

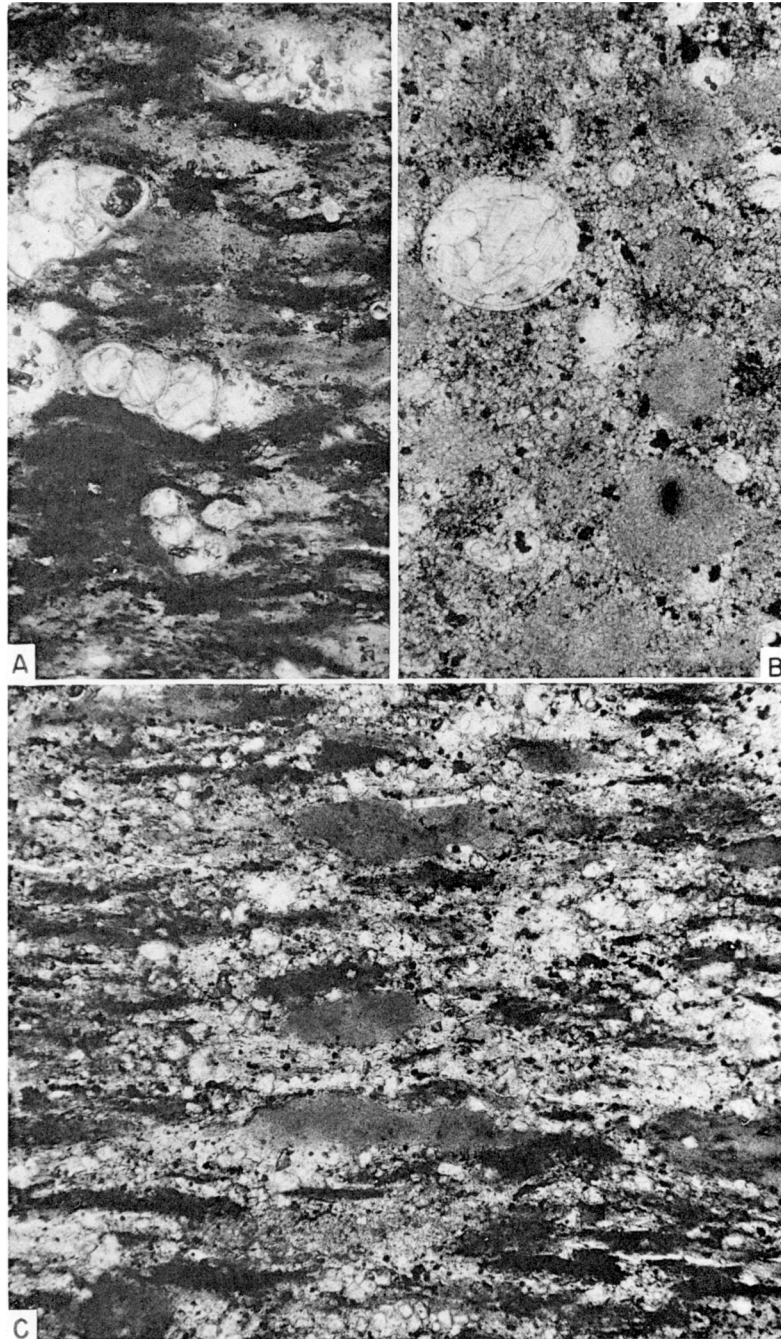
# Stratigraphy of the Carlile Shale (Upper Cretaceous) in Kansas

