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AGRONOMIC ADVANCES IN THE AGRICULTURE OF THE CORN BELT AND THE GREAT PLAINS REGIONS[1]

By Dr. H. K. WILSON[2]

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THE topic assigned to me presents several obvious problems, the chief of which is to cover the subject adequately within the allotted time without too many omissions of worthy contributions. Any failure to include important phases of work must be charged to the speaker in his inability to properly deal with this wealth of material within the short space of 30 minutes.

There has been one extremely outstanding development in the agronomic work of this region, of such vital importance, and with results so significant that it deserves special emphasis. The greatest single accomplishment of the past 25 years has been the evolution of a degree of cooperative research effort that has made this quarter of a century a period of unusual advancement. The close relationships between the United States Department of Agriculture and the various state experiment stations have unified the research toward common goals. Free exchange of ideas and materials is an established practice and is aiding greatly in promoting scientific agriculture.

Federal workers have aided in many phases of regional coordination. Generally, the United States De-

[1] Contribution from the Division of Agronomy and Plant Genetics, University of Minnesota, St. Paul, Minn. Paper No. 2120, of the Sci. Journal Series, Minnesota Agricultural Experiment Station. Presented at the meeting of the American Society of Agronomy in Cincinnati, Ohio, on November 10, 1943.

[2] Agronomist, Division of Agronomy and Plant Genetics, Minnesota Agricultural Experiment Station. The author wishes to acknowledge with thanks the helpful suggestions and criticisms of Dr. H. K. Hayes, chief of the Division of Agronomy and Plant Genetics. Dr. L. F. Graber, Wisconsin Agricultural Experiment Station, and Professor R. I. Throckmorton, of the Kansas Agricultural Experiment Station, made valuable suggestions for which thanks are given.

SCIENTIFIC APPARATUS AND LABORATORY METHODS

USE OF GELATIN IN THE INFLUENZA RED CELL AGGLUTINATION TEST[1]

THE red blood cell agglutination test has greatly facilitated laboratory studies of influenza by simplifying measurements of virus concentrations and antibody levels. A method utilizing the pattern of the cells settling on the bottoms of serological test-tubes as the criterion of agglutination has previously been reported by us.[2] To determine a virus agglutination titer by this technique, 0.5 cc of each two-fold virus dilution was mixed with 0.5 cc of a 1 per cent. solution of normal rabbit serum in saline, to which was then added 0.1 cc of a 0.75 per cent. suspension of washed human type "O" red cells (or chicken cells, if readily available). The inclusion of the 1 per cent. normal rabbit serum prevented the formation of a film of cells on the bottoms of the tubes which interfered with the reading of negatives and controls. It is the purpose of this note to report that a 0.1 per cent. gelatin solution in saline is a satisfactory substitute for the 1 per cent. rabbit serum. A stock solution, which can be made by dissolving the pure gelatin capsules used in pharmaceutical preparations in the proper volume of warmed saline, will keep in the refrigerator for at least one week.

When running agglutination-inhibition titrations on immune serum samples with the technique as reported in our original publication, a constant serum dilution of 1 : 100 was titrated against increasing dilutions of the agglutinating virus. In a few cases the antibody potency of the immune serum at this dilution has been sufficient to inhibit completely the agglutinating action of a 1:10 dilution of virus, the highest concentration used. In such cases the serum may be diluted to 1:200 or 1:400, or further, if necessary, by the addition of 0.1 per cent. gelatin, and retitrated to determine the end-point. From this titration the theoretical end-point of the serum in a 1:100 dilution can be calculated, since we have found that a two-fold increase in serum dilution resulted in a corresponding two-fold increase in the highest virus dilution showing inhibition of agglutination. We have expressed immune serum titers in terms of the fold-difference between the agglutination end-points of the virus-gelatin control titration and the virus-test serum titration.

Summary: A 0.1 per cent. gelatin solution has been found to be a satisfactory substitute for the normal rabbit serum included to facilitate the reading of agglutination in red blood cell tests with influenza virus.

THE PERSONNEL OF U. S. NAVY MEDICAL RESEARCH UNIT NO. 1
BERKELEY, CALIF.

[1] The opinions advanced in this paper are those of the writers and do not represent the official views of the Navy Department.

[2] Personnel of Naval Laboratory Research Unit No. 1, *U. S. Naval Medical Bulletin,* XLI: 114–128, January, 1943.

A SIMPLE PIPETTE HOLDER

IN the course of chemical analyses it is frequently desirable to put pipettes aside for reuse at a later time. Although there are a number of pipette racks on the market, they all involve putting the pipette through several holes with a consequent contamination of the sides of the pipette—for the racks, obviously, can not be chemically cleaned.

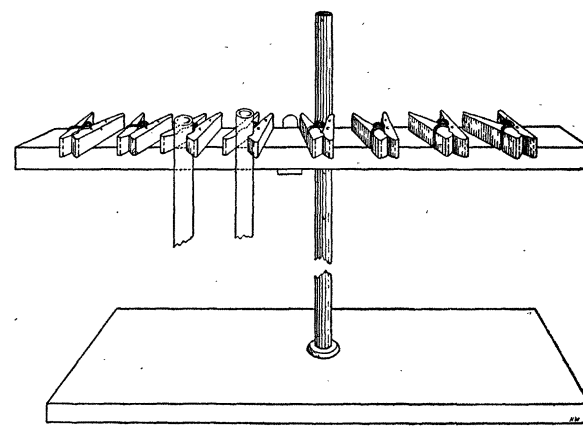

FIG. 1

This pipette holder is made by attaching eight spring type clothes pins to a board, which in turn is attached to a ring stand by a rod and common laboratory clamp. Two nails through one of the sides of the pin serve to attach it to the board. The other side is left free for operating the spring.

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WESTERN RESERVE UNIVERSITY
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BOOKS RECEIVED

AUBLE, ROBERT NEIL. *Shop Job Sheets in Radio.* Illustrated. Pp. vii + 128. The Macmillan Company. $1.50.

HARRISON, GEORGE RUSSELL. *Atoms in Action.* Illustrated. Pp. xii + 401. Garden City Publishing Company. $1.49.

RODGERS, ANDREW DENNY. *John Merle Coulter.* Missionary in Science. Pp. viii + 321. Princeton University Press. $3.75.

SUMNER, JAMES B. and G. FRED SOMERS. *Laboratory Experiments in Biological Chemistry.* Illustrated. Pp. vi + 169. Academic Press, Inc. $2.60.

The Philosophy of Bertrand Russell. Edited by PAUL ARTHUR SCHILPP. Pp. xv + 815. Northwestern University. $4.00.

TOKAY, ELBERT. *Fundamentals of Physiology.* Illustrated. Pp. xiv + 336. The New Home Library. 69¢.