

As to the mechanism whereby interaction with borate buffer changes the mobility of BSA, it can only be stated at this time that it is not due to aggregation or change in frictional coefficient and apparently not to an intramolecular exchange reaction between the SS groups and the SH group since *p*-chloromercuribenzoate- and iodoacetamide-treated BSA gave the same zone patterns as unreacted protein.

Discussion

The results described above demonstrate that the zone electrophoretic patterns of BSA can show two or three zones due to reversible protein-borate buffer interaction. Nor is this phenomenon unique for BSA. At least one other example has been gleaned from the literature. Thus, Parker and Bearn (1963) have shown that the three zones exhibited by conalbumin on starch-gel electrophoresis at pH 8.9 arise from reversible interaction with borate buffer. Human myoglobin also gives three zones on starch-gel in a Tris-borate buffer due to a reaction (Kossman, *et al.*, 1964), although it is not clear whether it is a protein-buffer interaction. In all three cases, aggregation reactions have been eliminated. It appears likely that multiplicity of zones due to interaction may be of more general occurrence than recognized. Furthermore, it is a disturbing fact that such patterns could easily be misinterpreted as indicating true heterogeneity. Fortunately, however, with certain precautions, fractionation provides an unambiguous method for distinguishing between interaction and heterogeneity.

Throughout this study we have been impressed by the

reliability of moving-boundary electrophoresis as a guide in designing the zone experiments. This, along with the results of the zonal analyses, gives experimental credence to the theoretical conclusion that the same caution must be exercised in interpreting zone electrophoretic patterns as moving-boundary patterns.

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References

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CORRECTION

In the paper entitled Biosynthesis of Uridine Diphosphate D-Xylose. II. Uridine Diphosphate D-Glucuronate Carboxy-lyase of *Cryptococcus laurentii*, by Helmut Ankel and David Sidney Feingold, in Volume 5, No. 1, p 182, January 1966, the following correction should be made: p 184, left column, line 10 should read "efficiently stirred and 0.9 ml of 0.5 M $MnCl_2$ was added."