Kansas Geological Survey, Bulletin 156, 1962

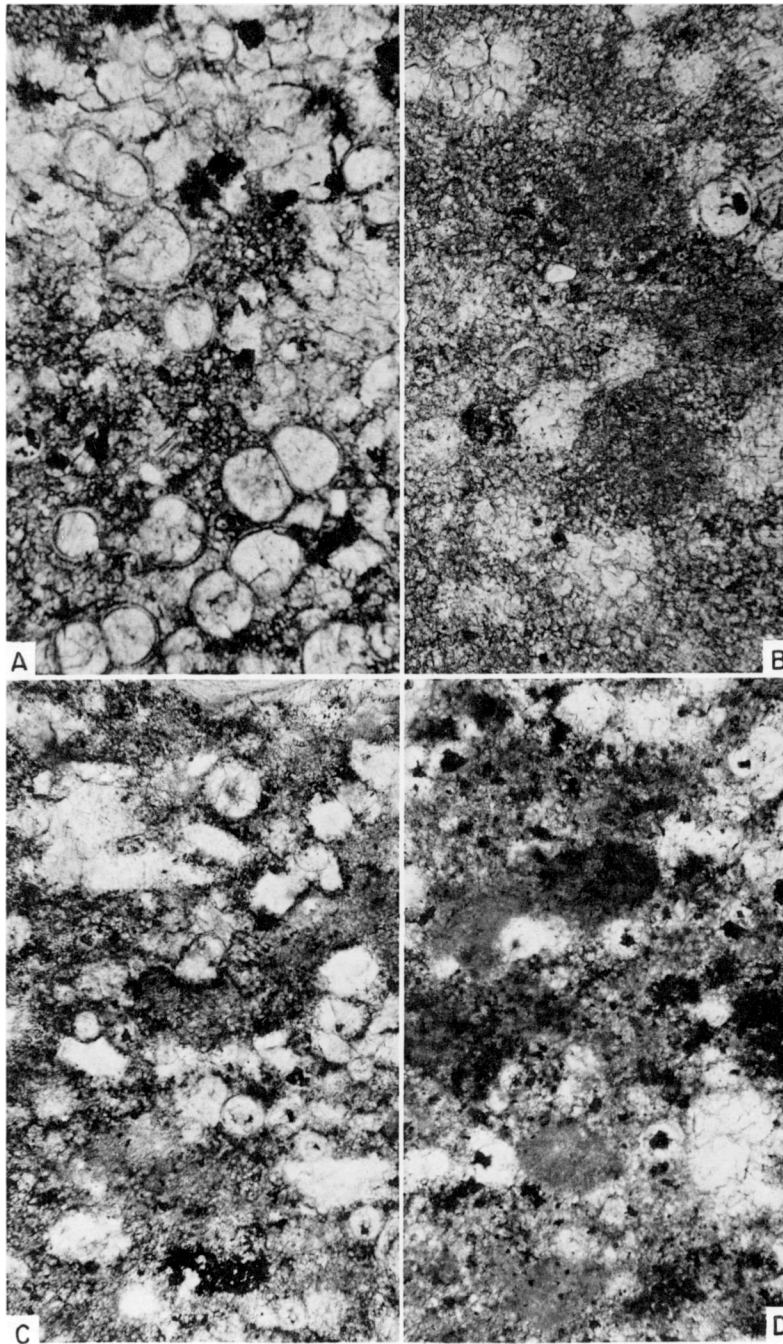
by Donald E. Hattin

Selected Plates

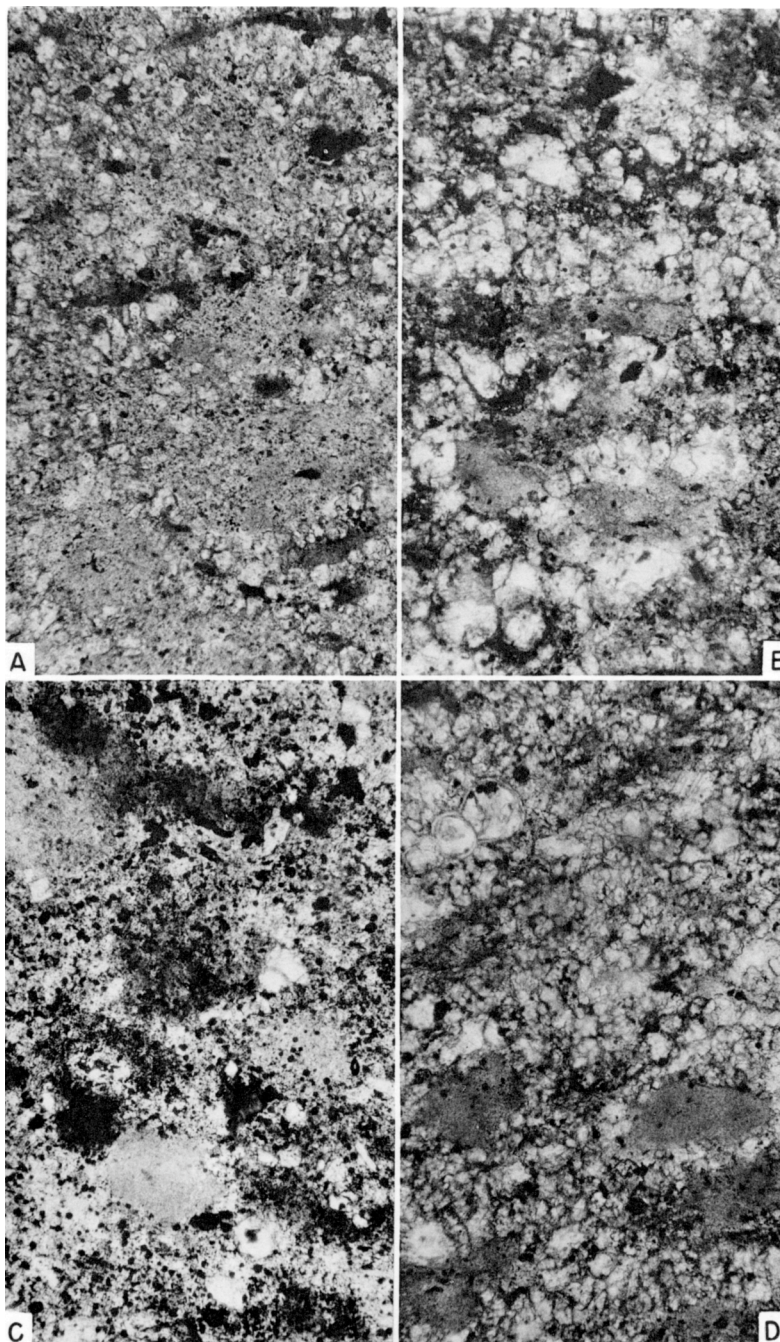
**Plate 6**—Photomicrographs of Fairport rocks, plane polarized light. **A**, Chalky shale from lower part of Fairport showing spar-filled Foraminifera, compressed pellets (light gray), and microcrystalline-calcite-ooze matrix (dark), x150 (Loc. 5). **B**, Chalky limestone from lower part of Fairport showing spar-filled Foraminifera, numerous uncompressed pellets (gray ovoid areas), and matrix of microcrystalline calcite ooze and microspar, x100 (Loc. 27). **C**, Chalky shale from uppermost Fairport showing compressed pellets (medium-gray bodies), clay and pyrite lentils (black), and matrix of microcrystalline calcite ooze and microspar, x150 (Loc. 9).



