NOTES

CHANGES INDUCED IN THE NONSPECIFIC ANTIGENS OF SALMONELLA[1]

D. W. BRUNER AND P. R. EDWARDS

Department of Animal Pathology, Kentucky Agricultural Experiment Station, Lexington, Kentucky

Received for publication November 29, 1946

Edwards and Moran (Proc. Soc. Exptl. Biol. Med., **61**, 242) referred to the changes produced in *Salmonella* H antigens *in vitro* by growth in agglutinating serums. The present note deals with hitherto undescribed changes brought about in the nonspecific phases of Andrewes.

S. newport (VI, VIII: e, h-1, 2, 3 . . .) was changed to a form indistinguishable from *S. pueris* (VI, VIII: e, h-1, 2 . . .) by growth in serums which contained agglutinins for phase 1 (e, h) and for single factor 3. *S. thompson* (VI, VII: k-1, 5 . . .) was transformed into a culture serologically identical with *S. cardiff* (VI, VII: k-1, 10 . . .) by growth in serums for phase 1 (k) and single factor 5. *S. panama* (IX, XII: l, v . . . -1, 5 . . .) was changed to a form resembling *S. italiana* (IX, XII: l, v . . . -1, 11 . . .) by growth in serum containing agglutinins for phase 1 (l, v . . .) and for single factor 5.

The cultures to be changed were placed in semisolid medium to which appropriate serums were added. The serums immobilized the cultures until changes in the antigens of phase 2 allowed that phase to spread through the medium. The changed cultures were diphasic.

In addition 1, 2 . . . phases were obtained from the natural 1, 2, 3 . . . phases of *S. oregon* and *S. vejle;* 1, 10 . . . phases were derived from the 1, 5 . . . phases of *S. kottbus, S. javiana, S. zanzibar, S. uganda,* and *S. solt*; and a 1, 11 . . . phase was obtained from the 1, 5 . . . phase of *S. shangani.* It was shown previously by Kauffmann (personal communication) that the 1, 5 . . . phases which yielded 1, 10 . . . differed serologically from those which gave rise to 1, 11 . . . .

It should be emphasized that the changes produced in the organisms mentioned above in no way invalidate the Kauffmann-White classification, which is used for diagnostic and epidemiological purposes. It is thought that studies in induced variation may yield valuable information on the origin of the numerous serological types which occur in nature.

[1] The investigation reported in this paper is connected with a project of the Kentucky Agricultural Experiment Station and is published by permission of the Director. It was supported in part by a research grant from the U. S. Public Health Service.