BISMUTH-SULFITE PLATING MEDIUM PREPARED WITH PURIFIED AGAR. Mary W. Wheeler and Marion B. Coleman, Division of Laboratories and Research, New York State Department of Health, Albany.

The criteria for a satisfactory bismuth-sulfite plating medium for the isolation of typhoid bacilli and salmonellas are (1) inhibition of the coliform group (2) development of characteristic black colonies with dark metallic halos and (3) retention of these two properties for at least four days.

Experience in the preparation of this medium has demonstrated the need for employing only carefully standardized ingredients. The variable results obtained with different brands of commercial agar and even with different lots of the same brand have emphasized the importance of this particular ingredient. Recently a highly purified agar has been found to be superior to any of the commercial agars previously used. The purified agar had better gelling properties than the commercial agars and could, therefore, be used in a lower concentration. A medium prepared with it retained its differential properties for from six to eight days.

Reclamation of agar from used culture medium has been found to be a practical and efficient method for obtaining a highly purified product. At the same time, a conservation of material is effected.

STUDIES ON AZO SULFONAMIDES. C. A. Lawrence, Research Laboratories, Winthrop Chemical Co., Inc., Rensselaer, N. Y.

In vitro studies on soluble azo sulfonamide dyes, formed by coupling diazotized sulfathiazole, sulfapyridine and sulfadiazine with sodium 1-hydroxy-7-acetylanaphthalene-3,6 disulfonate indicate that some of these compounds are effective in inhibiting the growth of Staphylococcus aureus, α and β hemolytic streptococci, and types I, II and III pneumococci in broth.

The antibacterial effects of the active preparations are not due entirely to the reduction of the azo derivatives to the parent sulfonamide compounds during autoclaving of the drug-broth test solutions.

An azo preparation, formed by coupling diazotized sulfathiazole with the symmetrical carbamide of sodium 1-hydroxy-7-acetylanaphthalene-3,6 disulfonate, was effective in high dilutions in inactivating the lytic effects of lysozyme upon Micrococcus lysodeikticus.

COMPARISON OF IN VITRO EFFECTS OF ACRIDINES AND OTHER COMPOUNDS UPON VARIOUS BACTERIA. G. R. Goetchius and C. A. Lawrence, Research Laboratories, Winthrop Chemical Co., Inc., Rensselaer, N. Y.

A series of comparative tests was made upon several acridine derivatives by incorporating serial dilutions of these compounds in broth and inoculating with various bacteria. Among the compounds tested were acriflavine, two rivanol-azo-sulfonamides, atabrine and its lactate and musonate derivatives, an atabrine-like compound, 3-chloro-7-methoxy-9(2-hydroxy-3-diethylamino-propylamino) acridine dihydrochloride, and 2,3-dimethoxy-6-nitro-9 (3-diethylamino-2-hydroxypropylamino) acridine dihydrochloride.

The hitherto undemonstrated anti-bacterial effect of atabrine and its derivatives is shown against such organisms as types I, II and III pneumococci, various streptococci, Escherichia coli, Staphylococcus aureus, and 2 members of the Clostridium group. While possessing definite bactericidal properties, this atabrine group is somewhat less active than the well-known acridine antiseptics, acriflavine and rivanol.
A Satellite Phenomenon in Mixed Cultures of Bacteria on Agar Containing Sulfonamide. Alice Zimmerman and Robert M. Pike, Bassett Hospital and Otsego County Laboratories, Cooperstown, New York.

Sulfonamide inhibition of various species of bacteria was obtained on agar prepared from infusion of fresh beef or rabbit skeletal muscle provided no peptone was added. These infusions without sulfonamide supported good growth of staphylococci and enteric bacilli and, with the addition of 5 per cent rabbit blood or serum, were satisfactory for pneumococci and streptococci. It was found that small inocula of streptococci, pneumococci, Shigella sonnei, and staphylococci would grow on concentrations of sulfonamide ordinarily inhibitory provided growth of certain other bacteria was also present on the plate. The result was a satellite phenomenon with colonies of the susceptible (satellite) strain appearing in a zone affected by the diffusion of sulfonamide-inhibiting substances from the colonies of the resistant (inhibitor) strain. The development of satellites depended upon the concentration of sulfonamide, the susceptibility of the satellite strain, the temperature of incubation, and the size of the inoculum of both satellite and inhibitor. The ability of a bacterium to stimulate the growth of satellites depended upon its production of extracellular sulfonamide inhibitor rather than on its resistance. Highly resistant Group D streptococci did not produce satellites. A concentrated heavy inoculum of a susceptible organism such as S. sonnei permitted growth of satellites from a dispersed lighter inoculum of the same strain.

An Inhibition Phenomenon in Precipitation Tests for the Serodiagnosis of Syphilis. Rachel Brown, Division of Laboratories and Research, New York State Department of Health, Albany.

An inhibition of precipitation has been observed in an oversensitive procedure for the serodiagnosis of syphilis. The properties of some sera are such that, although a reaction apparently takes place between antigen and reagent, the formation of visible aggregates is inhibited. Centrifugation of such tests will cause large flaky aggregates to form. For example, three successive specimens from one patient, when tested undiluted and in a series of dilutions, gave only insignificant reactions; but when the tests were subsequently centrifuged, the reactions became marked. The fourth specimen from this patient gave typical results. When the four sera were tested further with a carefully adjusted mixture of relatively pure lecithin and cardiolipin sensitized with cholesterol, typical results were obtained. Thus, although the colloidal state of a serum is such as to inhibit the formation of a precipitate, the irregular behavior is also influenced by the antigen. Inhibition of precipitation may appear simultaneously with a typical prozone reaction, but the two phenomena appear to be distinct. The reports of the Washington Serology Conference suggest that some of the discrepant results obtained by different test procedures may be due to the failure to recognize this inhibiting property of the serum.

Laboratory Activities in the Organization for Civilian Protection. F. Wellington Gilcrease, State Gas Consultant of the Office of Civilian Protection, and Division of Laboratories and Research, New York State Department of Health, Albany.