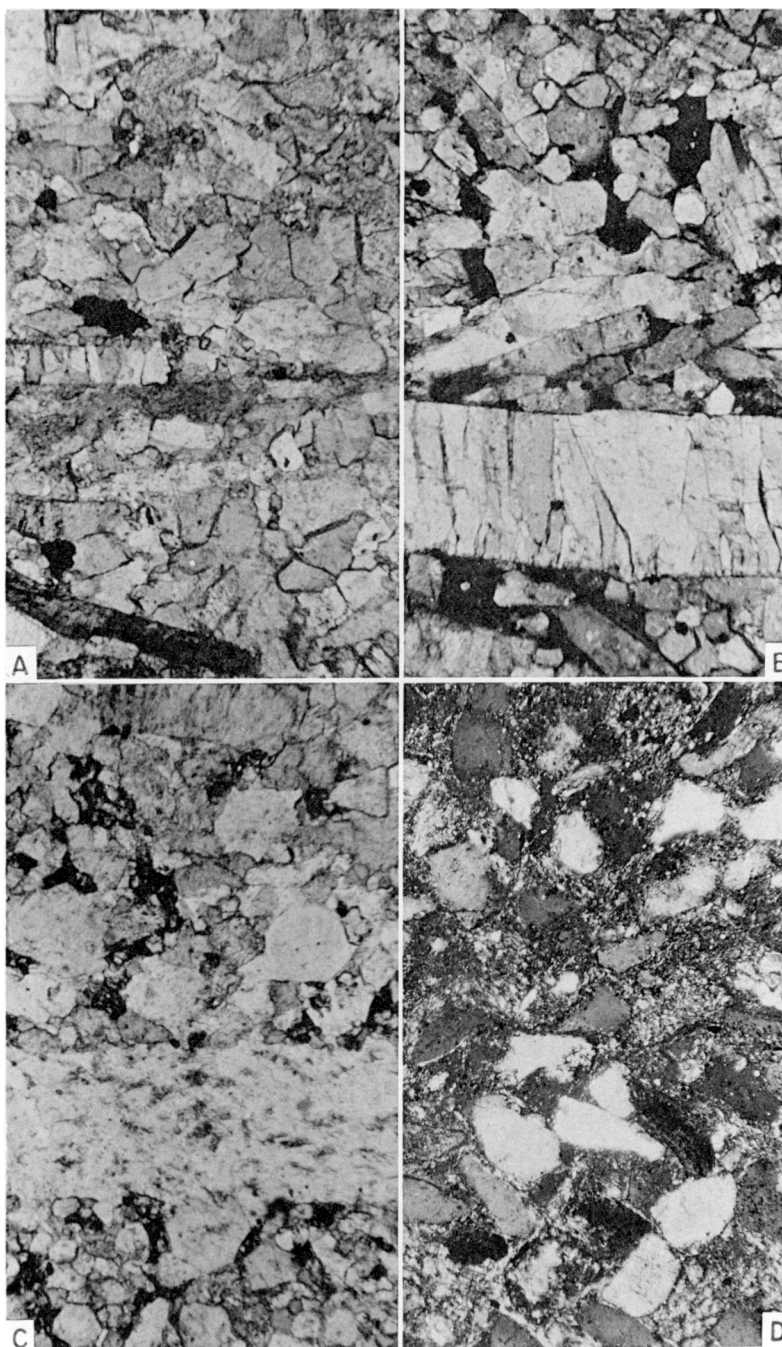
**Plate 7**—Photomicrographs of chalky limestone from Fairport Member, plane polarized light. **A**, Chalky limestone showing spar-filled Foraminifera, recrystallized matrix of fine and coarse calcite spar, and limonite (black), x100 (Loc. 21). **B**, Chalky limestone nodule showing recrystallized Foraminifera (light areas), recrystallized pellets (gray ovoid bodies near center), and matrix of microsparry calcite, x150 (NE sec. 24, T. 12 S., R. 16 W., Russell County). **C**, Chalky limestone nodule showing spar-filled Foraminifera, fragments of *Inoceramus*, a pellet (center), pyrite (bottom center, black), and matrix of microcrystalline calcite ooze and microspar, x100 (Loc. 33). **D**, Chalky limestone nodule showing recrystallized spar-filled Foraminifera, pellets (dark ovoid bodies), pyrite (black), and matrix of microcrystalline calcite ooze and microspar, x100 (Loc. 5).



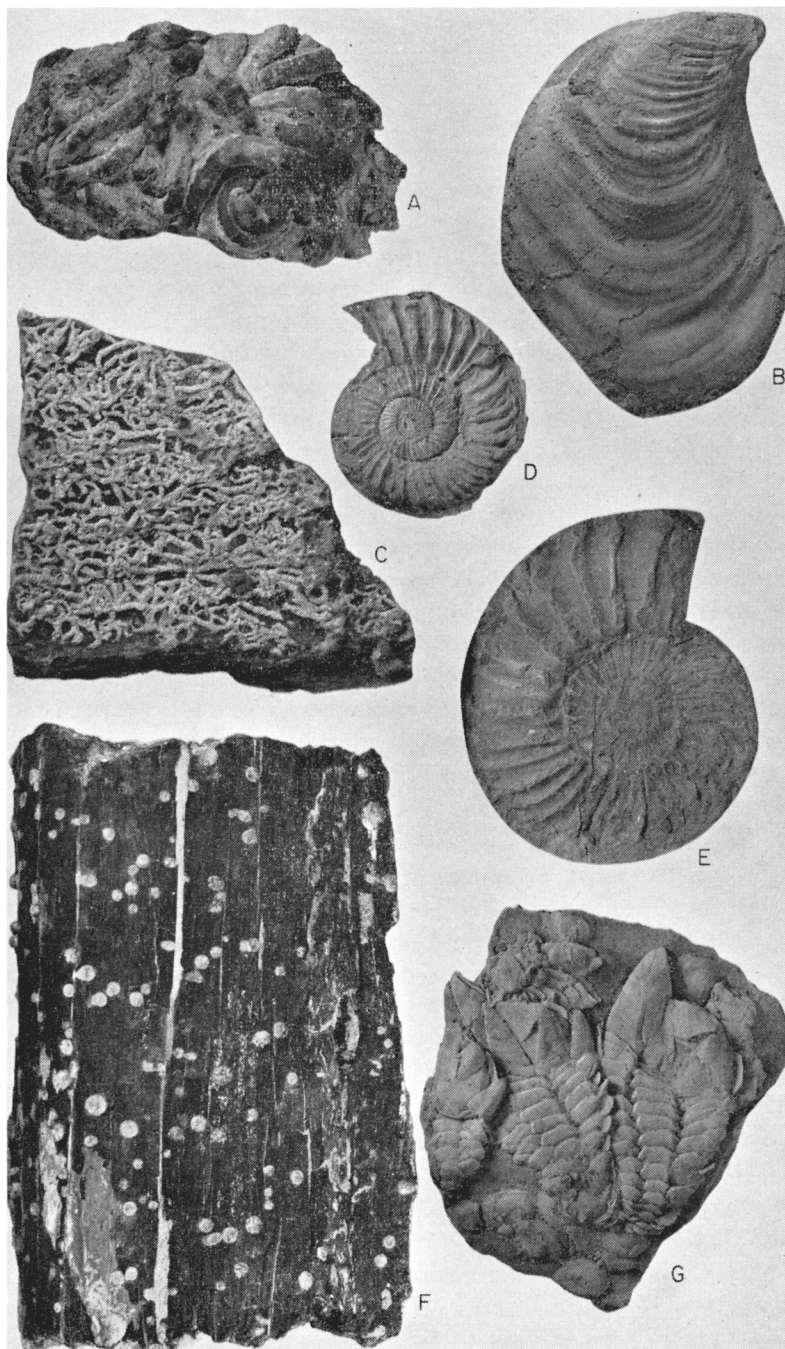
**Plate 8**—Photomicrographs of marly chalk from Fairport Member, plane polarized light. **A**, Marly chalk showing pellets (finest-grained ovoid areas near base of photo), limonite (dark areas), and matrix of microsparry calcite, x150 (Loc. 16). **B**, Marly chalk showing spar-filled foraminifer (lower left), pellets (light-gray ovoid bodies near center), clay (dark-gray interstitial matter), pyrite (black), and matrix of microsparry calcite, x150 (Loc. 16). **C**, Marly chalk showing pellets (light-gray ovoid bodies), clay (dark-gray blotches), fossil fragments (clear), pyrite (black), and matrix of microcrystalline calcite ooze, x150 (Loc. 17). **D**, Marly chalk showing spar-filled foraminifer (upper left), pellets (dark-gray ovoid bodies), and matrix of microsparry calcite, x150 (Loc. 17).



