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SYPHILIS: A PUBLIC HEALTH PROBLEM[1]

By Dr. THOMAS PARRAN

SURGEON GENERAL, U. S. PUBLIC HEALTH SERVICE

FROM the papers delivered here this afternoon and in the days before, one can draw a large measure of satisfaction. Individually they document, together they epitomize that advancement of science to which this association is dedicated.

There is a satisfying humility too about the manner in which you scientists have reported the results of your studies. If there is any criterion which sets the scholarship of this age above that of other ages it is that implicit recognition that what we do not know extends infinitely beyond our known horizons.

I represent that section of your work which deals with medicine and public health. I have been asked to discuss one narrow sector within the broad scope of those two sciences, the sector of syphilis. It is a field of study which on the basis of its achievements in this century occupies a satisfying place in both medicine and public health. Syphilis, as Sir William Osler has said, is a great imitator. It mocks the symptoms of other diseases; but the physician has called upon the laboratory. We can diagnose syphilis more accurately than we can diagnose most diseases. Although the treatment for syphilis is a long and complicated one, medicine is surer of a cure than it is in the case of any other similarly serious disease.

Public health administration, on the other hand, has developed techniques which have made early syphilis a clinical rarity in several nations. I would devote myself to considering the scientific progress of our field as it relates particularly to medicine and public

[1] Delivered at the meeting of the Association at Indianapolis on December 30, 1937, in the Symposium on Syphilis organized by the Section on Medical Sciences. The symposium will be published by the Association in the near future.

labor required for the preparation, as well as the loss of ether, is much reduced by the following procedure.

To 3 l. of U.S.P. ether is added 450 g. of technical flake sodium hydroxide, and the mixture is allowed to stand at room temperature (25–30°) for two weeks with occasional shaking. After the first day the liquid becomes yellow and the sodium hydroxide appears somewhat powdery. After a week the color has nearly disappeared from the ether, but the sodium hydroxide has become yellow or brown. In about two weeks the ether is colorless and may be used directly for most purposes which require absolute ether, such as Grignard reactions. Since the non-volatile residue is very small (5 cc of the ether thus prepared left <0.01 mg of residue dried at 40°, or $<0.0_32\%$), distillation can ordinarily be omitted. The ether can be decanted and stored over sodium with very slight evolution of hydrogen.

The sodium hydroxide can not profitably be used for a second lot of ether without purification. Smaller proportions of hydroxide to ether result in lengthened time and eventually incomplete decolorization. Other processes using sodium or potassium hydroxide for drying ether are described in patents (Hammond, U. S. 1,466,435 and 1,466,436 (1923) and others). The ether is best stored over a small amount of sodium in bottles at least three quarters full to minimize "breathing" with change in temperature. Under these conditions, no peroxide formation has been observed. The cost of absolute ether made by this method is much less than the current price, and the quality, judged by its behavior both toward sodium and toward dilute permanganate in strongly alkaline solution,[2] is better than that of commercial grades.

W. F. BRUCE

BAKER LABORATORY
CORNELL UNIVERSITY

THE USE OF CARBON DIOXIDE IN THE PREPARATION OF SILICIC ACID JELLIES

IN studies on the growth of hydrogen-oxidizing bacteria on silicic acid jellies certain difficulties in the preparation of the jellies have been overcome by neutralizing the silicate with carbon dioxide. To 16 ml of nutrient solution in 6- or 12-oz. glass bottles is added 2 ml of a potassium silicate solution which has been made normal with respect to titrable alkalinity. A sufficient quantity of a mixture of normal hydrochloric, phosphoric and sulfuric acids is then added to give a reaction of approximately pH 8.0. After the bottles containing this liquid medium have been evacuated to a pressure of about 7.5 cm of mercury, a gas mixture consisting of 60 per cent. hydrogen, 20 per cent. oxygen and 20 per cent. carbon dioxide is run in to equalize the atmospheric pressure. The bottles are placed in a horizontal position, and within twenty or thirty minutes the carbon dioxide has been absorbed and the silicate has set to a firm transparent medium with a reaction of approximately pH 7.0.

HAROLD W. BATCHELOR

OHIO AGRICULTURAL EXPERIMENT STATION, WOOSTER

P. W. WILSON

FRASH BIOCHEMICAL LABORATORY, UNIVERSITY OF WISCONSIN

[2] G. S. Forbes and A. S. Coolidge, *Jour. Am. Chem. Soc.*, 41: 152, 1919. Commercial U. S. P. ether, absolute ether and the product above gave the following reaction times: 3, 12 and 20 seconds, respectively.

BOOKS RECEIVED

ARTHUR, PAUL and OTTO M. SMITH. *Semi-Micro Qualitative Analysis.* Pp. xi + 198. 10 figures. McGraw-Hill. $2.00.

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CHAPMAN, FREDERICK and WALTER JAMES PARR. *Foraminifera. Australasian Antarctic Expedition 1911–14, Vol. 1, Part 2.* Pp. 190. 4 plates. David Harold Paisley, Sidney, Australia. 22s, 6d.

COLBY, M. Y. *Sound Waves and Acoustics.* Pp. xi + 356. 109 figures. Henry Holt. $2.80.

HEALY, WILLIAM. *Personality in Formation and Action.* Pp. 204. Norton. $2.00.

HESKE, FRANZ. *German Forestry.* Pp. xxv + 342. Illustrated. Yale University Press. $3.00.

Index to A.S.T.M. Standards and Tentative Standards (Including List of A.S.T.M. Serial Designations.) January 1, 1938. Pp. 128. American Society for Testing Materials, Philadelphia.

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OSBORN, ALBERT L. *The Mind of the Juror.* Pp. xv + 239. Boyd Printing Co, Albany.

Palaeontologia Sinica, New Series D, No. 1, Whole Series No. 101. The Dentition of Sinanthropus Pekinensis: A Comparative Odontography of the Hominids. Franz Weidenreich. Pp. 121. Illustrated. Geological Survey of China, Peking.

PREYER, W. *Embryonic Motility and Sensitivity. Volume II, No. 6, Serial No. 13.* Pp. v + 115. Society for Research in Child Development, National Research Council, Washington.

Proceedings of the Aristotelian Society. New Series, Vol. XXXVII. Pp. 246. Harrison & Sons, Ltd., London. 25s.

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ROSANOFF, AARON J. *Manual of Psychiatry and Mental Hygiene.* Seventh edition. Pp. xviii + 1091. Wiley. $7.50.

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SYNGE, J. L. *Geometrical Optics, an Introduction to Hamilton's Method.* Pp. ix + 110. 37 figures. Macmillan. $2.00.

WATSON, H. B. *Modern Theories of Organic Chemistry.* Pp. vii + 218. Oxford University Press. $4.50.