Thiophene-free Benzene

Since thiophene-free benzene is often required in the laboratory, especially in relatively small quantities, we wish to point out that the Raney nickel desulfurization reaction discovered by Bougault, Cattelain, and Chabrier (*Compt. rend.*, 1939, 208, 657; *Bull. soc. chim.*, 1940, 7, 781) provides an excellent method for its preparation.

In a typical experiment 100 ml. of benzene containing 1 per cent of thiophene was refluxed with 10 grams of Raney nickel prepared according to the method of Pavlic and Adkins (*J. Amer. chem. Soc.*, 1946, 68, 1471). After 15 minutes a sample of the benzene no longer gave the isatin-sulfuric acid color test for thiophene. An experiment using 5 grams of nickel apparently did not remove the last traces of thiophene. After removal of the nickel catalyst either by filtration or centrifugation, the benzene may be distilled, although for most purposes this seems unnecessary. It should be pointed out that the nickel residue gave a strong odor of hydrogen sulfide on acidification.

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Pyridylmercuric Acetate as a Prophylactic in Fisheries Management

Among the compounds recommended by their manufacturers for the control of slime in pulp and paper mills are the organic mercurials. Because, in their use in pulp and paper mill water systems, certain amounts may find their way to the sewer and thence to the stream, we have been studying the toxic effect of this type of compound on fish and other aquatic organisms. To this end the compound, pyridylmercuric acetate, has recently been studied, and in the course of the work a number of incidental observations were made which indicate that, in great dilutions, this compound could be used profitably to control infections in fish hatcheries.

In the work the test fish were Lake Emerald shiners, *Notropis atherinoides* (Rafinesque). Apparently the fish had some infection when introduced into our test battery, for the control group of 17 fish had only 9 survivors (52 per cent) after a five-day test. On the other hand, a group of 28 fish in a solution of 0.05 ppm of the compound had 75 per cent survival; a group of 28 fish in 0.10 ppm, 78 per cent survival; and a group of 19 at 0.15 ppm, 96 per cent survival. Conditions of the tests were as follows: water temperature, 12° C.; pH, 7.38–7.72; and methyl orange alkalinity, 266 ppm.

We were not able to isolate or identify any causative organisms in this instance, but at various times we have had epizootics of *Cyclochaeta*, another external ciliate, and an internal gram-positive diplococcus.

Pyridylmercuric acetate is very toxic to bacteria and is toxic to fish in higher concentrations, but, with study, it might be adapted successfully to fish-hatchery conditions as a treatment for some of the troublesome fish diseases.

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A View on Soviet Russia From Italy

I have read with the greatest interest the articles of Dr. Asmous (*Science*, 1946, 103, 281) and Dr. Gaposchkin (*Science*, 1946, 103, 404).

It is true that the Soviet Army saved the United Nations a great deal of trouble. So did the atomic bomb. Still, scientists of the U. S. A. agree that it is a weapon that one must not use.

It is a *fact* that the Soviet soldiers defeated the Nazi tyranny consciously. But, unfortunately, it is also a *fact* and not a feeling that Soviet tyranny, cruelty, and oppression are even larger, deeper, and worse than was the "horribile dictu" that was the Nazi tyranny.

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Book Reviews

Crop production and environment. **R. O. Whyte. London: Faber and Faber, 1946. Pp. 372. (Illustrated.) 25/-.**

Under this somewhat sweeping title Dr. Whyte, of the Imperial Agricultural Bureau, has given us a valuable presentation of many aspects of applied plant physiology. It would naturally be impossible to include within one book all the influences of environment on crop production. Mineral nutrition, soil science, and irrigation problems are omitted, and the book deals primarily with vernalization, photoperiodism, and the effects of temperature upon flowering.

An introductory chapter lays down briefly the types of phenomena to be considered, and the following two chapters discuss in more detail the early work of Klebs and of Gassner, the researches of Garner and Allard, and the more recent work of the Russian school. With these are included the experiments of Purvis and Gregory and of Murneek and the Missouri group. In spite of the author's pertinent remark that "too many generalizations have been made already" in this field, there is some tendency to overemphasize theories here at the expense of presentation of the facts. The effects of temperature and light on flowering, including an up-to-date description of Went's work on thermoperiodism, the reversal of vernalization by Gregory, and the effects of temperature and other conditions on photoperiodic response, are then presented in some detail. Two brief

but clear chapters deal with the role of hormones (real and postulated) in reproductive processes, and another with the work on breeding and selection for photoperiodic response. The remainder of the book takes up the various economic plants, including those of the tropics, and discusses the effects of light and temperature on flowering and also on hardiness and other characters.

