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**MICROBIOLOGICAL STUDIES, PRINCIPALLY UPON THE  
*MOLLICUTES***

A submission for the degree of Doctor of Science at the  
University of Adelaide

by

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**PUBLISHED WORKS**

## SUMMARY OF RESEARCH THEMES



The research papers embodied in this submission fall chronologically into three main series that overlap slightly in their general subject matter. These papers deal, respectively, with (a) *Mycobacteria*, (b) microbial water requirements and (c) *Mollicutes* (mycoplasmas).

### Series (a)

Papers 1-7 (1952-1957) report studies on various species of *Mycobacteria*, concerning mainly their viability, physiological and growth characteristics and their serological relationships.

### Series (b)

Papers 7-10 (1957-1962), including the final one in the preceding mycobacterial series (a), deal with water-requirements of various microorganisms, and particularly with their viability during freeze-drying, subsequent storage and rehydration. This theme overlaps into paper 10 of series (c), dealing with the osmotic requirements for growth of mycoplasmas.

### Series (c)

Papers 10-62 (1962-1994) [plus several other reports (63, 75, 79, 80)] are all concerned with mycoplasmas (Mollicutes) and fall roughly into the following general categories:

- Isolation, identification and classification of mycoplasmas from various mammalian (particularly bovine and caprine/ ovine) and avian sources. Taxonomic descriptions of new species of *Mollicutes* arising therefrom.
- Studies on mycoplasmas infecting tissue cultures and their effects there on cellular biology and on viral growth in such cultures.
- Taxonomic studies, employing serological, protein- or enzyme-patterns and genomic comparisons, on the mycoplasmal causative agent (represented by strain F38) of contagious caprine pleuropneumonia (CCPP). Investigation of problems of its relation to other members of the "*M. mycoides* cluster" of bovine/caprine pathogens and descriptions of new taxa arising therefrom. Evaluation of the specificity of a monoclonal antibody to F38 as a diagnostic tool.
- Investigations for suspected mycoplasmal involvement in certain human or animal diseases of uncertain aetiology, with special reference to "uncultivable mycoplasma-like organisms" (MLO), as represented by the agent of murine "Grey Lung" disease.
- Technical factors affecting the isolation and culture or diagnostic methodology of mycoplasmas.
- Miscellaneous studies, including genomic elucidation of mycoplasmal phylogeny.