

The overall potential for preservation of these cavity-dwelling molluscs is high, but the potential for recognition of fossil molluscs preserved in ancient reef cavities as having been cavity-dwelling in life is dependent upon their preservation in situ on the walls and roofs of cavities. Many unattached molluscs fall from the roof and walls and become mixed in the cavity floor sediment with shells derived from outside the cavity. Because of their dominantly vagrant life habits, only 3% of the cavity-dwelling gastropod species in Bonaire are likely to be preserved in place compared with 66% of bivalve species. Therefore, in the fossil state many preserved molluscs may be recognized as having been cavity-dwelling, but the potential is low for reconstructing fossil bivalve and gastropod assemblages preserved in reef cavities in their original proportions and relationships.

AXIAL DISTRIBUTION MAPS FOR QUARTZ FROM A GRANITE UNDERGOING SYNTECTONIC RECRYSTALLIZATION

No 63265

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The South Mountain Range in Phoenix, AZ, has been identified as a metamorphic core complex (Reynolds 1982). It is composed of Pre-Cambrian amphibolitic gneisses and 25Ma-granitic intrusives. They underwent deformation starting immediately after intrusion and lasting through decreasing temperatures.

Two samples were chosen for detailed axial distribution analysis (AVA). One is from a syntectonic alaskite which underwent secondary recrystallization. The other is from the granodiorite proper and displays evidence of primary recrystallization. Both samples have fabrics of maximum II-type.

Factors influencing the position of a grain in a plot have been found to be: (1) secondary recrystallization, leading to a random fabric; (2) primary recrystallization, leading to growth of new crystals in the second maximum from an old host in the first maximum; (3) rotation recrystallization or subgrain rotation with recovery, leading to positions of new crystals close to the one of the host; (4) decay of the host into deformation bands, leading to kink-like arrangements; (5) the angular distance between qz-c-axis and strain-Y-axis increases with strain rate.

Evidence strongly suggests that (1) primary recrystallization is activated by grain boundary glide; (2) the strain rate may vary considerably around inclusions at very small scale; (3) qz-fabric skeletons develop perpendicular to the local shear plane, and oblique fabrics must be caused by strain domains in the tectonite; and (4) grains in ribbon mylonites at high temperature are more scattered than grains inside larger qz-bodies due to increased recrystallization at the quartz-nonquartz phase boundary.

CRITICAL PARAMETERS AFFECTING MIGRATION OF CONTAMINATION IN SOIL

No 72865

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Environmental contamination resulting from the handling of propellants, explosives, and pyrotechnics (PEP) is a highly significant problem on many US Army installations. Discharge of aqueous wastes to surface waters, burial of solid wastes in unlined pits and landfills, use of open burning/open detonation grounds, and accidental spills during storage and operations have resulted in contamination of soils. This paper discusses the technical approach and results of a project aimed at defining the critical parameters affecting migration of specific PEP materials, including degradation by-products, in soil systems. Laboratory study and computer applications were combined to generate a predictive model which upon application to a site, would allow for: (a) improved evaluation of PEP contaminant migration potential and, therefore, aid in determining the need for as well as the extent of remedial actions; and (b) development of more cost-effective technology to contain migration by controlling those parameters determined to have critical effects on migration.

Adsorption isotherms were determined for several PEP compounds on a diverse set of well characterized natural soils to determine relationships which would allow the prediction of adsorption parameters from soil and contaminant properties. The relative importance of infiltration rates, adsorption, diffusion and volatilization have been evaluated for a variety of soil/climate/contamination scenarios.

POSTGLACIAL UPLIFT IN THE CONNECTICUT VALLEY, WESTERN NEW ENGLAND

No 70291

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Glacial Lake Hitchcock occupied the Connecticut Valley and tributaries in late glacial and postglacial time. The lake lengthened northward as the late-Wisconsinan Laurentide ice sheet retreated and extended at maximum from a spillway near New Britain in central Connecticut to probably as far north as Burke in northeastern Vermont, a distance of

more than 200 mi (322 km). Erosion of the spillway down to a bedrock floor at between 60 and 70 ft (18-21 m) altitude initiated a prolonged stable lake phase that is recorded by a series of ice-marginal deltas constructed from Springfield, MA, northward. Precise measurements of altitudes of the delta topset/foreset contacts show a profile of post-glacial uplift that bears N20°W with a gradient of 4.7 ft/mi (0.89 m/km). The profile is an extremely consistent straight line, and most of the topset/foreset altitudes deviate from it by no more than 3 ft (1 m). The northernmost measured deltas at South Ryegate, VT, and Lisbon, NH, are more than 152 mi (245 km) north of the spillway along the profile and have been uplifted 720 ft (219 m) relative to the spillway.