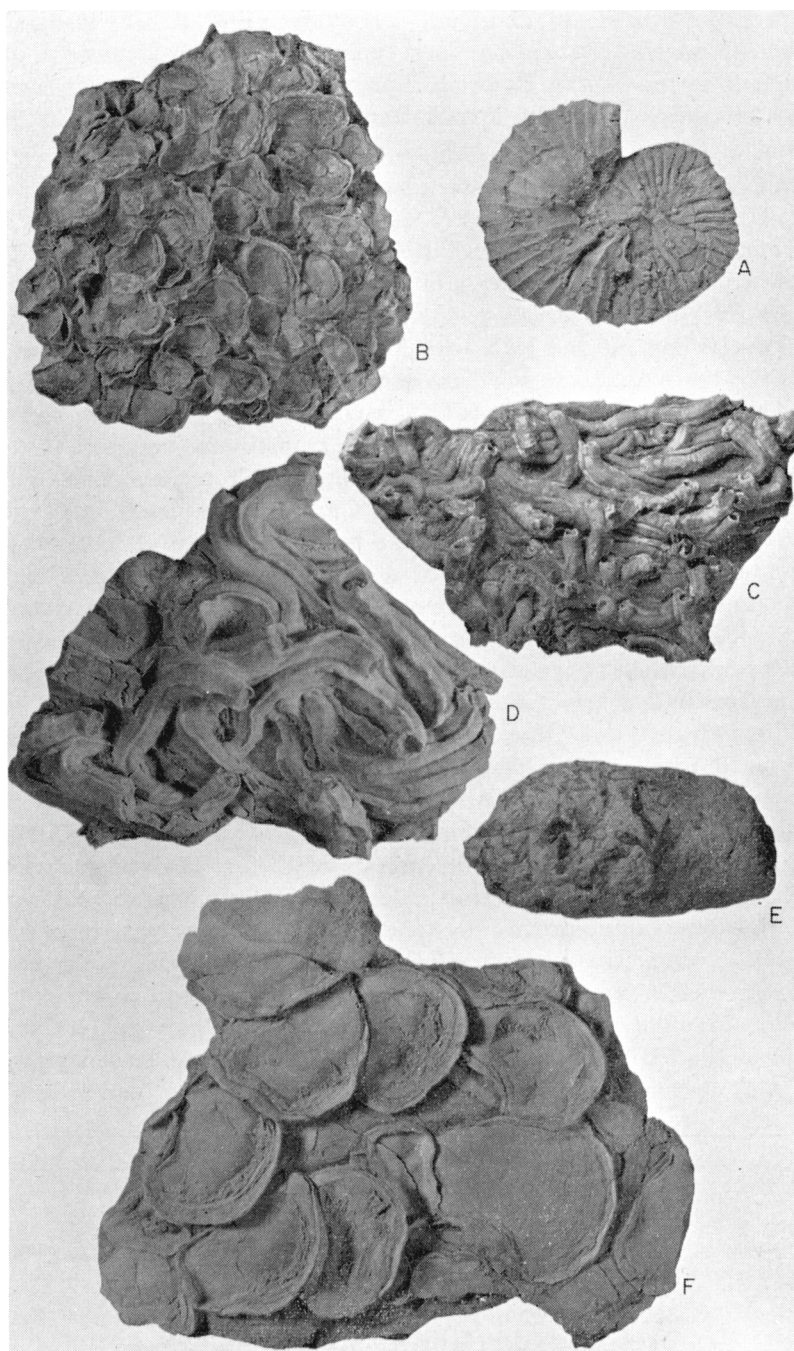
**Plate 9**—Arenites from Carlile Shale, under crossed Nicols. **A**, Calcarenite from middle part of Fairport showing fragments and isolated prisms of *Inoceramus*, limonite (black), and coarse spar cement, x60 (Loc. 4). **B**, Calcarenite from upper part of Fairport showing fragments and isolated prisms of *Inoceramus*, and spar calcite cement that is uniformly at extinction position (black), x60 (Loc. 25). **C**, Calcarenite from topmost Codell showing recrystallized fragment and numerous prisms of *Inoceramus*, quartz (large rounded grain, right center), limonite (black), and spar calcite cement, x60 (Loc. 22). **D**, Siltstone from upper part of Codell at type locality showing dominance of quartz and chert grains, accessory biotite (elongate black grains, lower right and upper right), and matrix of fine silt and clay, x100 (Loc. 28).



