

THE ANTISEPTIC VALUE OF CALOMEL OINTMENT N. F. V AND  
N. F. VI.\*

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The need of adequate measures for the control of venereal diseases has been given much publicity in recent months. The publicity has been accompanied in some instances by a quieter but very important investigation of the efficacy of remedies offered for sale for the prevention of diseases in recently exposed individuals.

Among prophylactic preparations submitted for examination in Oregon were several samples of calomel ointment. Some of these were prepared by the N. F. VI formula, which uses a base of petrolatum and hydrous wool fat, and some were prepared by the N. F. V formula, which uses only petrolatum as a base. Examination of the two ointments by the Agar Cup-Plate Method of the U. S. D. A.,<sup>2</sup> using *Staphylococcus aureus* as a test organism and incubating for 24 hours at 37° C., showed that the ointments prepared by the N. F. VI formula were not nearly so

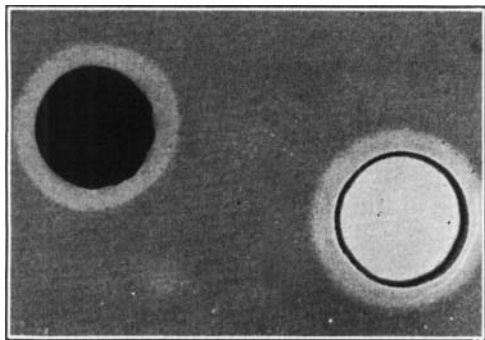


Fig. 1.—Calomel ointment, N. F. V.

effective as the ones prepared by the N. F. V method. The wide-spread use of this preparation as a prophylactic for venereal diseases and its intended omission from the list of prophylactics approved for sale in Oregon by the State Board of Pharmacy indicated an immediate need for study of the N. F. VI preparation.

Results of typical tests of the antiseptic action of the N. F. V and VI calomel ointments are shown in Figs. 1 and 2.

The clear zone surrounding the dark-centered figure in each case represents the inhibitory action of the ointments. The clear-centered figure represents a phenol control to which all prophylactics sold in Oregon must conform. The phenol control was adopted, in preference to a minimum inhibitory zone expressed in millimeters, as it automatically makes needed adjustments for variation in the virulency of the organism, variation in constitution of the media, temperature variations and other minor factors which will influence the width of the inhibitory zone.

The impaired activity of the N. F. VI ointment may be traced directly to the addition of the hydrous wool fat. However, the manner in which the hydrous wool fat acts is not so apparent. The natural affinity of wool fat for water or an increase in the viscosity of the preparation both appear as possible explanations for the decreased activity. To determine which of these possibilities was the actual one, calomel ointments were prepared with 30 per cent anhydrous wool fat and petro-

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<sup>2</sup> United States Department of Agriculture, Circular No. 198 (1931).

tum, and with petrolatum containing 5 and 10 per cent white wax. If the affinity of the wool fat for water is responsible for the impaired activity there should be a marked decline in the antiseptic action of the preparation containing it and little or no change in the ointments prepared with white wax. If an increase in viscosity is responsible, all three preparations should show a decreased activity. The results of these tests are shown in Figs. 3, 4 and 5.

It is indicated from these tests that the variation in activity of the N. F. V and N. F. VI calomel ointments is due to an increase in viscosity caused by the addition of hydrous wool fat in the latter preparation.

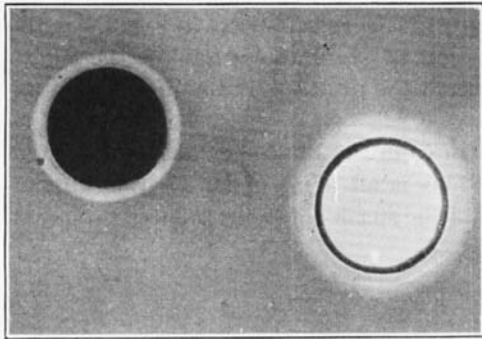


Fig. 2.—Calomel ointment, N. F. VI.

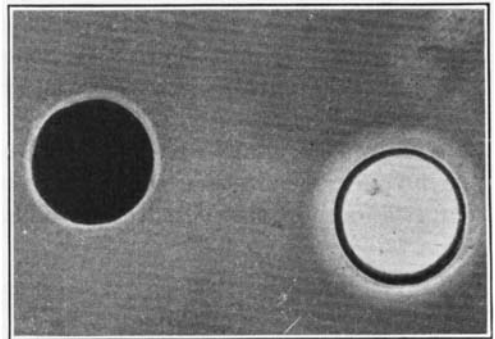


Fig. 3.—Calomel ointment, 30 per cent anhydrous wool fat.

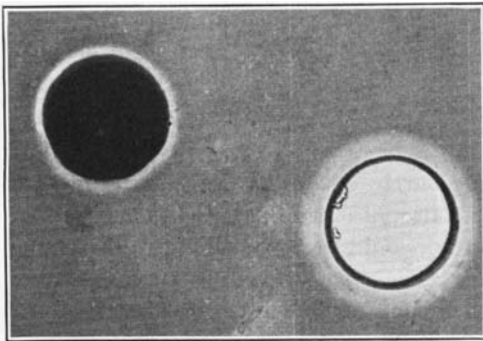


Fig. 4.—Calomel ointment, 5 per cent white wax and petrolatum.

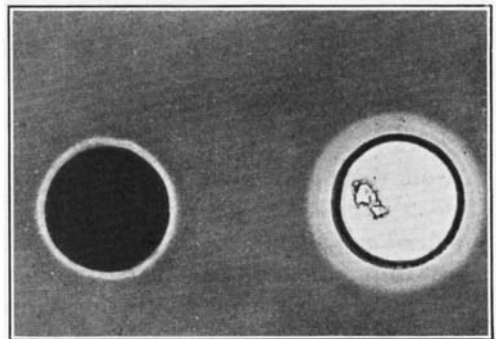


Fig. 5.—Calomel ointment, 10 per cent white wax and petrolatum.

#### SUMMARY.

1. N. F. VI calomel ointment is not so effective an antiseptic as the N. F. V preparation.
2. N. F. VI calomel ointment does not show sufficient antiseptic action to be classed as a prophylactic for venereal diseases in the state of Oregon.
3. Immediate need for revision of the present formula for calomel ointment is indicated.