The ice-marginal deltas were constructed sequentially during ice retreat over a span of perhaps 2000 years. The straightness of the time-transgressive profile indicates a considerable lag for postglacial uplift in this region, until after deposition of the entire series of deltas. Radiocarbon dates from the nearby White Mountain area indicate that the northernmost deltas were constructed about 14,000 years BP. Extension of this lag time to include the beginning of deglaciation (@ 19,000 BP) indicates a delay of response to ice unloading of perhaps 5,000 years. Although temporary and local low-level water bodies probably formed in the Connecticut Valley after drainage of Lake Hitchcock, the concept of a later "glacial Lake Upham," proposed nearly 50 years ago, is in need of serious revision.

PUNCTUATED AGGRADATIONAL CYCLES (PAC'S) AND THE MANLIUS-COEYMANS FORMATIONAL BOUNDARY

No 65888

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Goodman and Anderson (1984) assert that the Manlius-Coeymans formational boundary in eastern New York is the result of episodic sedimentation with punctuated aggradational cycles (PAC's). They believe that in the east the boundary is an erosional surface (a truncated PAC), possibly the result of differential uplift. However, westward they contend that the boundary is "within a PAC where facies accumulated by vertical aggradation". Gradual migration did not produce the contact in either area. Anderson and others (1984) assert that environments above and below formational boundaries (also PAC boundaries) represent isochronous surfaces.

Conclusions by the above workers are debated as follows: First, if a formational boundary occurs within a PAC, then it may be a diachronous surface resulting from gradual facies migration and/or vertical aggradation. Second, petrographic and paleontologic observations across the contact may not support superposition of non-contiguous facies; transitional paleoenvironments may be the rule. The actual arrival of Coeymans sediments at any given place may have been episodic, but this may not preclude contiguity of paleoenvironments.

One aspect of the Helderberg sequence which supports the PAC model is that during transgression, Coeymans facies migrated over a shallow sloping Manlius ramp. As such, sea level rise could have prevented superposition of contiguous facies. This occurred in some places within Shark Bay during the earliest phase of Holocene sea level rise.

Thus, the Manlius-Coeymans contact remains enigmatic.

NEW EVIDENCE FOR A POST-TACONIC, PRE-ACADIAN BACK-THRUSTING EVENT IN CENTRAL NEWFOUNDLAND

No 68439

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Recent fieldwork in the Frozen Ocean Lake - New Bay Pond area, central Newfoundland (Exploits Zone) has revealed that volcanic and volcanoclastic rocks of the Frozen Ocean Group (FOG) are everywhere in fault contact with a structurally underlying flysch-type sedimentary sequence. The FOG was previously suggested to conformably overlie these Caradocian and younger sediments and, hence, was regarded as late Ordovician-early Silurian in age (Dean, 1977, 1978; Dean and Kean, 1980). The Fog Fault, which separates these two contrasting sequences, is correlated with a fault that locally exposes oceanic/island arc-type basement (South Lake Ophiolite). After the effects of several episodes of later deformation are removed, sense of shear indicators along this fault zone consistently indicate that rocks of the FOG were thrust towards the south and over several ramp zones, emplacing them over a contemporaneous Silurian flysch sequence generally known as Sansom correlative strata. This thrust fault is believed to be coeval with several other similar structures within and bounding the Exploits Terrane, and is attributed to an early Silurian regional back-thrusting event which caused considerable crustal-thickening of the Taconic-modified margin of North America, and probably accommodated continued convergence between this terrane and the remaining, open part of the Appalachian Ocean.

3 David B. MacLachlan*: PENNSYLVANIA ANTHRACITE AS FORELAND EFFECT OF ALLEGHENIAN THRUSTING [68919] .....	1410
4 S.T. Paxton*, E.G. Williams: POROSITY OF COAL-BEARING ALLEGHENY GROUP ROCKS, PENNSYLVANIA, U.S.A., AND INFERENCE OF FORMER BURIAL DEPTHS [67213] .....	1430