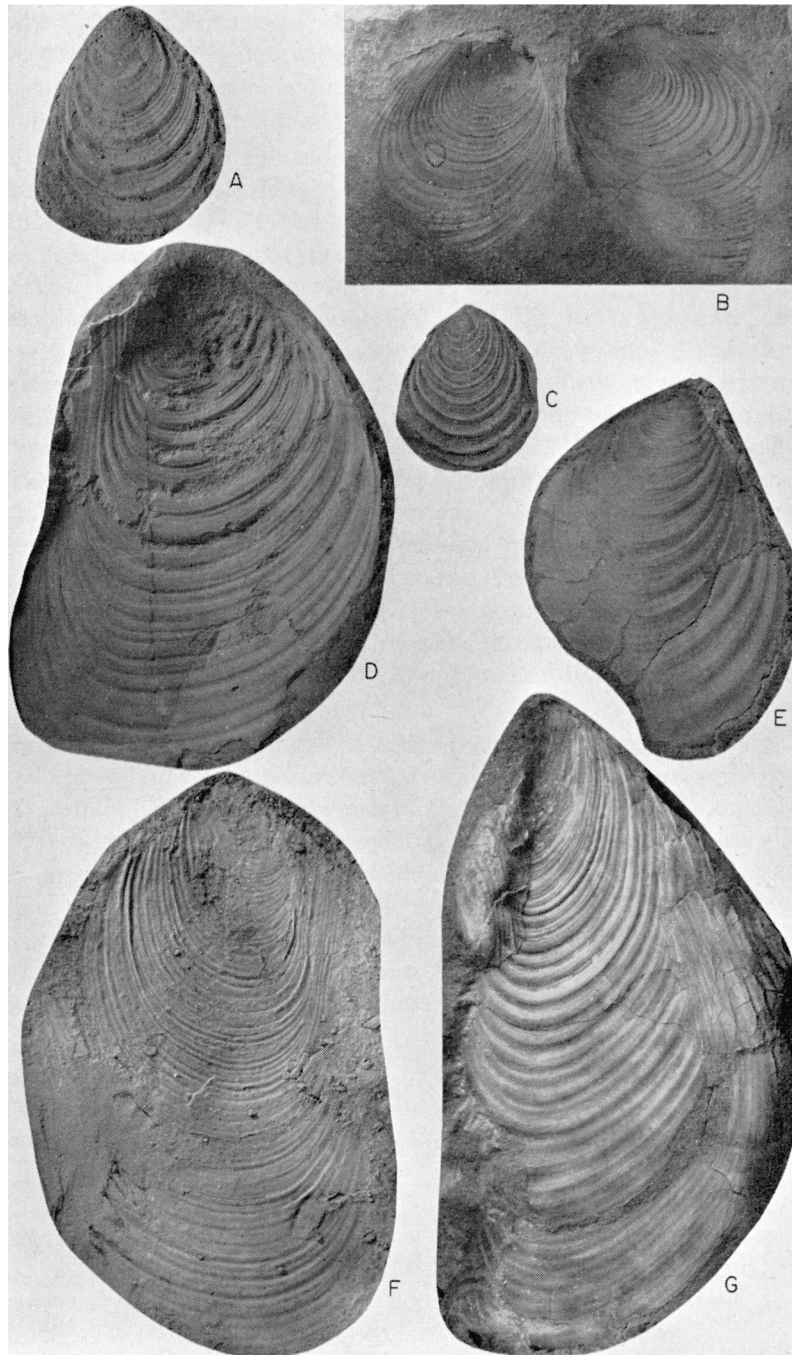
**Plate 12**—Fairport fossils. **A**, *Conopeum* n. sp., encrusted upon *Serpula*, middle part of Fairport (Loc. 11), x1, KU12053. **B**, *Inoceramus* n. sp.?, internal mold, right valve, upper part of Fairport (Loc. 17), x1, KU12056. **C**, *Proboscina* n. sp., encrusted upon fragment of *Inoceramus cuvieri*, middle part of Fairport (Loc. 53), x2, KU10536. **D, E**, *Collignonicerias woollgari* (Mantell). **D**, Internal mold, juvenile, uppermost Fairport (Loc. 9), x1, hypotype, KU12052A1. **E**, Internal mold, youthful individual, upper part of Fairport (Loc. 17), x1, hypotype, KU12056A1. **F**, Calcite-filled *Teredo* borings in carbonized *Cedroxylon* sp., lower part of Fairport (Loc. 5), x1/2, KU12051. **G**, *Stramentum?* n. sp., attached to fragment of *Inoceramus cuvieri*, middle part of Fairport (Loc. 34), x1, KU12086.



**Plate 13**—Fairport fossils. **A, F**, *Ostrea congesta* Conrad. **A**, Specimens from middle part of Fairport (Loc. 5), x1/2, hypotypes, KU12051P1. **F**, Large individuals attached to fragment of *Inoceramus cuvieri*, middle part of Fairport (Loc. 14), x1, hypotypes, KU12054P1. **B**, *Scaphites patulus* Cobban, lower (?) part of Fairport, Horsethief Canyon, Hodgeman County, x1, hypotype, KU11273A1. **C**, *Serpula tenuicarinata* Meek and Hayden, encrusted upon fragment of *Inoceramus cuvieri*, middle part of Fairport (Loc. 57), Russell County, x1, hypotypes, KU12063J1. **D**, *Serpula semicoalita* Whiteaves, encrusted upon fragment of *Inoceramus cuvieri*, middle part of Fairport (Loc. 37), x1/2, hypotypes, KU12062J1. **E**, Coprolite containing numerous fragments of undigested bone, middle part of Fairport (Loc. 53), x2, KU11279.

