
BOOK REVIEW

Annual Review of Microbiology, (eds) L. N. Ornston, Albert Balows and Paul Bowman (published by Annual Reviews Inc., 4139, El Camino Way, Palo Alto, California 94306, USA), Vol. 39, 1985. Price: USA \$27, Elsewhere \$30.

This volume includes a prefatory chapter on the topical subject of marine microbiology (biochemically oriented), written by Professor Mcleod of Macdonald College. Mechanisms of bacterial virulence describing the evolution of prokaryotic parasitism and virulence, recent advances in serum killing by professional phagocytes and the ability of parasitic/bacteria to shut off specific immune responses are well summarised. This is followed by chapters on injured bacterial presence in food product flow and developmental sequence and surface membrane assembly of rickettsiae adapted to obligate intracellular parasitism. Dependence on the supply of energy in the form of photosynthate, as being crucial to the process of heterotrophic nitrogen fixation is dealt with in the next chapter. In the next chapter the DNA translocating vertex of the dsDNA bacteriophage, its present status is reviewed. Bacterial reduction of trimethylamine found in high concentrations in marine animal tissues, the oxide serving as an electron acceptor in the anaerobic metabolism of these bacteria is dealt with in the following review. Plant virus satellites containing RNAs with no nucleotide sequence homology either to viral or to host genomes are reviewed indicating their importance in understanding plant pathological problems are dealt with in the next chapter.

The unique physiology of anaerobic gram negative cocci, the veloniellae, which derive energy from the end products of fermentation and thereby establish a symbiotic relationship in anaerobic environment, their taxonomy, metabolism and biosyntheses are reviewed.

Sulphate bacteria and anaerobic corrosion is often overlooked and therefore the chapter dealing with this is appropriate. Critical evaluation of methods in the proton motive force in bacteria, a comparatively recent field of important implications in bioenergetics, is dealt with. The bio-synthesis and composition of gram negative bacterial extra-cellular and wall polysaccharides which are of current interest are

reviewed. The review on compartmentation in *dictyostelium*, describes the current information on morphology, methodology, timing of the developmental events in the membrane, cytoplasm, and the nucleus.

An update on growth control of microbial cultures follows, this includes the measurement, analysis and optimisation of growth of microbial cultures. The part played by microorganisms in biogeochemical cycles is next reviewed with special reference to rapid processes with half-life of minutes or hours, which can now be analysed and assayed under field conditions. This is followed by a comprehensive review of a group of opportunistic Mycobacteria causing disease in humans and animals. In the next review, biological desulphurisation of fossil fuels considering the types, mechanisms, areas of basic research and the available current technologies are considered. The proterozoic microfossils are then treated conceptually contributing to our knowledge, the Eu and Archeobacteria of the period. The role of oncogenes in the neoplastic transformation is next reviewed. Then follows a very useful taxonomical treatment of viruses for non virologists.

Antigenic variation in African Trypanosomes is next considered briefly indicating the important observations due to molecular biological approaches.

The review on biochemistry and industrial potential of *Spirulina* is illuminating and emphasises its importance in food and waste water treatment. Nutritional value, ease of processing, composition of the biomass and its special ecology are highly significant.

Bacterial envelope and infection is next dealt with. The mechanism of action of kirromycin like antibiotics – a new class – is next reviewed together with the protein synthesis specifically acting on the bacterial elongation.

An important review of *Candida albicans*, its biology, genetics and pathogenicity updates our information on this important human fungal pathogen. The last three reviews deal with protein secretion in *E. coli*, a matter of great current interest, the plant and fungal protein and glycoprotein toxins inhibiting eukaryote protein synthesis and a very good treatment of the insect bacteria

(non performing) and their incidence and mechanism of action.

As usual the get up of the volume is excellent and stimulates "microbiologists to be on the move seeking new directions". The volume is a must for all libraries and research groups working in any

branch of microbiology and related areas.

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TOXICITY OF PESTICIDES TO FISH

(in two volumes)

by

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