5 B.L. Oostdam*: CAUSES OF SHOALING IN THE DELAWARE ESTUARY [69058] .....	1630
6 James E. Pizzuto*: ONSHORE SEDIMENT TRANSPORT IN SW DELAWARE BAY [65938] .....	1650
7 Michael J. Chrzastowski*: THREE-DIMENSIONAL ANALYSIS OF THE SEDIMENTARY FACIES OF A HOLOCENE TRANSGRESSIVE LAGOON: REHOBOTH BAY AND INDIAN RIVER BAY, DELAWARE [69950] .....	1710

**STRUCTURAL GEOLOGY/GEOPHYSICS**

Baroque Ballroom, Host Farm Resort Motel, 1510 hours

Charles K. Scharnberger and John D. Unger, Presiding

1 Mickey C. Van Fossen, John J. Flynn*, R.D. Forsythe: PALEOMAGNETISM OF EARLY JURASSIC ROCKS, WATCHUNG MOUNTAINS, NEWARK BASIN: EVIDENCE FOR COMPLEX ROTATIONS ALONG THE BORDER FAULT [66659] .....	1510
2 William C. Burton*, Nicholas M. Ratcliffe: COMPRESSIONAL STRUCTURES ASSOCIATED WITH RIGHT-OBLIQUE NORMAL FAULTING OF TRIASSIC-JURASSIC STRATA OF THE NEWARK BASIN NEAR FLEMINGTON, NEW JERSEY [71686] .....	1530
3 Leonardo Seeber*, John G. Armbruster: THE LANCASTER SEISMIC ZONE IN SOUTHEASTERN PENNSYLVANIA: HISTORICAL SEISMICITY, THE 1984 MARTIC EARTHQUAKE AND ITS TECTONIC SETTING [69009] .....	1550
4 B.F. Howell Jr., C.K. Scharnberger*: INTENSITIES OF THE APRIL, 1984, LANCASTER CO., PENNSYLVANIA, EARTHQUAKES [68959] .....	1610
5 Samuel T. Pees, John C. Palmquist*: LINEAMENTS, GEOPHYSICAL AND SUBSURFACE ANOMALIES, RESURGENT BASEMENT BLOCKS AND OIL AND GAS IN MERCER COUNTY, NW PENNSYLVANIA [70088] .....	1630
6 Jay Parrish*: A GEOPHYSICAL AND GEOBOTANICAL APPROACH TO HYDROCARBON EXPLORATION AT THE LOST RIVER, WV, NASA/GEOSAT TEST SITE [69057] .....	1650

**SEPM SYMPOSIUM: LACUSTRINE PROCESSES AND SEQUENCES II**

Lower Cabaret #2 and #3, Host Farm Resort Motel, 1330 hours

Joseph P. Smoot and Richard F. Yuretich, Presiding

1 Nicholas G. McDonald*: NEW DISCOVERIES OF JURASSIC INVERTEBRATES IN THE CONNECTICUT VALLEY: IMPLICATIONS FOR LACUSTRINE PALEOECOLOGY [59463] .....	1330
2 Peter M. LeTourneau*, Joseph P. Smoot: COMPARISON OF ANCIENT AND MODERN LAKE MARGIN DEPOSITS FROM THE LOWER JURASSIC PORTLAND FORMATION, CONNECTICUT, AND WALKER LAKE, NEVADA [70343] .....	1350
3 Chin Chen*: PALEOLACUSTRINE PROCESSES AND SEQUENCES OF THE SONGLIAO BASIN OF NORTHEASTERN CHINA [65668] .....	1410
4 Richard F. Yuretich*: PALEOCENE LACUSTRINE ENVIRONMENTS IN THE BIGHORN BASIN, MONTANA AND WYOMING [69846] .....	1430

**ESTUARINE GEOLOGY**

Lower Cabaret #2 and #3, Host Farm Resort Motel, 1510 hours

Bernard L. Oostdam and Joseph E. Nadeau, Presiding

1 Ronald J. Gibbs, Dale Tshudy*, Lohit Konwar, Jean-Marie Martin: SUSPENDED SEDIMENT TRANSPORT OF THE GIRONDE ESTUARY, FRANCE [69960] .....	1510
2 Duncan M. Fitzgerald, Charles F. Barker*, Jonathan M. Lincoln, L. Kenneth Fink Jr.: TIDAL HYDRAULICS OF SCARBOROUGH RIVER INLET, MAINE [59391] .....	1530
3 Peter C. Patton*, Gregory S. Horne: SEDIMENT TRANSPORT PATHWAYS IN THE CONNECTICUT RIVER ESTUARY [63288] .....	1550
4 Nicholas K. Coch*: SEDIMENTARY FACIES, STRUCTURES, AND DEPOSITIONAL PATTERNS IN THE LOWER HUDSON ESTUARY, EAST RIVER AND UPPER NEW YORK BAY [59202] .....	1610

