## SUMMARY

The formation of physically heterogeneous capillary agglutinating antibodies during experimental infection of cattle with Theileria parva was followed in anion-exchange chromatographic fractions. Early agglutinating antibody consisted exclusively of IgM by the 17th day post challenge with Theileria parva infected adult Rhipicephalus appendiculatus ticks. This initial antibody response due to the IgM was augmented by an immunoelectrophoretically fast IgG antibody at around the 28th day post challenge.

The bovine IgM component containing the antibody activity was characterized not only by its properties on the anion exchanger, DEAE-Sephadex A-50 but also by the methods of gel filtration on Sephadex G-200, immunoelectrophoretic analysis, sucrose density gradient ultracentrifugation, carbohydrate content and dissociation characteristics when treated with 2-mercaptoethanol. All of these procedures yielded results quite similar to those that have been obtained with human IgM (Kunkel, 1960) as well as those in the bovine (Butler and Maxwell, 1972).

Bovine electrophoretically fast IgG containing antibody activity was characterized using the same physicochemical and immunochemical methods applied to IgM. In addition, chromatographic and immunoelectrophoretic analyses of papain digestion fragments showed

the very close physicochemical relationship between fast and slow IgG in the bovine species. Fast and slow IgG were distinguished on the basis of differences in electrophoretic rates, chromatographic elution positions following fractionation on DEAE-Sephadex A-50 and antibody activity. Their papain digestion fragments were distinguished on the basis of differences in chromatographic elution positions and immunoelectrophoretic behaviour.