A valuable feature of the book is its extensive presentation of the Russian literature. It is a pity, though perhaps unavoidable, that while sufficient description is given of the Russian experiments and results to understand them, the detail is still not enough to judge and appraise them critically. This is particularly true for the more controversial experiments of the Lysenko school, such as those purporting to show that vernalization can be inherited. Dr. Whyte seldom offers critical judgments of any of the work reported. The reviewer has been unable to find a clear answer to the question whether the yield of vernalized winter cereals is greater than that of appropriate strains of spring cereals planted under the same conditions in Russia. The lack of adoption of vernalization in most countries suggests that the answer is in the negative.

There are many fine, well-reproduced plates throughout the book. The inclusion of so much experimental material of different types will make the book of great value to plant scientists working both in the laboratory and in the field.

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Practical malariology. **Paul F. Russell, Luther S. West, and Reginald D. Manwell. (Prepared under the auspices of the Division of Medical Sciences, National Research Council.) Philadelphia-London: W. B. Saunders, 1946. Pp. xix + 684. (Illustrated.) $8.00.**

Within this fully illustrated and beautifully printed volume is to be found practically all of the basic information needed for a reasonable comprehension of malaria and its problems. If the reader is a medical historian, he will find a well-balanced digest of historical data in the first chapter. If he desires a presentation of modern concepts on the classification, life cycle, morphology, and physiology of the malaria parasites of man and lower animals, and the preparation of blood films, tissue smears, and sections for diagnosis, he will gain a wealth of useful knowledge in Section I. If he is a medical entomologist, Section II and the Appendix will provide practically all of the necessary information for application of his skills to the anopheline mosquitoes as the biological vectors of malaria. If he is a physician, Section III will give him the essentials of pathogenesis, symptomatology, and treatment. If his interest is in epidemiology, let him examine Section IV, and if it is in public health, he will obtain a great variety of practical information on prophylaxis and control of malaria in Section V. Even the syphilologist will profit from the brief presentation on therapeutic malaria in Section VI. Each of the 29 chapters is provided with an adequate, up-to-date bibliography. The subject index is fairly complete, although it is more exhaustive in page references to the parasites, e.g. species of *Plasmodium*, and the vectors, e.g. species of *Anopheles*, than to clinical aspects. The comprehensive subjects of pathology, symptomatology, diagnosis, and treatment are omitted, but clinical terms, such as "anemia," "anoxia," "blackwater fever," "cachexia," and the important organs and tissues in which pathological changes occur, are specifically referred to. Likewise, all important antimalarials, including their synonyms and trade names, are indexed.

Practical malariology reflects the training and experience of the senior author and his colleagues. The emphasis placed on the morphology and biology of the parasites and their vectors constitutes their conviction that malaria is a laboratory and field problem, and that control of the disease depends to a greater extent on these phases of the subject than on clinical malaria in the individual patient. The same viewpoint is indicated in the very short treatment given to morbidity and mortality statistics. This attitude will probably be challenged by the clinician, who will rightly argue that suppressive atabrine therapy among military forces stationed in areas of high malariousness during World War II kept the troops free of clinical malaria. Yet it must be admitted that anti-anopheline measures were even more useful, since they prevented, or at least greatly reduced, exposure to the disease. Furthermore, the senior author's success in controlling malaria in the tropics, in peace and in war, supports his major thesis that malaria must be conquered in the field rather than in the clinic. The few criticisms which the reviewer has mentioned are indeed minor when balanced against the splendid contribution to the subject which Russell, West, and Manwell have made. They, their publishers, and their sponsors deserve high commendation for this timely volume.

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Penicillin: its practical application. **Alexander Fleming. (Ed.) Philadelphia: Blakiston, 1946. Pp. x + 380. (Illustrated.) $7.00.**

Here is a good book on penicillin. Its practical application will be of interest to general practitioners as well as specialists who are interested in chemotherapy. The contents contain two sections: one, a general section of 6 chapters, dealing with the history, chemistry, pharmacy, pharmacology, bacteriology, and methods of administration; the other, a clinical section of 21 chapters, covering a wide variety of subjects, including a chapter for the general practitioner. One can find good general discussions of the subject of penicillin in almost all infections as they are treated in England. Some of the subjects are discussed in a very superficial fashion due to the lack of wide experience; this is especially true of the discussion of syphilis. One is inclined to question such statements as: "Inhalation of snuff and spray shortens the duration and diminishes complications" in acute rhinitis. On the whole, however, the book will serve as a very useful guide in using penicillin in the study of infections.

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