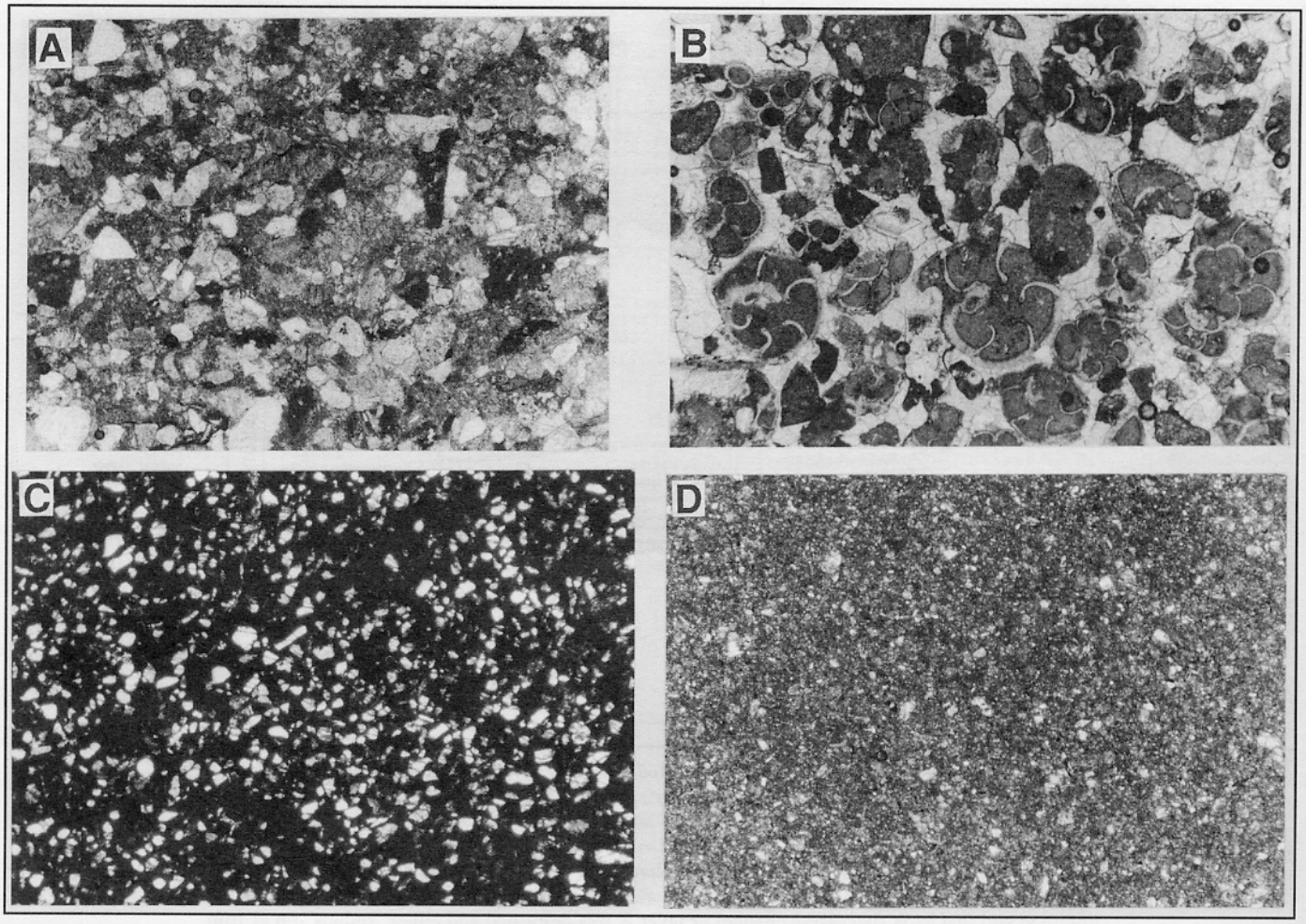

Figure 12 (on this and facing page). Thin-section micrographs of the Mimbral, Mexico, section. A, Unit II (Sample M5) terrigenous sandstone with "dirty" matrix. B, Foraminiferal grainstone with sparry calcite matrix, Unit II (sample M18). C, Fine sandstone flaser from top of Unit III (see Fig. 13). The matrix is entirely composed of iron oxides, falsely resembling the impact fallout layer, or "fireball" layer (Stinnesbeck et al., 1993) of distal K/T sections. D, Micrite (cf. Fig. 13, level 300 cm). E, Basalmost Velasco shale, poor in Cretaceous planktic foraminifers. F, Mendez shale, 5 to 10 cm below the K/T sandstone Unit I, rich in Cretaceous planktic foraminifers.

rated before they were transported. They are not the remains of fresh plants. Small charcoal fragments occur in increasing numbers in the higher sandstone bodies (Kruge et al., 1994).

Unit II overlies Unit I and the Mendez diapirs with a sharp contact at most places and truncates the layers of Unit I. However, in the middle of the Unit I channels, the transition from Unit I to II is rapid but gradual and nonerosive (between m.mk. 22–30) over a thickness of about 15 cm. The uppermost layers in Unit I show changes leading up to Unit II. In the transition zone detrital quartz content increases, and the Mendez shale rip-up clasts are progressively more rounded and often armored with a peppering of impact spherules. The rip-up clasts preserve internal layering and apparently were more resistant to deformation than the Mendez clasts within Unit I. We assume that these "armored mudballs" are eroded from deeper, more-compacted Mendez beds. Sedimentary structures in Unit II are dominated by semiparallel laminae associated with primary current lineations on the bedding-plane surfaces, having different orientations at different levels (N75°E–N180°E). A single 2-cm-thick layer with low-angle cross-bedding occurs at m.mk. 12 (current direction N120°E ± 15°). Flute-casts were observed near m.mk. 38–42 where Unit II directly overlies the Mendez marls. These flute-casts show a N350°E ± 10° current direction.

Unit III conformably overlies Unit II, where the first thin (1 cm thick) silt layer indicates the beginning of a series of alternating silt and thin current-rippled fine sandstone layers (Fig. 13). The first silt layer is also the first layer enriched in Ir. The rippled layers consist of asymmetric, unidirectional current ripples. Symmetric ripples or ripples with bidirectional internal