high-velocity zones, marine sand is not available for transport. There bedrock sand and dust, largely a product of intensive marine-desert chemical weathering, are wind transported, resulting in either sand sheets or deflation areas.

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TRANSITION FROM FLUVIATILE TO MARINE SEDIMENTS IN COOMHOLA GROUP (UPPER DEVONIAN-LOWER CARBONIFEROUS) OF WEST CORK, IRELAND

At the head of Bantry Bay, southwest Ireland, the conformable transition between the nonmarine Old Red Sandstone facies and the marine Carboniferous clastic sequence occurs in the Coomhola Group. Within its 4 formations, 4 important partly repetitive facies are distinguished: (1) cyclic facies that become finer toward the top, interpreted to be stream deposits; (2) fine facies of rippled siltstone and mudstone, either separate or complexly interleaved, considered to be alluvial flood plain or interdistributary deposits; (3) burrowed facies, having variable proportions of wave-rippled siltstone interlaminated with mudstone, usually burrowed, thought to represent interdistributary bay deposits; and (4) parallel-bedded sandstone facies of parallel or cross-bedded sandstone units, in places having scoured surfaces, interpreted to be submarine-bar deposits.

The basal Yellow Rocks Formation (450 m) consists of the cyclic facies variably interleaved with the fine facies, its base being the highest redbed. Paleocurrents indicate a northerly provenance, and the general environment is interpreted to be an alluvial plain. In contrast, the lowest part (40 m) of the overlying Ardaturrish Formation consists of the fine facies and the burrowed facies in equal proportions. The latter is interleaved with the cyclic facies in the upper part (560 m). This facies association indicates a transgression over the alluvial plain, the environment changing to a coastal plain and then to an interdistributary area partly affected by south-flowing distributaries. The cyclic facies persists into the overlying Reenagough Formation (160 m) before giving way to the parallel-bedded sandstone facies indicative of an offshore bar deposit. The burrowed facies then dominates, and within the overlying Ardnamanagh Formation (80 m) shows cycles that become coarser at the top, suggestive of an advancing shoreline, before being succeeded by fine-grained marine sediments (Tournaisian). This facies sequence implies a deltaic advance before the marine transgression was established.

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DEPOSIT FEEDERS LIMIT DEVELOPMENT OF STROMATOLITES

Filamentous sediment-binding blue-green algae, principally *Scizothrix*, are present throughout the tide flats of the west coast of Andros Island, Bahamas, from storm-tide levels to below low tide, a range in excess of 3 m. However, extensive flat-laminated stromatolitic deposits are restricted to about ½ m in the upper intertidal and supratidal zones. A similar restriction is known from other areas, notably Florida Bay and the Persian Gulf.

Two small gastropods which feed on algae-coated surface-sediment particles are the principal cause of this restriction, but deposit-feeding polychaetes are also responsible. The gastropods, *Cerithidea costata* and *Batillaria minima*, in concentrations of 500–2,000/sq m, intermittently are exposed on the margins of shallow subtidal ponds. When flooded they feed so voraciously that about 100 fecal pellets are excreted per individual per hour. On the basis of the size of pellets (0.026 mm^3), rate of feeding (almost equivalent to the rate of excretion), number of individuals (1,000/sq m), and the percentage of time spent feeding (50%), I calculate that the topmost millimeter of sediment is reworked over the entire surface in 1 month.

If the gastropods and other deposit feeders were absent from Bahamian environments, the vertical range of stromatolitic deposits could be extended there from ½ m to several meters. Restriction or absence of deposit feeders could be caused by extreme salinity or temperature in other Holocene or Phanerozoic environments. Complete absence of deposit feeders in Precambrian time should have allowed stromatolites to develop to their maximum vertical range.

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SILURIAN REEF IN MICHIGAN BASIN—STRATIGRAPHIC-, FACIAL-, AND RESERVOIR-PROPERTIES ANALYSIS

The Belle River Mills gas field (China Twp., St. Clair Co.), discovered in 1961 and since 1965 utilized as an underground gas-storage reservoir, is one of 42 known reefs of Niagaran (Middle Silurian) age in southeastern Michigan, 36 of which are oil or gas producers. The reef is an elongate pinnacle structure, about 2 mi long and 0.75 mi wide. It attains a maximum relief of 420 ft with slopes ranging from 10 to 30°.

Three major growth phases are recognized: (1) biohermal, consisting of skeletal (crinoid, bryozoan, coral, and tabular stromatoporoid) wackestone and packstone rudites and arenites; (2) organic reef, consisting of a reef core (massive stromatoporoids, corals, and algae?) and associated interbedded and interfingering lithofacies of "backreef" skeletal wackestone rudite, burrowed mudstone and laminite, and coarse skeletal forereef talus; and (3) supratidal cover complex, composed of stratified algal stromatolites, flat pebble conglomerates, oncolites, and burrowed pelletal mud.

The mound developed to a height of 150 ft in quiet, relatively deep water. The reef grew in turbulent water, attaining a height of 300 ft above the surrounding sea floor. Reef growth stopped as a result of shallowing and increased salinity, which led to the deposition of the supratidal complex.

A conglomerate composed of algal stromatolite pebbles and boulders derived from the supratidal complex phase is present 400 ft below the reef crest at the base of the offreef Salina Group. It is covered by the A-1 anhydrite (15 ft) and the A-1 carbonate (120 ft) which both wedge out toward the reef walls.

The A-1 carbonate is finely laminated, finely crystalline dolomite devoid of fossils, in places pelletal with algal mats, birdseye, and desiccation features and having an abundance of various textural forms of anhydrite. It is indicative of a very shallow-marine, partly supratidal environment. The conglomerate and the environmental interpretation of the A-1 carbonate demonstrate that the offreef sequence is post-reef in age and that the reef was subaerially exposed during the deposition of the overlying units. Dolomitization and diagenetic processes of leaching and reprecipitation as-