apparent infection. No tests for inapparent infection were made. Six of the presumably infected birds and 2 of those proven infected, were found in one group of 24 pigeons purchased in March, 1938.

Relation of the virus infection to the dietary deficiency. All birds studied were in apparently good health when received, and remained in good health during the preliminary period of one to 2 weeks on normal diet. Moreover, no birds died during their first 4 or 5 days on the diet, but all deaths from the infection occurred before the twelfth day on the diet. The relative constancy of the period of deficient diet preceding manifestations of infection suggested a relationship between the deficiency and the infection similar to that shown to exist between riboflavin deficiency and experimental typhus fever in the rat.[2]

Summary and Conclusions. A virus closely related to, if not identical with that of psittacosis was isolated from about 5% of 400 pigeons on a thiamin-deficient diet. The observations made suggest: 1. That pigeons should be added to the list of birds naturally infected with psittacosis virus and therefore of possible importance in the epidemiology of the disease, and 2. That thiamin deficiency may be capable of changing a latent infection with psittacosis virus into an active stage, with consequent danger of spread to other birds and to man.

Acknowledgment should be made of the assistance of Dr. T. M. Rivers who kindly examined our sections and stated that the intracellular bodies seemed identical with those of psittacosis.

11806 P

Effect of Undernutrition on Thyroid Tissue Respiration of Guinea Pig.*

D. J. STEPHENS AND IRVIN J. BELASCO. (Introduced by W. S. McCann.)

From the Departments of Medicine and Vital Economics, University of Rochester School of Medicine, Rochester, N. Y.

In a previous publication[1] it has been shown that undernutrition in the guinea pig results in marked structural changes in the thyroid

[2] Pinkerton, H., and Bessey, O. A., *Science*, 1939, **89**, 368.

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[1] Stephens, D. J., *Endocrinology*, 1940, **26**, 485.

TABLE I.
Oxygen Consumption of Thyroid Glands of Normal and Undernourished Guinea Pigs.

No.	Original wt, g	Final wt, g	% gain or loss body wt	Wet wt 2 thyroids, mg	Dry wt 2 thyroids mg	Dry wt, %	Mm^3 O_2 per mg dry tissue, per hr	Mm^3 O_2 per hr, entire 2 thyroids	Thyroid O_2 consumption, mm^3 per kg body wt per hr
Normal									
E-48	270	305	+13	44.0	5.45	12.4	4.70	25.2	82.6
E-49	295	335	+13	47.8	7.08	14.8	3.76	26.2	79.1
E-50	285	325	+14	43.6	5.14	11.8	3.49	17.9	55.0
E-51	270	305	+13	33.0	4.53	13.7	3.58	16.2	52.6
E-52	270	300	+11	33.9	4.06	12.0	4.94	20.1	67.1
Avg	278	316	+13	40.4	5.25	13.0	4.09	21.2	67.3
Undernourished									
E-42	310	265	—14	31.4	3.69	11.7	3.93	14.5	54.7
E-43	290	230	—21	25.0	3.46	13.9	3.11	10.7	46.5
E-44	290	240	—18	28.1	3.36	12.0	3.26	10.9	45.4
E-45	305	245	—20	31.0	5.28	16.6	2.46	13.0	53.0
E-46	285	230	—20	23.9	3.10	13.0	3.21	9.9	41.2
Avg	296	242	—18	27.9	3.78	13.5	3.19	11.8	48.2
							—22%	—44%	—28%

characterized by atrophy and flattening of the acinar epithelium and retention of colloid, suggesting a resting, inactive gland. This communication is a preliminary report of a study of the thyroid tissue respiration in such animals.

Procedure. Mature, female guinea pigs, weighing approximately 300 g, were selected for study. Details of the care and feeding of these animals have been described.[1] Undernutrition was produced by feeding a quantitatively inadequate diet resulting in a loss of approximately 20% of body weight in a period of 2 weeks. At the end of the experimental period the animals were killed by a blow on the head. A group of animals receiving a full diet was killed while gaining weight to serve as normal controls. The thyroid glands were removed immediately, weighed, and thin slices of tissue removed for the determination of oxygen uptake by the use of the Warburg constant volume manometers, according to the procedures previously described by Belasco and Murlin.[2] Another portion of thyroid of each animal was reserved for histological study; the remainder was then weighed again and dried to constant weight.

Results are summarized in Table I. The undernourished animals had lost an average of 18% of original body weight in a period of 2 weeks. Both the wet and dry weights of the thyroids of the undernourished animals were considerably reduced. The oxygen consumption of thyroid calculated as cu mm per mg of dry tissue per hour showed a significant reduction (—22%) in the undernourished animals. When calculated as the total oxygen consumption of the entire 2 thyroids, a reduction of 44% was found in the undernourished animals. The oxygen consumption of thyroid tissue was also calculated in relation to the total body weight of the animals. The thyroid O_2 uptake in cu mm per kg of body weight per hour was 28% less in the undernourished animals than in the normal controls.

Conclusions. The oxygen consumption of the thyroid glands of undernourished female guinea pigs was significantly reduced.

[2] Belasco, Irvin J., and Murlin, J. R., *Endocrinology*, in press.