tion of 3-acetylpyridine and adenosinediphosphate ribose and the two components can be separated on a Dowex formate column. 3-Acetylpyridine can be washed off the column with water and can be identified spectrophotometrically as illustrated in Fig. 1. The absorption spectrum presented is identical with free 3-acetylpyridine as shown by the peak at 230 mμ.[4] The spectrum of nicotinamide released from DPN by the same treatment is compared with the product of cleavage of the acetylpyridine analog in the figure. From the curves in Fig. 1, it is evident that II contains 3-acetylpyridine in place of the nicotinamide moiety of I.

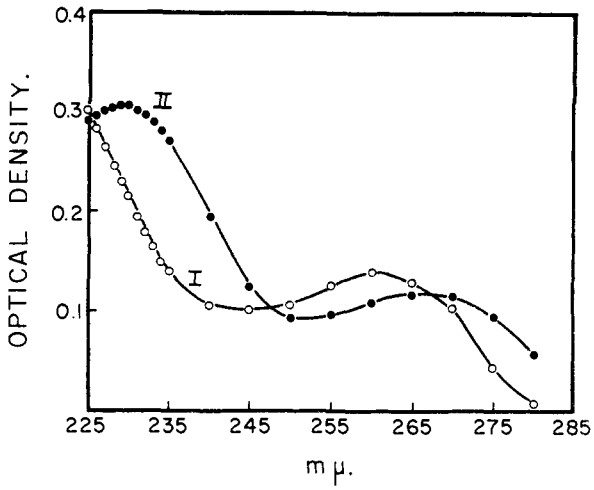

Fig. 1.—Absorption spectra of pyridine compounds released by pig brain DPNase from (I) DPN and (II) the 3-acetylpyridine analog of DPN; concentration of compound equal to 7×10^{-5} *M* in each case. Optical density values represent readings in 3 ml. at *p*H 7.0.

(4) W. T. Beher, S. P Marfey, W. L. Antony and O. H. Gaebler, *J. Biol. Chem.*, **205**, 521 (1953).

Neurospora DPNase[5] does not attack II. However, II reacts with crystalline yeast alcohol dehydrogenase at a rate of about 1/20 that of I. The reduced acetylpyridine analog has a maximum absorption at 365 mμ in contrast to the 340 mμ peak of reduced DPN. This is the only case thus far noted in which an analog of DPN is enzymatically reducible. It is of interest to note that the equilibrium constant with yeast alcohol dehydrogenase is different with I and II; II appears to have an oxidation–reduction potential considerably closer to the alcohol system than does I. In the presence of nicotinamide the pig brain DPNase can catalyze the conversion of II to I.

After injection of 3-acetylpyridine into mice, evidence has been obtained for the presence of II in brain.[6] It appears that formation of II may account for the deficiency symptoms produced by the acetylpyridine. In this connection, it is of interest to note that bacteria in general do not appear to contain DPNases of the animal tissue type, and this may explain why 3-acetylpyridine is not inhibitory to bacteria.

Details of the chemistry, enzymatic activity, nutritional significance and pharmacology of the 3-acetylpyridine analog of DPN will be published elsewhere.

(5) N. O. Kaplan, S. P. Colowick and A. Nason, *ibid.*, **191**, 473 (1951).

(6) N. O. Kaplan, A. Goldin, S. R. Humphreys and M. M. Ciotti, in preparation.

McCOLLUM–PRATT INSTITUTE
THE JOHNS HOPKINS UNIVERSITY NATHAN O. KAPLAN
BALTIMORE 18, MARYLAND MARGARET M. CIOTTI

RECEIVED FEBRUARY 12, 1954

BOOK REVIEWS

Relationship Between Chemical Structure and Toxic Action on Rats. By JAMES B. DEWITT, ERVIN BELLACK, CLARENCE W. KLINGENSMITH, JUSTUS C. WARD and RAY TREICHLER. **Relationship Between Chemical Structure and Rat Repellency.** By ERVIN BELLACK, JAMES B. DEWITT AND RAY TREICHLER; United States Department of Interior, Fish and Wildlife Service, Patuxent Research Refuge, Laurel, Maryland. Publications Office, National Research Council, 2101 Constitution Avenue, N.W., Washington 25, D. C., 1953. iii + 156 pp. 17 × 25 cm. Price, $1.75.

This interesting little book is a highly condensed summary of the vast amount of investigation carried out by the Fish and Wildlife Service on rodenticides and rat repellents.

As indicated by the title, the first part of this volume gives data on the toxicity of about 1000 compounds to rats while the second part gives the results of examination of more than 2700 materials as rodent repellents. Interpretations are, in general, cautious and limited to an empirical approach. The chemical configurations, which appear to be most effective biologically, are identified and briefly discussed.

Some idea of the condensation of this pesticide review may be gained from the fact that only 14 of its 156 pages are text while the remainder contains tables of experimental results.

The type size is smaller than desirable for comfortable reading, although clearly reproduced. There are remarkably few typographical errors. A minor inconsistency is the representation of the carboxylic acid group variously as –COO–, –C(O)O–, and –C(:O)O–.

This summary is a valuable reference source for those working in this field and should furnish guidance for future studies on rodenticides and repellents.

CHEMICAL CORPS MEDICAL LABORATORIES S. D. SILVER
ARMY CHEMICAL CENTER, MARYLAND

Organic Syntheses. An Annual Publication of Satisfactory Methods for the Preparation of Organic Chemicals. Volume 33. By CHARLES C. PRICE (Editor-in-Chief). John Wiley and Sons, Inc., 440 Fourth Avenue, New York 16, N. Y. 1953. vi + 115 pp. 15.5 × 23.5 cm. Price, $3.50.

"Organic Syntheses" has become a priceless publication for the organic chemist. The syntheses are concisely, but adequately, described such that anyone skilled in the science of chemistry can do the preparations with relative ease.

Volume 33 is consistent with the previous volumes in maintaining high quality. The syntheses of ninety-eight organic compounds involving a variety of reactions are clearly presented.

Every chemist concerned with organic reactions should have ready access to this volume.

DEPARTMENT OF CHEMISTRY
PURDUE UNIVERSITY E. T. McBEE
LAFAYETTE, INDIANA