The water precipitated during the day of the storm, as reported by the weather bureau, was 0.66 in. A spot sample of snow collected on the campus showed 2.98 g of dust per liter of water. This gives an average amount of dust of 128.8 tons/mi². Even reducing this number to 50 tons because of the possibility of uneven distribution of dust, it would amount to a minimum of 75,000 tons of dust falling on the basic Twin City area—about 1500 mi².

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References

1. For example: A. E. Alexander, *Monthly Weather Rev.* **62**, 15 (1934); I. F. Hand, *ibid.* **62**, 156 (1934); L. R. Page and R. W. Chapman, *Am. J. Sci.* **28**, 288 (1934); A. N. Winchell and E. R. Miller, *ibid.* **46**, 599 (1918); **3**, 349 (1922); and *J. Agr. Research* **29**, 443 (1924).

14 June 1954.

On the Fluorometric Determination of N¹-Methylnicotinamide

Huff and Perlzweig (*1*) developed a fluorometric method for the estimation of N¹-methylnicotinamide based on the condensation of it with acetone under alkaline conditions. Huff (*2*) has shown the condensation product to be a highly fluorescent napthyridine derivative. More recently, Kato *et al.* (*3*) have reported that the intensity of fluorescence may be increased when samples of N¹-methylnicotinamide are treated with alkaline hydrogen peroxide before the analytic procedure is applied. We have found that pretreatment of samples with alkaline or neutral hydrogen peroxide may completely destroy N¹-methylnicotinamide, depending on the concentration and on length of time in which the samples are in contact with peroxide (*4*). Huff and Perlzweig have previously mentioned the rapid destruction of N¹-methylnicotinamide in alkaline solution.

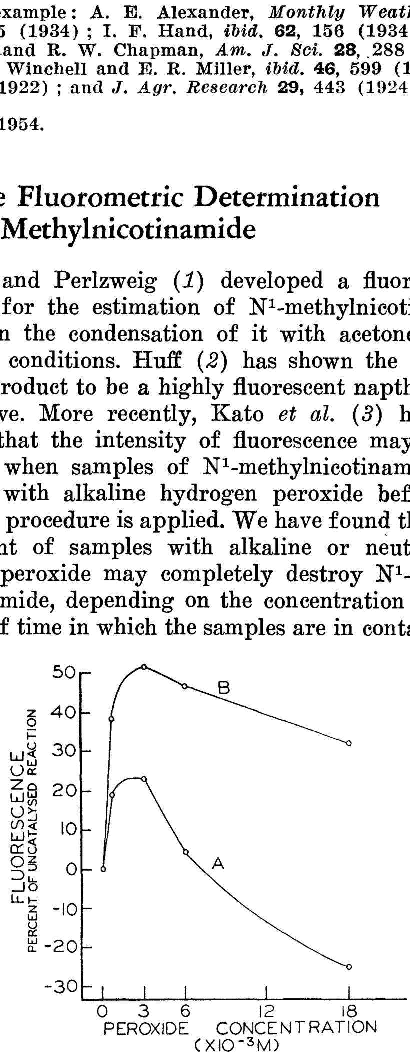

Fig. 1. Effect of hydrogen peroxide on the fluorescence of N¹-methylnicotinamide condensed with alkaline acetone: *A*, N¹-methylnicotinamide samples pretreated with neutral hydrogen peroxide; *B*, N¹-methylnicotinamide samples treated with hydrogen peroxide after the addition of acetone and alkali. Data obtained by the analytic procedure of Huff and Perlzweig (*1*) using 0.8 μg. N¹-methylnicotinamide in a final volume of 10 ml. The fluorescence of the uncatalyzed reaction was arbitrarily taken as zero.

Hydrogen peroxide, however, is effective in catalyzing the reaction when the peroxide is added to the reaction mixture after the acetone and alkali additions (Fig. 1). A plot of peroxide concentration versus the change in fluorescence from that of the uncatalyzed reaction demonstrates the concentration of peroxide necessary to obtain maximum fluorescence. At concentrations greater than the optimum, N¹-methylnicotinamide may be destroyed. Pretreatment of the samples with neutral hydrogen peroxide, immediately before application of the analytic procedure, resulted in a lower fluorescence response at the optimum concentration of peroxide and in greater destruction of N¹-methylnicotinamide at high concentrations of peroxide.

The data also indicate the necessity for rigid control of peroxide concentrations in order to obtain reproducible results.

In a study of the factors affecting the analytic procedure, we have found that a large number of inorganic elements catalyze the formation of a fluorescent derivative. Iridium and cerium salts have the greatest activity at concentrations of 5×10^{-6} and 8×10^{-6} M, respectively. These salts are almost 1000 times more active than hydrogen peroxide at optimum concentrations. A complete report of the factors affecting the formation of the napthyridine derivative is in preparation and will be published elsewhere.

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References and Notes

1. J. W. Huff and W. A. Perlzweig, *J. Biol. Chem.* **167**, 157 (1947).
2. J. W. Huff, *J. Biol. Chem.* **167**, 151 (1947).
3. M. Kato, H. Shimizu, and Y. Hamamura, *Science* **116**, 462 (1952).
4. A preliminary report of this work was presented before the Division of Biological Chemistry, American Chemical Society, Sept. 1953.

5 February 1954.

A New Enemy of the Oyster Drill

It has been reported that the oyster drill, *Urosalpinx cinerea* (Say), and *Eupleura caudata* (Say) is its own worst predator (*1*). However, the moon snail, *Polinices duplicata* (Say), may in some areas destroy more oyster drills than the drills themselves destroy.

Dead drills from the Lower Miah Maull area of Delaware Bay, 937 in number, were examined for cause of death. Of these, 100 contained the large, heavily countersunk hole typical of the moon snail, and 76 contained the small, slightly countersunk hole typical of the oyster drill. These dead drills were obtained from material removed from the leased oyster beds by drill screens and a drill dredge. Drill screens and drill dredges are screening devices used by the oystermen to remove drills from their oyster beds.