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The uric acid content of the blood of the stellar sea-lion.

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A year ago, in the course of a general investigation of the body fluids of the Stellar sea-lion, indigent to the coast of northern California, it was observed, quite accidentally, that the uric acid of the blood apparently undergoes a considerable increase on standing. A recent and more complete study of the same question has confirmed the earlier results completely. The uric acid content of the fresh blood of four animals was found to vary from a bare trace to two milligrams per hundred cubic centimeters, according to the method of determination used. After standing for eight days on ice the apparent uric acid content had increased to as high as seven milligrams per hundred cubic centimeters, and remained at approximately this level until the thirtieth day, when the experiments were discontinued. Even after eight hours of standing at room temperature the apparent uric acid content had increased considerably.

The determinations were made by three different methods, the direct colorimetric method of Benedict; the zinc precipitation

method of Morris and Macleod; and the silver precipitation method of Folin and Wu. The three methods did not give concordant results for the same samples of blood, the amounts of uric acid indicated in each case being in the descending order in which the methods are listed above. It is significant, however, that the *difference* in the results from the three different methods remained practically constant, irrespective of the absolute uric acid level. In other words, the substance which accumulates in the blood on standing is precipitated by both zinc and silver. Whether or not these discrepancies in the results from the three methods are inherent in the methods themselves is of no concern in this present investigation. Actual uric acid—or at least a crystalline substance showing the murexid reaction—was isolated in small amounts from samples of the defibrinated blood.

The uric acid which accumulates on standing does not apparently result, however, from the simple hydrolysis of a combined form of uric acid (as Benedict has shown to be the case in beef blood), for acid hydrolysis had no appreciable effect upon the free uric acid content.

Using the technique of Davis, Newton and Benedict,[1] an effort was made to isolate, from fifteen liters of defibrinated blood, a possible uric acid-pentose compound, similar to the substance which these workers obtained from beef blood. No such compound could be isolated from the sea-lion blood. The precursors of the uric acid which accumulates in the two cases are thus entirely different.

The accumulation in the sea-lion blood is probably dependent in some way upon the corpuscles, since pericardial lymph—which is doubtless fairly representative of the blood plasma—does not exhibit an increase in uric acid on standing.

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[1] Davis, A. R., Newton, E. B., and Benedict, S. R., *J. Biol. Chem.*, 1922 liv, 595.