A CINEMATOGRAPHIC STUDY OF THE PENETRATION OF CULTURED CELLS BY *TOXOPLASMA GONDII*

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Cinematographic observation with phase contrast microscopy was undertaken to elucidate a course of penetration into cultured PS cells by *Toxoplasma gondii* (RH strain). The results are summarized as follows:

1) Intracellular parasites were observed 7 minutes after inoculation. The movement of the parasites toward the cells appeared to be more dependent upon gravity and other factors than upon parasitic motility. The time required for penetration was influenced by the thickness of toxoplasma suspended medium which was overlayed onto the cultured cells.

2) The parasites which moved toward the cells showed active, irregular movements. Either the anterior or posterior end of the parasites appeared to penetrate the cells by rapid movements. No penetration was observed by less active or completely inactivated parasites.

3) In the course of penetration of the cell membrane, the parasite attached itself to the cell membrane at elther pole of its long axis. The attached portion of the parasite formed a rostrum with which it seemed to bore a small hole through the cell membrane through which it entered the cytoplasm. Since the hole was smaller than the parasite, the parasite constricted as it passed through. The time required for penetration of the cell averaged about 40 seconds.

4) Following penetration, the parasites moved slowly in the direction of the cell nucleus, but none were observed to penetrate the nuclei. Since the intracellular movements of these parasites showed no regularity, the movements were assumed not to result from parasitic motility.

5) No common, definite cellular response was observed but, in general, the movement of the cytoplasmic granules surrounding the parasites decreased with time.