chrysotile crystals had lost their normal tubular structure and fused with the other crystals in the bundle (Rickards, 1967). This fusion was complete enough to hold the crystals together during grinding so that the dust was broken up into relatively large masses rather than fine fibrous bundles often containing only a few crystals each. When the tissues were examined only a few weeks after dust injection the original outline of the chrysotile crystals within the fused masses could still be detected (Fig. 2), but several months after dust injection this crystalline structure was no longer visible. It appeared that the dust had undergone some degree of dissolution within the tissues, and the neat crystal arrangement had been replaced by an irregular honeycomb structure (Fig. 3). Although the fused chrysotile masses were much thicker than normal chrysotile dust particles, most of them had no greater length, and the majority could still be phagocytosed by single macrophages. Very large particles were occasionally seen inside giant cells although these cells are not common in mouse granulomas (Davis, 1970b), and more frequently the larger particles were closely surrounded by unfused macrophages. Inside the cells there were some notable differences between the behavior of the heated chrysotile masses and normal chrysotile. Particles of normal chrysotile are taken up into large phagosomes which presumably contain fluid and the phagosome membrane is often well clear of the contained dust, at

FIG. 3. A section of a macrophage from a mouse granuloma 3 mo after the injection of chrysotile dust heated to 800°C. The macrophage is surrounded by collagen fibers (F), but a large particle of fused chrysotile (C) is present within the cytoplasm. In this case, however, the normal crystal outline has been lost and has been replaced by an irregular honeycomb pattern. × 70,000.