SOME RECENT CONTRIBUTIONS OF THE ELECTRON MICROSCOPE TO MICROBIOLOGY

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Several contributions to microbiology have been made through improvements in the techniques of electron microscopy.

The first of these techniques involves the use of the shadowcast, whereby bacteria or other microorganisms are coated with a very thin film of metal. Gold or chromium is evaporated onto the surface of the organism at an angle, which results in a shadow effect. This gives the specimen added contrast when it is viewed under the electron microscope (Williams and Wyckoff, 1945).

The second technique involves the production of a replica, or mold, of the surface structure of the organism. This thin, plastic replica, rather than the organism itself, is observed with the electron microscope. Added knowledge concerning bacterial surface structures (Hillier and Baker, 1946) and the mode of attack of bacterial viruses on cells (Wyckoff, 1948) has resulted from the use of this technique.

The third technique is use of the ultra-microtome, whereby biological sections may be prepared as thin as 0.2 microns. This procedure may be of importance in the fields of cancer research (Gessler and Gray, 1947) and chromosome structure investigations (Peace and Baker, 1949).

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