



FIG. 2. A section of a mouse granuloma 4 wk after the intrapleural injection of chrysotile dust heated to 800°C. A large bundle of fused chrysotile crystals has been phagocytosed by a macrophage (M), and the phagosome membrane is in close contact with the dust (arrowed). Although the chrysotile crystals are partially fused with one another, the original crystal outline is still discernible. $\times 65,000$.

phagocytosis and the subsequent behavior of the dust within cells appeared identical to that reported previously (Davis, 1968, 1970a). Dust particles were initially taken up into large vacuolated phagosomes (Fig. 1), but the membranes of these eventually contracted and became closely opposed to the dust particles. Usually the dust remained on its own inside the phagosome membrane, but occasionally it was found mixed with ferruginous granules and membrane debris in the dense structures that are known as phagosome residual bodies. Most of the dust remained in those structures, but occasionally an odd fiber was found that appeared to have escaped into the cell cytoplasm. The macrophages from these experimental groups showed no signs of damage even when they contained large amounts of dust. No differences could be detected in the structural appearance of crystals of normal chrysotile and chrysotile crystals that had been heated to 400°C. With dust heated to 600°C, however, it was noticeable that the phagocytosed dust, whether sieved or unsieved, contained more individual chrysotile crystals than crystal bundles, and many phagosomes were found closely packed with individual crystals. Electron microscope examination of lesions produced by chrysotile heated to 800°C or 1000°C showed why the dust was clearly visible in these lesions even with the light microscope. During the heating process the individual

chrysotile
crystals in
the crystals
large masses
each. When
original out
detected (F
was no longer
dissolution
by an irregular
masses were
no greater
macrophage
although the
more frequent
macrophage
behavior of
normal chrysotile
fluid and t



FIG. 3.
Chrysotile dust
particle in
phagosome
normal chrysotile
 $\times 70,000$