869)

An undescribed relation of the suprarenals to ovulation.

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The observations described here make it extremely probable that the suprarenal glands regularly and greatly enlarge in close relation to the time of liberation of ova from the ovary. The maximum size seems to be attained in the 44-hour interval between the ovulation of the first and second ova—which together constitute a definite period of ovarian activity in the pigeon. The early stages of the suprarenal enlargement are coincident with the 4 to 5 days of extremely rapid growth [1] which these ova undergo immediately before their expulsion from the ovary. Knowledge of the exact time (within an hour) of ovulation in the pigeon has made this result possible. An enlargement of the oviduct also occurs quite parallel with that of the suprarenals (both facts shown by curves and tables). That an hypertrophy of the suprarenals occurs in some sort of relation to the menstruation, pregnancy and lactation of mammals has of course been described; so far as we are aware the nexus with ovulation has been overlooked.

[1] Riddle, O., *Amer. Jour. Physiol.*, 1916, xli, 387.

Before undertaking the present study we had learned that birds dead of tuberculosis, or from the presence of round-worms (Ascaridia), usually show enlarged suprarenals. The normal size of each suprarenal had been found to lie between 0.006–0.009 gram; those dead of tuberculosis weighed as much as 0.051 g. and the Ascaridia-infested were almost equally enlarged. Enlargement of these glands doubtless occurs under many other infections. Forty-three females with fully known reproductive history were taken for this study; they were killed at several intervals with reference to ovulation; they were placed in one of two groups according to whether they showed or failed to show round-worms or tuberculosis. The data obtained from the healthy birds show that in nearly (not quite) all cases the supra-

CURVE SHOWING DATA FOR HEALTHY PIGEONS.

The 44-hour ovulation period (shown between the two vertical lines) occupies for convenience only one half the space it should occupy. All other time intervals are properly spaced. The ordinates represent weight. The number of birds concerned at each point in the curve—from left to right—follows: 3, 4, 6, 3, 1, 2, 3, 1

DATA FOR SIZE OF SUPRARENALS IN RELATION TO THE PERIOD OF OVULATION.

Period with Reference to Ovulation.	No. of Birds.	Ave. Weight (Grams).		
		Body.	Oviduct.	Adrenals.
Healthy Common Pigeons.				
96 + hrs. before	(3)	312	0.883	.0076
29–53 hrs. before	(4)	351	4.957	.0148
3–22 hrs. before	(6)	360	10.356	.0207
Mid-Ovulation	(3)	*355*	*8.781*	*.0219*
2–3 hrs. after	(1)	373	9.483	.0197
20 hrs. after	(2)	344	7.886	.0136
45–73 hrs. after	(3)	343	2.987	.0164[1]
96 + hrs. after	(1)	338	0.883	.0108
Common Pigeons bearing Ascaridia or Tuberculosis.				
96 + hrs. before	(2)	314	1.499	.0097
48–72 hrs. before	(3)	348	3.725	.0166
24 hrs. before	(3)	331	6.823	.0096
3 hrs. before	(1)	323	8.382	.0119
Mid-Ovulation	(7)	*336*	*8.907*	*.0122*
1–3 hrs. after	(2)	366	8.649	.0141
20 hrs. after	(1)	340	7.828	.0138
50 hrs. after	(1)	340	4.708	.0137
96 + hrs. after	(2)	314	1.499	.0097

[1] For two of the three the average is 0.0095.

renals were enlarged, and most enlarged in the middle of the ovulation period. The diseased birds fail to show this relation; and, though these glands are larger than the normals in the periods most removed from ovulation, they do not show a comparable enlargement during ovulation.

The appearance of the hypertrophied glands in the normal birds is otherwise wholly normal. Their appearance certainly suggests an increased activity of the glands during this period. Sections of the gland have not been made and we do not know whether both parts share in the hypertrophy. If increased secretion occurs, it doubtless has an important bearing upon the general physiology of the gland; and upon the effects which "reproductive overwork" (Whitman, Riddle) has been found to produce on the egg size and offspring of pigeons; for, a bird made to produce as many as 30 or 40 pairs of eggs per year would thus be almost continuously subjected to a hypersecretion of the suprarenals.

123 (1870)

Studies in the physiology of vitamins. III. A comparison of the effects of feeding extracts of muscle and yeast respectively.

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In a previous communication[1] experiments were reported wherein it was shown that the feeding of extracts of rice polishings, wheat embryo, and navy bean to dogs which had been fed on a diet lacking vitamin-B resulted in a recovery of appetite which lasted for varying periods. Vitamin-B was suggested as the appetite-promoting factor in the preparations used. The present report concerns control experiments in which an extract lacking this factor was tested.

Commercial Liebig's extract of beef muscle and the extract of yeast vitamin as prepared by the Harris Laboratories were used for these experiments. Tests were made using the Liebig

[1] Cowgill, PROCEEDINGS SOC. EXP. BIOL. AND MED., 1921, xviii, 290–291.