SEPM RECENT CARBONATE SEDIMENTATION SESSION

Room G140, SAIT

Presiding: E. A. SHINN, D. J. SHEARMAN

11. K. J. ROY: Sedimentation and reef development in turbid-water areas of Fanning Lagoon 1:30
12. G. R. DAVIES: Carbonate-bank sedimentation, eastern Shark Bay, Western Australia 1:45

SEPM ANCIENT CARBONATE DEPOSITS SESSION

Room G140, SAIT

Presiding: J. L. WILSON, R. W. MACQUEEN

1. G. L. COX: Pinnacle-reef model, Zama-Virgo field, northern Alberta 2:00
2. H. R. WANLESS: Influence of preexisting bedrock topography on bars of "lime" mud and sand, Biscayne Bay, Florida 2:15
3. E. W. MOUNTJOY: Architecture of western part of Alberta basin and Upper Devonian reef trends 2:35
4. H. E. COOK: Miette platform evolution and relation to overlying bank ("reef") localization, Upper Devonian, Alberta 2:55
5. J. P. HOPKINS, E. W. MOUNTJOY: Reef-margin and basin sedimentation, Miette reef complex, Jasper National Park, Alberta 3:10
6. A. F. EMBRY, III, J. E. KLOVAN*: Upper Devonian biostromes and bioherms on northeastern Banks Island, Northwest Territories 3:30
7. C. M. THOMAS: Petrology of Pennsylvanian carbonate bank and associated environments, Azalea field, Midland County, Texas 3:50
8. G. MONSEUR, J. PEL**: Reef facies and stratified mineralization 4:10
9. V. SCHMIDT: Diagenesis of Keg River bioherms, Rainbow Lake, Alberta 4:30
10. D. GILL, L. I. BRIGGS*: Silurian reef in Michigan basin—stratigraphic-, facial-, and reservoir-properties analysis 4:50
11. E. W. MOUNTJOY: Comparison of some Alberta Upper Devonian reef complexes with modern Caribbean reefs 5:10

THURSDAY, JUNE 25

SEPM COLLOQUIUM

Room 304, Science B Bldg., Univ. of Calgary

Oceanic Plankton Research Group

9:00 A.M.–4:00 P.M.

ADDITIONAL PAPERS

(By title)

A. BHATTACHARYYA, S. K. CHANDA: Petrography and origin of Krol sandstones around Solon, northwestern Himalaya, India

J. C. DIONNE: Tidal-flat erosion and sedimentation by ice, St. Lawrence estuary

D. G. HADLEY: Paleocurrents and origin of Huronian Lorrain Formation, Ontario and Quebec

B. K. SAHU: Correlation of mean sizes obtained from size measurement by thin-section and loose-grain methods

* Denotes speaker if other than senior author.

** Paper will be presented by G. P. BROGNON.

ABSTRACTS OF PAPERS

ADSHEAD, PATRICIA C., Depts. Zoology and Geology, Univ. Missouri, Columbia, Mo.

SIMILARITIES BETWEEN DENTAL MICROSTRUCTURES OF SCUTELLID ECHINOIDS AND PRIMITIVE VERTEBRATES

Studies of scutellid echinoid teeth in living specimens reveal calcite-impregnated dental tissues which closely resemble the hydroxyapatite-impregnated dentin, cementum, and enamel characteristic of primitive vertebrate teeth and scales.

In the echinoids, flexible, scalelike plates are added continuously to the aboral base of each tooth, and fuse to form an imbricate series on emergence from the dental sac. A tubular, dentinlike packing develops between the plates, forming most of the keel. At midtooth, "cementum" encloses the "dentin" and plates, producing a thin surficial zone with distinctive lacunae and canaliculi. "Cementum" grades into a protective "enamel" coating (over a consolidated "dentin" core) where the tooth passes through the epidermis.

Among extant invertebrates, only echinoids possess such cellular dental tissue. Although teeth have been reported in Ordovician echinoids, and all modern lantern elements appeared by Late Silurian time, the microstructure of fossil echinoid teeth is unknown. In contrast, the microstructure of Ordovician vertebrate scales and teeth has been studied in detail. The highly evolved state of vertebrate dental tissue in the Ordovician has remained unexplained because of a lack of feasible ancestral forms. Despite chemical differences, the tissue-type structural similarities between modern scutellids and lower vertebrates are remarkable. Microstructures of early Paleozoic echinoid dental tissues may yield some clues to Precambrian ancestral relations between the echinoid and vertebrate evolutionary lines.

ANDERSON, EDWIN J., Geology Dept., Temple Univ., Philadelphia, Pa.

ENVIRONMENT AND SYNTHESIS OF COMMUNITY MODELS

Models of nearshore marine communities from the Paleozoic described by Bretsky, Ziegler, Boucot, Walker, Laporte, Anderson, and Goodwin overlap in species content, space, and time. These models show that (1) recurrent lateral patterns of communities exist; (2) communities persist in time; (3) communities and community patterns are linked closely to environment sequence; and (4) the same lateral community sequences may be present in terrigenous and carbonate rocks. Not well understood is (1) the relation of lateral community pattern to the onshore-offshore sequence of environments; (2) variability in the number of laterally coexisting communities; and (3) the coexistence of independently defined communities based on organisms from different phyla in a single environment.

Two environmental patterns recur in epeiric seas. The first—low energy offshore, high energy shoal or barrier, low energy restricted, tidal flat—is a sequence associated with stable and transgressing seas. The other sequence—low energy offshore, high energy shoreline or tidal flat without restricted onshore environments—is associated with prograding shorelines (regressive seas). In Appalachian Helderbergian deposits the transgressive pattern produces a sequence of brachiopod communities which have been correlated by Boucot with Ziegler's Early Silurian brachiopod com-