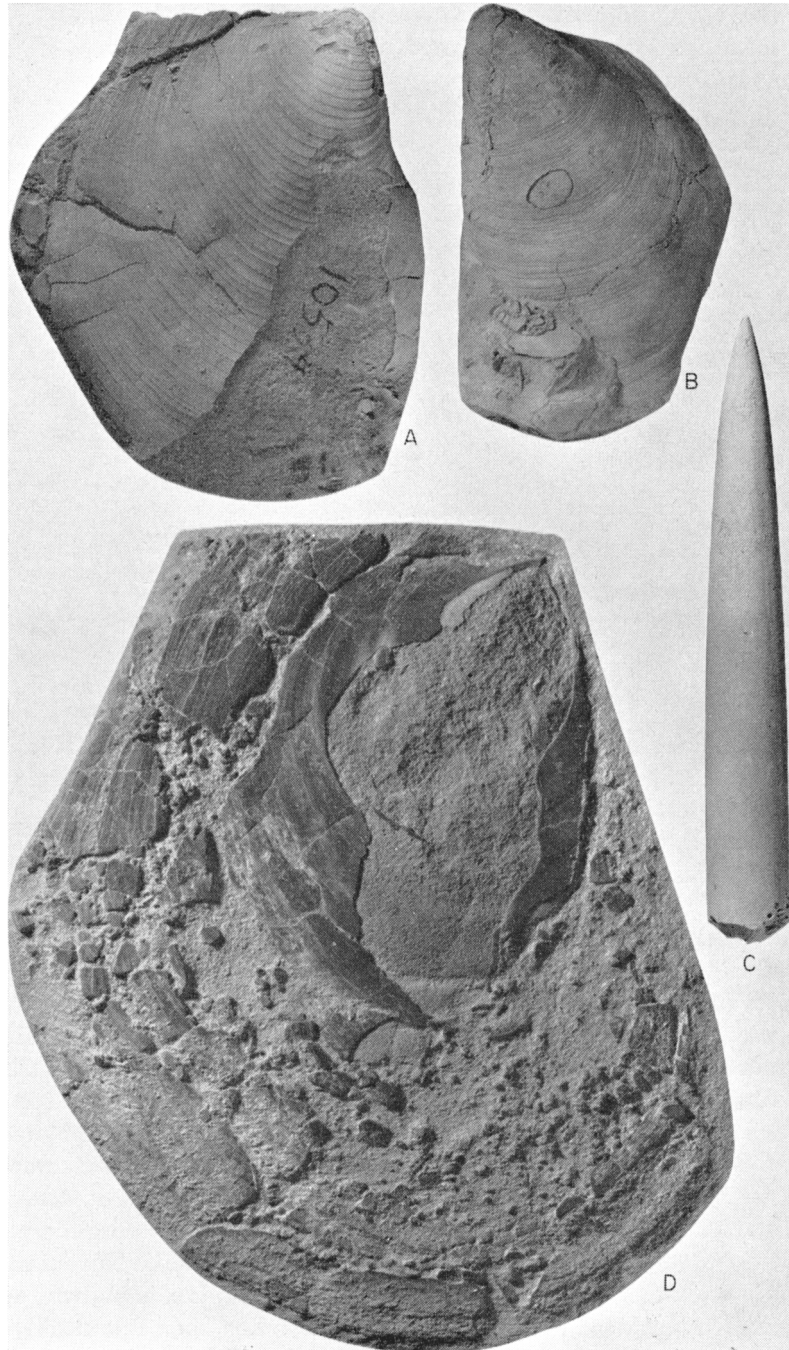


**Plate 14**—Fairport fossils. **A, C, E**, *Inoceramus latus* Sowerby. **A**, Internal mold, right valve, uppermost Fairport (Loc. 9), x1, hypotype, KU12052P1. **C**, Internal mold, right valve, middle part of Fairport (Loc. 51), x1, hypotype, KU10546P1. **E**, Internal mold, right valve, upper part of Fairport (Loc. 16), x1, hypotype, KU12055P1. **B, D, F, G**, *Inoceramus labiatus* Schlotheim. **B**, Form transitional to *I. latus*, interior of paired valves, lower part of Fairport (Loc. 58), x1/2, hypotype, KU12064P1. **D**, Broad form, interior of left valve, lower part of Fairport (Loc. 12), x1/2, hypotype, KU10534P1. **F**, Broad form, interior of right valve, lower part of Fairport (Loc. 5), x1, hypotype, KU12051P2. **G**, Typical form, interior of left valve, lower part of Fairport (Loc. 33), x1/2, hypotype, KU12061P1.

