

**Dense Granule in the Elementary Body of *Molluscum Contagiosum*.** BY WILLIAM G. BANFIELD.  
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Samples of tissue from molluscum contagiosum lesions were fixed in 1 per cent buffered osmium tetroxide (1) for 3 hours, then washed in veronal-acetate at pH 7.3 for 2½ hours, dehydrated in graded alcohols, and embedded in methacrylate. Thin sections of this material were taken for study in the electron microscope.

A small dense granule was found within the elementary bodies contained in these lesions. Elliptical, round, or lancet-shaped, the granule ranges in size from ~8 to 11 m $\mu$  in width and ~11 to 20 m $\mu$  in length, but is usually about 8.5 x 11 m $\mu$  (Figs. 1 and 2). The granule is often situated eccentrically in a less dense area of variable, but small size which, in section, may be round, oval, slit-like, straight, or crescentic. The granule is most commonly associated with the thicker portions of one of the side walls of the elementary body and is often situated within the wall in the condensed mature elementary body. It may also be seen, however, on the inner membrane, or even within the less dense central area. In the swollen form of the virus (Fig. 3), the granule may be present within the enlargements of the wall or, somewhat less frequently, within the clear central area of these large forms. The granule is occasionally present in the dense, spherical forms of the developing elementary bodies that

lie within the septa of the molluscum body (Fig. 4).

Each elementary body contains one dense granule, and only very rarely did we observe two granules of the density in question in a single elementary body. But there is additional evidence for this conclusion: in a section cut normal to either the longitudinal or transverse axis, the dimensions of a mature condensed elementary body are on the order of 230 m $\mu$  long by 115 m $\mu$  wide. Since, on the average, it took three serial sections to go through an elementary body, each section cut must have been about 60 m $\mu$  thick, that is, of ample depth to include a whole dense granule. If there were one dense granule per mature condensed elementary body, one out of three consecutive sections should contain the granule. We did, indeed, find this ratio to exist.

It can be shown that the dense granule is not an artifact of osmium fixation, for the identical particle appears in the elementary bodies of formalin-fixed samples of molluscum contagiosum lesions. We have noted further that a similar dense granule is present in the elementary body of Shope fibroma virus observed in sections cut from an embedded pellet.<sup>1</sup> Other investigators (2-5), have not mentioned this structure in their descriptions of the electron microscopic pictures

<sup>1</sup> Kindly given to us by Mr. Bolivar Lloyd, National Cancer Institute.

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of molluscum contagiosum found in thin sections. Nor has the dense granule within the elementary body been mentioned in a considerably larger number of descriptions of the electron microscopic morphology of other viruses in the pox group. It does seem to be present, however, in several of Bernhard's micrographs of Shope fibroma virus elementary bodies (6. See his Figs. 6, 8, and 9).

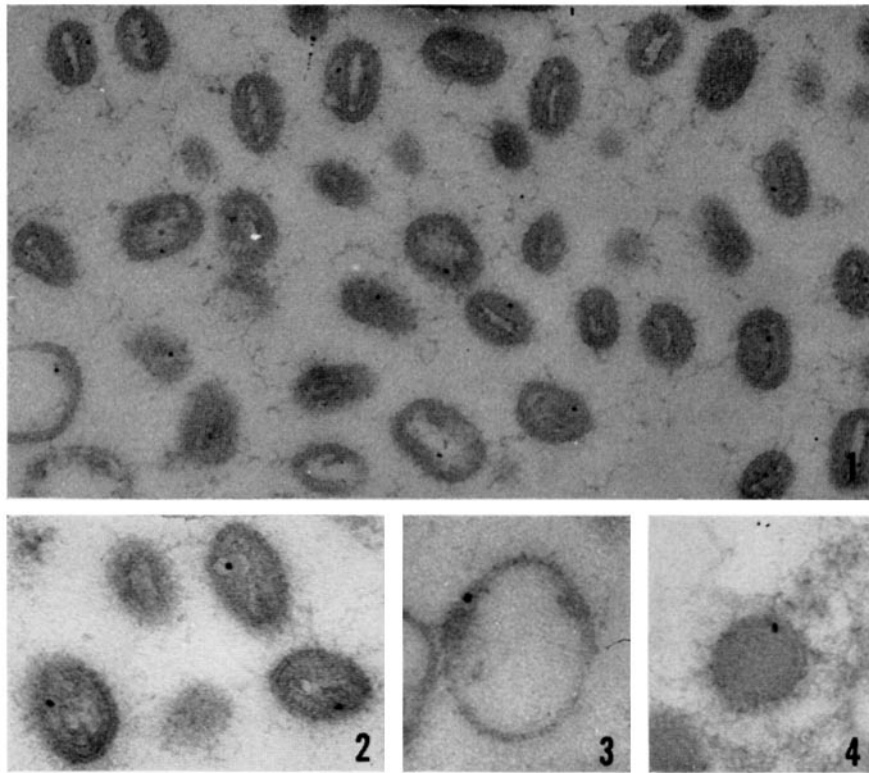
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## EXPLANATION OF PLATE 220

- FIG. 1. Mature elementary bodies. Swollen form at lower left.  $\times 44,000$ .  
FIG. 2. Condensed mature elementary bodies. Dense granule present in three.  $\times 84,000$ .  
FIG. 3. Swollen form of the elementary body with dense granule in wall.  $\times 75,000$ .  
FIG. 4. Developmental form of the elementary body with dense granule.  $\times 75,000$ .



(Banfield: Dense granule in molluscum contagiosum)