**TECTONICS II**

Cabaret Theater, Host Farm Resort Motel, 1330 hours

R.D. Dallmeyer and James W. Skehan, Presiding

1 Janusz J. Wasowski*: TRACE ELEMENT GEOCHEMISTRY OF THE TEA ARM VOLCANICS, NORTHCENTRAL NEWFOUNDLAND: EVIDENCE FOR A FOREARC ORIGIN [57801] .....	1330
2 T.M. Kusky*, W.S.F. Kidd: NEW EVIDENCE FOR A POST-TACONIC, PRE-ACADIAN BACK-THRUSTING EVENT IN CENTRAL NEWFOUNDLAND [68439] .....	1350
3 B.D. Idleman*: NEW 40Ar/39Ar AGES FROM THE COASTAL COMPLEX, WESTERN NEWFOUNDLAND, AND THEIR TECTONIC IMPLICATIONS [68440] .....	1410
4 Michael R. Caudill*, R. Damian Nance: A SEDIMENTARY RESPONSE TO THE ALLEGHENIAN EVENT IN THE MISPEC GROUP OF SOUTHERN NEW BRUNSWICK [58349] .....	1430
5 James B. Warner*, R. Damian Nance: STRUCTURAL EVOLUTION OF AN ALLOCHTHONOUS ALLEGHENIAN TERRAIN, ST. JOHN, NEW BRUNSWICK [58348] .....	1450
<b>COFFEE BREAK</b> .....	1510
6 Mindy Sayres*, Allan Ludman: STRATIGRAPHY AND POLYDEFORMATION OF TETAGOUCHE (ORDOVICIAN) VOLCANIC ROCKS OF THE MIRAMICHI ANTICLINORIUM IN THE DANFORTH QUADRANGLE, EASTERN MAINE [59207] .....	1530
7 F. Hubacher*, D.R. Lux: CONSTRAINTS ON THE TIME OF ACADIAN DEFORMATION BASED ON 40Ar-39Ar ISOTOPIC AGES FOR TWO GRANITIC PLUTONS, NORTHEASTERN MAINE [65832] .....	1550
8 John P. Kaszuba*, David R. Wones: EARLY DEVONIAN THRUSTING IN THE PENOBSCOT BAY AREA, MAINE [71143] .....	1610
9 Lillian Morisi*, Allan Ludman: DEFORMATION HISTORY OF THE KINGMAN FAULT ZONE IN EAST-CENTRAL MAINE [59209] .....	1630
10 Allan Ludman*: PRE-SILURIAN (TACONIAN?) DEFORMATION OF THE COOKSON FM. (CAMBRO-ORDOVICIAN) IN SOUTHEASTERN MAINE [59203] .....	1650
11 Mark T. Swanson*: PSEUDOTACHYLYTE GENERATION ZONES OF SOUTHERN MAINE AND NEW HAMPSHIRE [70261] .....	1710

**METAMORPHIC PETROLOGY**

Lower Cabaret #1, Host Farm Resort Motel, 1330 hours

Norman W. Gillmeister and Charles B. Sclar, Presiding

1 Karin E. Olson*, Andrew J. Hynes: A MODEL FOR THE GREENSCHIST-AMPHIBOLITE TRANSITION IN METABASITES FROM NORTHERN QUEBEC [71374] .....	1330
2 Philip R. Whitney*, James F. Olmsted: PETROLOGY AND ORIGIN OF ALBITE GNEISSES IN THE NORTHEASTERN ADIRONDACKS, NEW YORK [71376] .....	1350
3 Clifford P. Ambers*, Michael R. Hudson: SYNTECTONIC METAMORPHISM IN THE HAILESBORO FAULT ZONE, NORTHWEST ADIRONDACKS [71418] .....	1410
4 J.H. Weakliem*, C.B. Sclar: PETROLOGY OF TWO GARNET-RICH METAGABBRO BODIES IN THE SOUTHEASTERN ADIRONDACKS, NEW YORK [70122] .....	1430
5 Ellen P. Metzger*: MINERAL ASSEMBLAGES IN MARBLES FROM THE STONY CREEK AREA OF THE SOUTHEASTERN ADIRONDACKS: PETROGENETIC IMPLICATIONS [71999] .....	1450
<b>COFFEE BREAK</b> .....	1510

# ABSTRACTS with PROGRAMS 1985



20th Annual Meeting

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