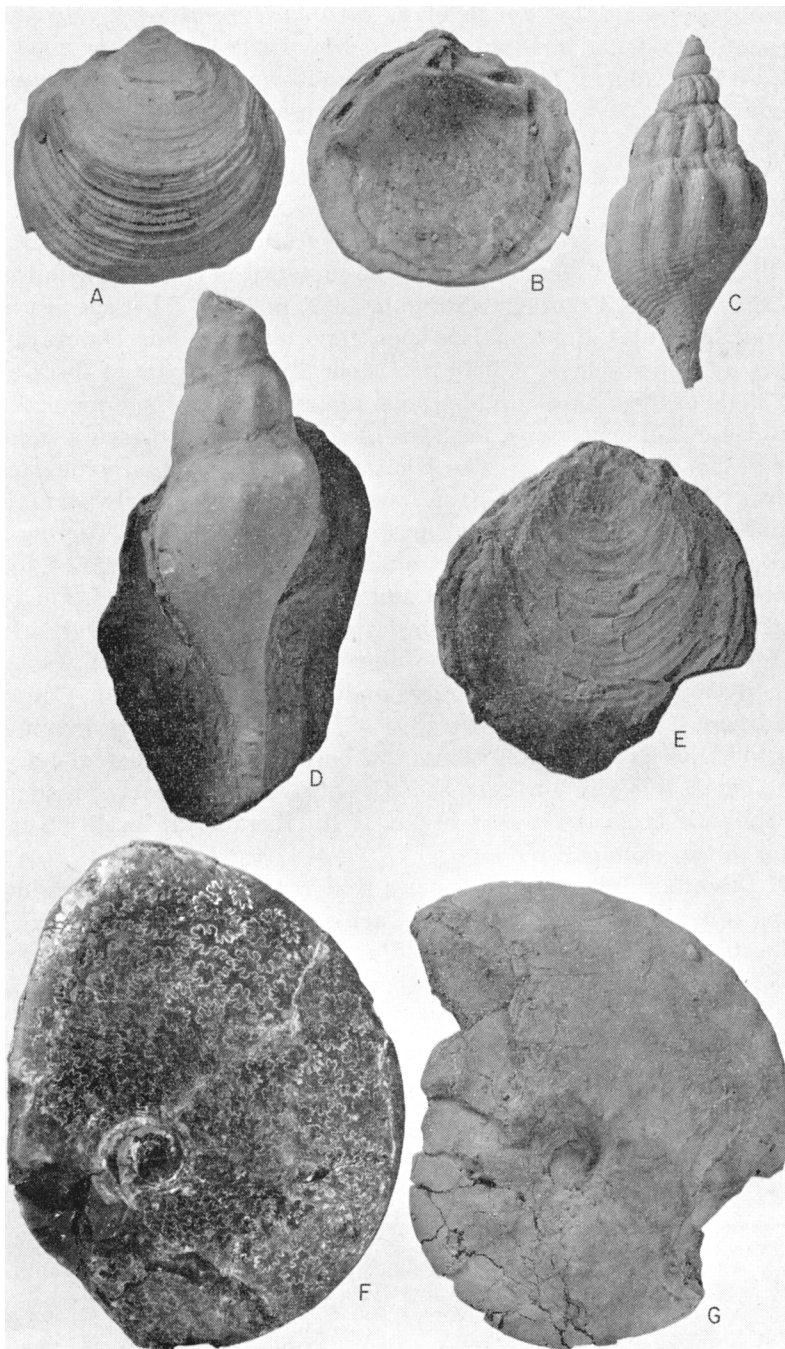




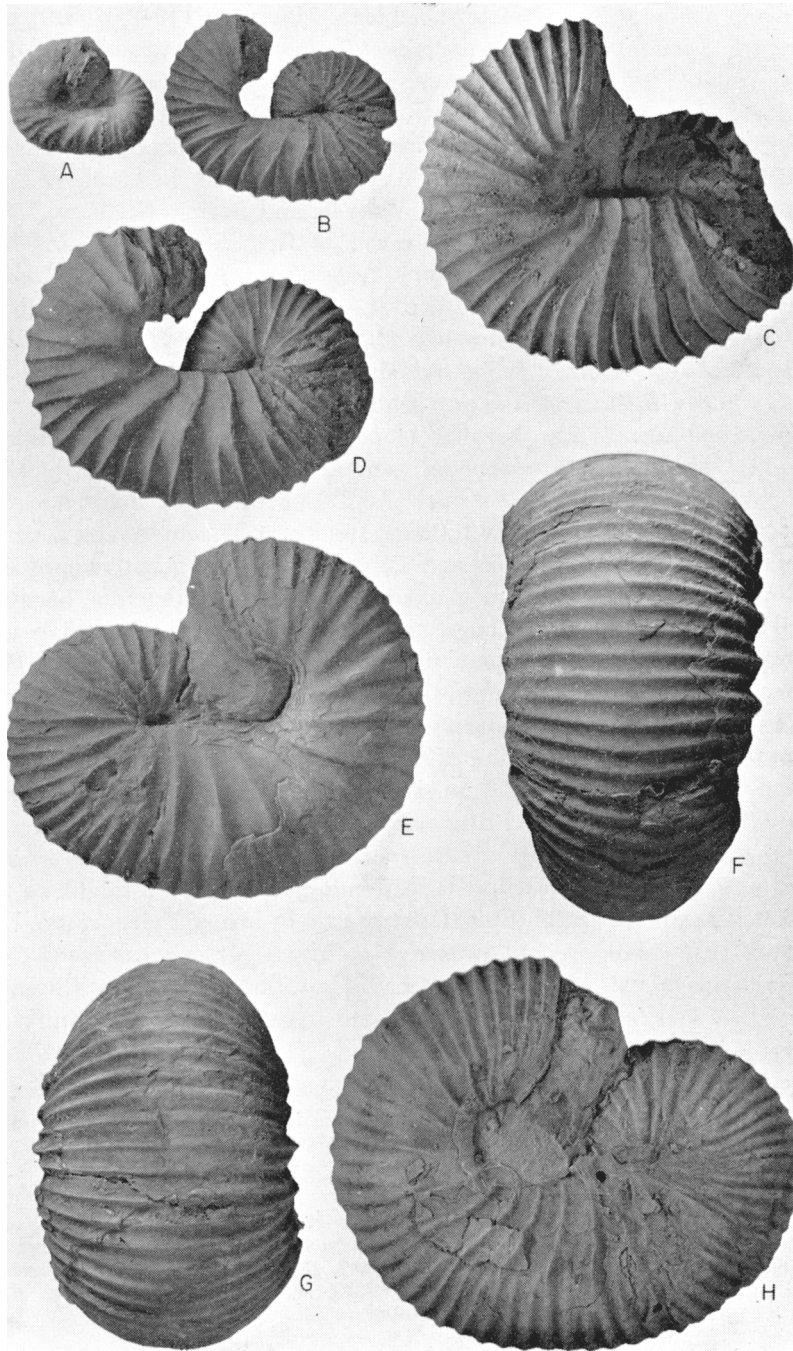
**Plate 15**—Fairport fossils. **A, B, D**, *Inoceramus cuvieri* Sowerby. **A**, Exterior, right valve, immature specimen, lower part of Fairport (Loc. 12), x1, hypotype, KU10534P2. **B**, Exterior, left valve, immature specimen, lower part of Fairport (Loc. 12), x1/2, hypotype, KU10534P3. **D**, Exterior, right valve, nearly mature individual, lower part of Fairport (Loc. 14), x1/2, hypotype, KU12054P2. **C**, *Actinocamax manitobensis* (Whiteaves), guard, middle part of Fairport (Loc. 19), x1, hypotype, KU12057L1.



