nounced electromotive activity of acetylcholine. No other substance in such diminutive concentrations is known to produce perceptible electromotive effects on second-class conductors.

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THE DETERMINATION OF THIAMIN BY THE YEAST FERMENTATION METHOD

A RECENT note in SCIENCE by H. H. Bunzell[1] described experiments on yeast fermentation in which only an 8 per cent. stimulation of fermentation rate was caused by thiamin, whereas a 106 per cent. stimulation was produced by an extract of wheat germ. Observations such as these naturally cast doubt upon the reliability of the yeast fermentation method for the determination of thiamin.[2,3] In view of the widespread use of the latter method it was considered desirable to show how Bunzell's experiments differ from the published procedure.[3]

His description of the fermentation medium mentions a "nutrient" solution. This term does not occur in our paper,[3] and thus there is no way of knowing exactly what his "nutrient" solution contained. However, on the basis of our experience with fermentation it is probable that his "nutrient" solution *did not contain ammonium ions* as required by the published procedure.[3]

Without ammonia in the medium thiamin causes a very slight stimulation and, conversely, without thiamin ammonia causes only a slight stimulation. The combination of the two in maximum amounts, however, causes a 100 per cent. increase in fermentation rate. This circumstance might explain Bunzell's results with the wheat germ extract since it has been shown[4] that various amino acids, etc., have an effect equivalent to ammonium ions.

Bunzell's difficulties recall the experience of Smythe,[5] who, observing a remarkable stimulation of fermentation due to an extract of bull testicle, finally isolated ammonium chloride as the active factor. Smythe made the additional mistake of obtaining his yeast from the small cakes sold in grocery stores. Such yeast is too rich in thiamin to show any stimulation of fermentation when thiamin is added to the medium.

[1] H. H. Bunzell, SCIENCE, 93: 238, 1941.
[2] A. S. Schultz, Lawrence Atkin and C. N. Frey, *Jour. Am. Chem. Soc.*, 59: 2457, 1937.
[3] Lawrence Atkin, A. S. Schultz and C. N. Frey, *Jour. Biol. Chem.*, 129: 471, 1939.
[4] A. S. Schultz, L. Atkin and C. N. Frey, *Cereal Chem.*, 16: 648, 1939.
[5] C. V. Smythe, *Enzymologia*, 6: 9, 1939.

If the published procedure for the determination of thiamin[3] is followed with ordinary attention to detail, a satisfactory determination of the thiamin content of wheat germ will be obtained.

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CONTROL OF RED SPIDER (TETRANYCHUS TELARIUS) BY PHTHALIC GLYCERYL ALKYD RESIN

THE common red spider (*Tetranychus telarius* L.), commonly found on greenhouse-grown plants and on many field crops, is extremely difficult to control. The ineffectiveness of many insecticides which have been recommended for control of red spiders may be ascribed to their lack of ovicidal action. Furthermore, chemicals which possess ovicidal properties are often injurious to cultivated plants, especially those grown in greenhouses.

In the course of an investigation, totally unrelated to the problem of red spider control, the writers observed that when a 2 per cent. phthalic glyceryl alkyd resin in water was applied to plants heavily infested with red spiders, the latter quickly disappeared. Microscopic examination of infested leaves showed large numbers of dead red spiders in all stages of development and masses of spiders' ova which had turned yellow and become shriveled after five days. Further examination of the ovicidal properties of phthalic glyceryl alkyd resin showed that it possesses a remarkable insecticidal efficiency. No injury was observed on plants tested experimentally under greenhouse and field conditions. Concentrations less than 2 per cent. (but not less than 1 per cent.) were effective on adults but not on ova; above 2 per cent. the margins of the leaves were burned.

The following plants were sprayed with beneficial results and without injury to the leaves: alfalfa (*Medicago sativa* L.), almond (*Prunus communis* Fritsch. and *P. nana* Stokes), apple (*Pyrus malus* L.), apricot (*Prunus armeniaca* L. and *P. mume* Sieb. & Zucc.), begonia (*Begonia octapetala* L'Her., *B. tuberhybrida* Voss., *B. semperflorens* Link and Otto, *B. haageana* Wats., and *B. rex* Putz.), *Coleus blumei* Benth., florists cyclamen (*Cyclamen indicum* L.), *Gardenia veitchii* Bailey, *Pelargonium sp.*, grape (*Vitis vinifera* L.), *Hydrangea hortensis* Smith, India rubber plant (*Ficus elastica* Roxb.), ivy (*Hedera helix* L.), poinsettia (*Euphorbia pulcherrima* Willd.), plum (*Prunus americana* Marsh), rose (*Rosa sp.*), snapdragon (*Antirrhinum majus* L.), strawberry (*Fra-*