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.

TABLE II.

	Relative %							
Ion Exp. No.	1	2	3	4	5	6	7	8
Sodium	36.0	35.7	32.7	34.0	34.9	33.3	34.1	18.0
Chloride	42.0	37.0	44.0	44.0	37.0	39.6	45.0	31.0
Sulphate	12.0	10.5	10.9	11.0	10.5	15.9	18.0	27.0
Nitrate	10.0	8.8	9.1	9.5	8.8	8.7		
Calcium			3.3			0.8	1.0	0.8
Magnesium				1.5		0.8	0.9	0.8
Bicarbonate					8.8	0.9	1.0	0.8
Potassium								21.6
Nitrite		8.0						
Mgm. per dose	730	830	805	778	830	838	728	887
No. of doses	3	1	3	3	3	3	3	4
Interval between doses, hrs.	1.7	—	1.7	1.7	1.7	2.5	2.0	1.5
Total dose in gm.	2.2	0.83	2.4	2.3	2.5	2.5	2.2	3.5
Toxic period, hours	0		0	3-9	5-8	5-8	0	2—
Hours to death		1				8		6-16

600-800 gm. were used for the experiments. The salts were fed in solution ordinarily, by means of a pipette, but in a few instances were fed dry in capsules. Some data on single salts are shown in Table I and on mixtures in Table II.

The results indicate that less than 5 gm. of sodium chloride is non-toxic; while 6 gm. or more is lethal, the time required to produce death decreasing as the dose is increased. Toxicity appears after administration of 1.5 gm. magnesium chloride, but an amount approximately 4.5 gm. is required for a lethal dose. Calcium chloride totaling 1.4 gm. was non-toxic, while 4.8 gm. was lethal in 35 minutes.

The symptoms of sodium chloride toxicity were nausea, general depression, and torticollis. Magnesium chloride produced a typical paralysis, rendering the bird entirely helpless for the period during which the effect lasted. With calcium chloride the ante mortem symptoms appeared to be general depression rather than paralysis. Details of the symptoms produced, together with the blood and pathological changes, will form a separate report.

Data of particular significance were obtained from the administration of certain mixtures, a marked increase in toxicity being noted in those solutions which contained nitrate together with either magnesium or bicarbonate. It should be noted in Experiment 3 that calcium with nitrate did not produce a similar toxicity, nor was toxicity developed in Experiment 7 in which magnesium and bicarbonate were used but no nitrate.

The greatest toxicity was found in Experiment 2, in which sodium nitrite was added to the solution used in Experiment 1. In this con-

nection it may be significant that qualitative nitrite tests made on the solutions, after standing in the laboratory for 2 weeks, gave negative results in Experiment 1 and positive results in Experiments 3, 4 and 5, showing a reduction of nitrate to nitrite apparently through the action of calcium, magnesium or bicarbonate ion, depending on the respective cases.

Toxicity was also obtained by substituting potassium for a portion of the sodium as indicated by comparison of Experiments 7 and 8. It is true that a larger total was fed in the case of the potassium mixture but it should also be noted that toxicity appeared shortly after administration of the second dose. In the 8 experiments listed in Table II the minimum dose was 0.83 gm. and the maximum 3.5 gm., 6 of the experiments using practically a constant amount of 2.2 to 2.5 gm. In all 8 cases the relatively non-toxic salts sodium chloride and sodium sulphate compose 76.0 to 97.1% of the total.

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Promotion of Healing by Benzoyl Peroxide and Other Agents.

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This is a study designed in part to test the suggestion of the late Prof. A. S. Loevenhart that certain organic peroxides (benzoyl peroxide in particular) should be superior to anything now employed for the healing of skin lesions. This is because of their antiseptic action, without protein precipitation, by the slow but continuous liberation of "active" oxygen in contact with living tissue, and because of a supposed beneficial effect of this liberated oxygen on the healing process. Failure of these agents to coagulate protein should be a weighty argument in their favor, since it may be claimed that antiseptics which have this action delay healing to just that extent. Some evidence in support of these views was furnished by Loevenhart.[1]

Experimental: About 25 square cc. on the inner surface of the leg below the knee was shaved, washed and dried. By means of a small pipette, 0.1 cc. concentrated sulphuric acid was applied to

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[1] Loevenhart, A. S., *Therap. Monatshefte*, 1905, xii, 426.