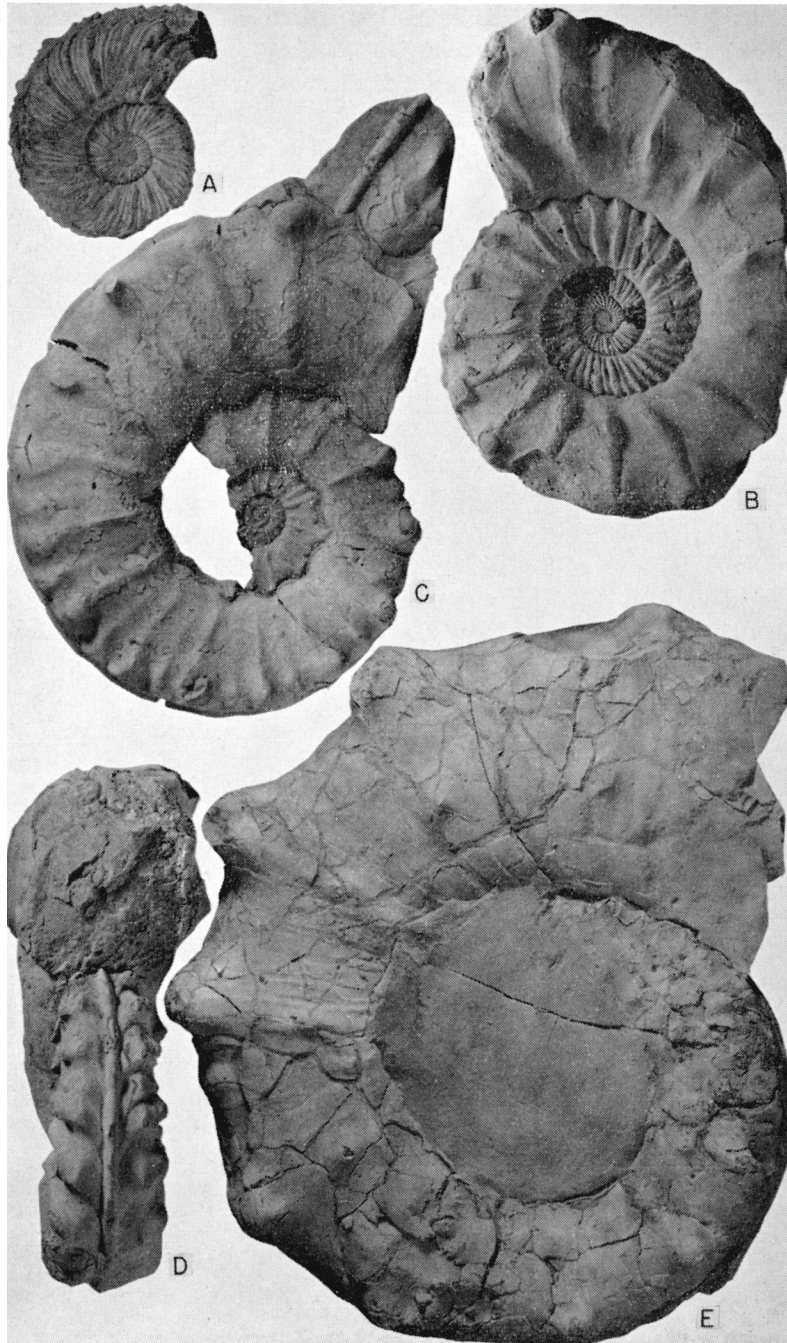
**Plate 22**—Blue Hill fossils. **A, B**, *Lucina juvenis* Stanton, both x2. **A**, Exterior, left valve; **B**, Interior, same valve, middle part of Blue Hill (Loc. 45), hypotype, KU10542P1. **C, D**, *Bellifusus willistoni* (Logan). **C**, Well-preserved conch of young individual, middle part of Blue Hill (Loc. 45), x2, hypotype, KU10542G1. **D**, Somewhat weathered conch of mature individual, partly embedded in concretion, middle part of Blue Hill (Loc. 45), x1, hypotype, KU10542G2. **E**, *Inoceramus latus* Sowerby, interior view (Loc. 52), x1, hypotype, KU10544P1. **F, G**, *Proplacenticeras pseudoplacenta* (Hyatt). **F**, Internal mold, middle part of Blue Hill (Loc. 49), x1, hypotype, KU10538A1; **G**, Exterior view of specimen from middle part of Blue Hill (Loc. 18), x1/2, hypotype, KU10533A1.



**Plate 23**—Fossils from middle part of Blue Hill. **A-H**, *Scaphites carlilensis* Morrow, all x1. **A**, Internal mold (Loc. 48), hypotype, KU10537A1. **B**, Locality 18, hypotype, KU10533A2. **C**, Locality 18, hypotype, KU10533A3. **D**, Locality 18, hypotype, KU10533A4. **E**, Locality 50, holotype, KU7802-3. **F-H**, Ventral, end, and side views of specimen (Loc. 31), hypotype, KU10540A1.



**Plate 24**—Fossils from middle part of Blue Hill. **A-E**, *Collignoniceras hyatti* (Stanton). **A**, Internal mold (small amount of shell material adhering) of juvenile specimen (Loc. 31), x1, hypotype, KU10540A2. **B, D**, Well-preserved immature specimen (Loc. 18), x1, hypotype, KU10533A5. **C**, Internal mold (some shell material adhering) of nearly mature individual (Loc. 49), x1/2, hypotype, KU10538A2. **E**, Mature individual (Loc. 45), x3/8, hypotype, KU10542A1.



**Plate 25**—Blue Hill and Codell fossils. **A**, *Prionocyclus wyomingensis* Meek, rubber cast of external mold, topmost Codell (Loc. 22), x1/2, KU12058. **B-F**, *Inoceramus flaccidus* White. **B, C, E**, Views of anterior, right valve, and left valve, respectively, of specimen that has only faint concentric folds, middle part of Blue Hill (Loc. 18), x1/2, hypotype, KU10533P1. **D**, Left valve of specimen that has pronounced concentric folds, middle part of Blue Hill (Loc. 48), x1/2, hypotype, KU10537P1. **F**, Paired valves of specimen that has moderately developed concentric folds, middle part of Blue Hill (Loc. 18), x1/2, hypotype, KU10533P2.

