Plasmids of Medical, Environmental and Commercial Importance

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One of the quiet revolutions in Microbiology over the last ten years has been the changes in our thinking about microbiological populations occasioned by work on plasmids. Whereas conventional teaching of the 1950's argued that all the genetic information of a microorganism was contained in a single chromosome, nowadays it is clear that this situation is rarely found in nature. Although the presence of a single chromosome is seen to be generally correct, one also knows that the basic set of information provided by that linkage group is supplemented by extrachromosomal DNA. Some of this is in the form of bacteriophage DNA, but more significantly from the point of view of the phenotype expressed by the bacteria, there are the plasmids: often more than one, and often of several distinct types, all cohabiting in the bacterial cell with the chromosome. Indeed there is much to support the notion that the chromosome provides the 'core' information – as it were – to define the characteristics of a bacterial cell and the plasmids supply what is needed to fit the particular organism to specialised ecological niches.

This seemingly disproportionate involvement with plasmid carried genes in adapting microorganisms to particular niches has brought plasmids into focus for many biochemists interested in bacteria other than *Escherichia coli* K12. Thus plasmids are seen to be responsible for many bacterial traits which are of central interest to those interested in bacteria intimately involved with medicine, the environment and in commerce. And in practice these bacteria are often very different from *E. coli* K12.

This collection of contributions maps, for the first time, some of these emerging areas of research and development. On the medical side there are contributions which deal with plasmid-mediated determinants of pathogenicity – surely a certainty for microbiological research well into the 1980's. Environmental microbiologists for their part are particularly concerned with the degradative activities which are plasmid mediated in many bacteria, whereas commercial interests tend to concentrate on plasmids as vehicles for genetic engineering – though of course both medical and environmental interest and importance commonly lead to developments of commercial value.

In general this compilation of papers is excellent and of great interest to practitioners in the field of plasmids – of which there are now many. Whether it is of much interest to others is doubtful. Perhaps the weakest section of the book are the reviews. Several of these have been put out before in different versions, even by the same people. And whether the 'short communications' will retain their interest for long must also be questionable. But for the next 12 months or so, this book will continue to be of great interest to those concerned with plasmids in bacterial species other than *E. coli* K12. One must congratulate the Editors and the Publishers in getting such a useful book into print so quickly. Indeed its main value is that this has been done so fast. If it had appeared one year after the meeting, it would have been of doubtful value. But to have it only 6 months after the meeting was held, taken with the happy choice of authors, is the essence of its value.

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