animals fed lactic acid (lacto-kelpol), and in those fed a combination of milk and lacto-kelpol. Since there was no experimental implantation of *B. acidophilus*, it would appear that the predominating aciduric flora resulted merely from the addition of the lactic acid to the diet.

(6) *Proteolytic and Fermentative Anaerobes.* One may summarize the change in this group by stating that there is a slight decrease in the proteolytic anaerobes and a corresponding increase in the fermentative group, when milk, lactose, or lacto-kelpol is given.

Summary: An exclusive milk diet, lactic acid in lacto-kelpol, or large amounts of lactose added to a regular neutral diet, will usually produce a lowering of pH of the colon contents, an increase in gram positive organisms including an increase in *B. acidophilus*, X-type, and at the same time, in some instances will show a reduction in the number of intestinal trichomonads and amoebae.

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Influence of the Rate of Secretion on the Urea Concentration of Saliva.

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Observations of Hench,[1] Schmitz[2] and others have shown that the concentration of urea in human saliva obtained by chewing paraffin averages about 80% of that of the blood. The published figures from which this average has been obtained show wide variations in different individuals. Those of Hench[1] vary from 50 to 130%, those of Schmitz[2] from 58 to 128%, and unpublished observations made in this laboratory in 1921 from 58 to 110%.

Specimens of saliva secreted at slow and at rapid rates were obtained from each of 16 individuals, and their urea concentrations (urea plus ammonia) compared with that of blood taken at the same time. The slow specimens were obtained without stimulation, the rapid ones by chewing paraffin. (Table I.)

All the subjects show a lower urea concentration in the rapidly secreted specimens, the average difference between slow and fast

[1] Hench, P. S., and Aldrich, M., *J. Am. Med. Assn.*, 1923, lxxxi, 1997.

[2] Schmitz, H. W., *J. Lab. and Clin. Med.*, 1922, viii, 78.

TABLE I.
Observations on Whole Saliva. Mean Values.

Subject	Blood	Saliva.					
	Mg. urea per 100cc	Rate—cc per min.	Mg. urea per 100cc	% blood urea	Rate—cc per min.	Mg. urea per 100cc	% blood urea
1	19.4	0.57	20.7	109	1.68	16.7	86
2	31.5	0.26	43.0	134	3.66	25.7	81
3	19.3	0.32	25.5	133	4.30	12.3	64
4	30.4	0.29	50.0	158	3.28	21.4	71
5	41.8	0.33	57.6	139	4.40	33.4	63
6	39.0	1.30	33.1	73	4.00	29.8	66
7	28.9	0.31	39.8	138	3.20	22.0	76
8	20.7	0.68	21.7	107	7.20	18.4	89
9	26.9	0.27	27.1	101	2.77	24.7	92
10	31.3	0.39	45.0	144	6.55	23.7	76
11	64.9	0.24	74.1	114	4.24	45.3	70
12	25.5	0.24	33.8	134	1.64	20.1	78
13	28.7	0.32	39.9	138	3.27	24.6	85
14	19.8	0.12	26.1	132	1.98	14.4	73
15	22.9	0.53	27.3	119	6.95	19.3	84
16	19.9	1.00	14.4	72	4.40	11.6	58
16		0.47	44.9	122	3.97	22.7	76

specimens being 46 mg. per 100 cc. The high figures obtained when the secretion rate was low are no doubt partly due to accumulated ammonium salts in the mouth, as noted by Hench. Since we could not be sure that this source of error was completely eliminated by

TABLE II.
Observations on Parotid Saliva. Mean Values.

Subject	Blood	Saliva					
	Mg. urea per 100cc	Rate—cc per min.	Mg. urea per 100cc	% blood urea	Rate—cc per min.	Mg. urea per 100cc	% blood urea
1	11.8	0.27	11.9	101	0.69	9.1	77
2	32.2	0.19	34.9	109	0.96	19.9	62
3	44.0	0.14	45.4	102	1.02	32.3	73
4	27.8	0.10	31.2	112	1.08	19.9	72
5	39.3	0.23	38.2	97	1.23	26.6	68
6	38.0	0.55	33.4	88	2.78	23.6	62
7	49.3	0.27	39.3	80	1.67	30.8	63
8	33.3	0.58	29.3	88	2.09	23.8	71
9	33.4	0.37	31.0	93	1.15	25.0	75
10	35.6	0.50	32.5	91	3.00	27.6	77
11	39.0	0.18	40.7	105	1.32	28.2	72
12	22.0	0.29	23.3	95	0.83	18.0	82
13	23.6	0.29	32.8	101	0.52	27.0	83
14	20.5	0.53	18.7	91	2.50	17.5	85
15	21.8	0.22	20.8	95	0.75	16.4	75
16	26.1	0.19	26.7	101	1.18	21.4	82
17	24.2	0.23	19.7	81	0.87	16.3	68
18	20.9	0.52	17.8	86	1.37	14.2	69
18		0.31	29.3	95	1.39	22.1	73

preliminary washings of the mouth, a similar series of observations was made comparing the blood urea with that of saliva obtained from one parotid gland. Such saliva was found to contain only a negligible amount of ammonia. Solutions of tartaric acid (0.05% and 0.5%) were used as stimuli. The results are given in Table II.

The secretion rates in this table can not of course be compared with those in Table I, but all subjects show a diminution in urea concentration when the secretion rate is increased, averaging 7.2 mg. urea per 100 cc.

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Duck Disease Studies: II. Feeding of Single and Mixed Salts.

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One phase of the duck disease study previously outlined[1] is an investigation to determine the probability of "alkali poisoning" as the cause of this malady. This report deals with preliminary data obtained in the forced feeding of salts and mixtures of salts, such as are known to occur naturally in some of the disease areas.

Male and female ducks of the pintail species, weighing from

TABLE I.

	Salt	Gm. Fed	Result
1.	Sodium Chloride	1.57	Non-toxic.
2.	" "	4.72	Non-toxic.
3.	" "	6.00	Death in 4 days.
4.	" "	7.90	Death in 36-45 hours.
5.	" "	15.80	Death in 2 hours 25 minutes.
6.	Magnesium Chloride	0.40	Non-toxic.
7.	" "	1.00	Non-toxic.
8.	" "	1.50	Paralysis starting in 40 min. and lasting 5-6 hours.
9.	" "	3.00	Paralysis starting in 30 min. and lasting 5-6 hours.
10.	" "	3.60	Vomiting in 10 minutes, paralysis in 20 minutes, lasting 5-6 hours.
11.	" "	4.50	Paralysis in 5 minutes and death in 15 minutes.
12.	Calcium Chloride	1.38	Non-toxic.
13.	" "	4.80	Great depression in 15 minutes and death in 35 minutes.
14.	Sodium Sulphate	2.60	Non-toxic.
15.	Sodium Nitrate	0.50	Non-toxic.
16.	Magnesium Nitrate	0.20	Non-toxic.

[1] Shaw, P. A., PROC. SOC. EXP. BIOL. AND MED., 1929, xxvii, 6.