

herald the rain at *R*. Here the pointer, at *S*, actually gave up in despair and rested for a while on the stops; but it soon got free again and has not succumbed since, etc. The lag condition inside of the room as compared with those outside were well marked. At mid-day there is usually a slight rise of the pointer, owing to increased temperature and dryness.

So far as I can see there is no reason why such an apparatus should not be quite trustworthy. Without using mirrors, it could easily be made twenty times more sensitive. The gelatine film attached has been in the laboratory for at least twenty-five years under the same atmospheric conditions. The question is therefore pertinent whether we know as much about the continuity of thermodynamic equilibrium, or about colloids, as this simple instrument might answer.

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SOME ANALYSES OF THE URINE OF REPTILES

It is generally stated that in the urine of the Sauropsida, birds and reptiles, the urea of the urine is replaced by uric acid, and that uric acid is the sole nitrogenous excretory product of importance. That uric acid is practically the sole nitrogenous constituent of the urine of a reptile of the arid regions, the horned lizard (*Phrynosoma cornutum*) of southwestern United States has been recently shown by the analyses of Weese¹ from this laboratory. Examination of the urines of some aquatic or semi-aquatic reptiles has indicated that uric acid is of less importance quantitatively in the urine of reptiles of this type than is generally assumed.

The urine was removed from the urinary bladder immediately after the death of the animal by bleeding, and analyzed promptly. The use of the newer analytical methods (colorimetric determination of uric acid and creatinine (urease determination of urea) made possible the accurate analysis of small volumes of dilute urine. The specimen of alligator urine was obtained through the courtesy

of Professor Henry B. Ward, of the department of zoology. The results are expressed as milligrams per 100 c.c. urine and in the case of the turtles in percentages of total nitrogen.

	Turtle		Turtle		Alligator
	Mgs.	Per Cent.	Mgs.	Per Cent.	Mgs.
Total N	62	—	150.0	—	—
Urea N	28	45.1	46.7	31.1	29
Ammonia N	11	17.7	21.8	14.5	44
Uric acid N	12	19.1	21.0	14.0	47
Creatinine N	1	1.6	1.4	0.9	—
Creatine N	6	9.7	3.9	2.6	—

It will be noted that in both of the turtle urines examined the amounts of urea and ammonia nitrogen exceed that of uric acid nitrogen, the latter constituting only 19.3 and 14.0 per cent. respectively of the total nitrogen. In the case of the alligator urine the uric acid content was somewhat higher. The relatively high elimination of ammonia nitrogen in comparison to the amount present in most other types of vertebrate urine is of interest in suggesting that the uric acid may occur in the form of ammonia salts. The occurrence of creatinine and creatine or substances that give similar color reactions is also noteworthy. The relatively high content of creatine (or substances which react similarly on hydrolysis and subsequent treatment with picric acid and alkali) was confirmed by determinations by both the Folin-micro and S. R. Benedict methods.

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