

**D**eath

**D**ecay

**D**istintegration

**The Newsletter for Research on Taphonomy**



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LARRY GONICK

**Number 4**

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*On high mountain peaks, in rocky caverns, in stone strata, in the clefts of rugged roads, in the deep recesses of mines, in the furrows of fields, even in the center of Germany so far removed from the ocean, they find, hardened in rock, numerous species of shellfish, bits of corals, the remains of fishes, marine monsters, and even wild animals as flourish only in Asia or Africa...Nor do they uncover only images, but the very bodies of fishes, cattle, and other quadrupeds, even of men and of dense trees, as though these things had met the dreaded head of Medusa or Gorgon and had been transformed into stone...This is indeed a reversal of the fable of Pyrrha and Deucalion, for here no stone thrown over the shoulder turns into man, but the corpse of man or beast is solidified into stone.*

- Johann Bartholomew Adam Beringer, 1726.

**FROM THE EDITORS:** The future of paleontology and taphonomy: part 2.

We accept as a given that research in taphonomy will have a continuing impact within paleontology but, as we discussed in issue Number 3 of DDD, it is vital that this work also be brought to the attention of non-paleontologists. This is, of course, only a part of the picture; we believe that the entire discipline of paleontology contains information and ideas vital to our colleagues in other disciplines. It is critical for the future of paleontology to re-examine how we focus and present our research. We need to "sell" what paleontology has to offer in order to maintain interest (and employment!). How to do so was discussed vigorously at the Cincinnati GSA meeting in October; we present some of these ideas here as a basis for continued discussion. For example, paleontology is critical for interpreting the biotic and abiotic processes and patterns produced by global change, including climatic variation, the carbonate cycle, CO<sub>2</sub> dynamics, and how organisms respond to change. As paleontologists we have the only direct historical record of these interactions. Research on sediment diagenesis, sediment input from deforestation and its affects on marine or freshwater assemblages, shell destruction and beach-berm dynamics, are some of the ways that paleontology and taphonomy can enhance applied research. Paleontology is beginning to have a major impact on studies in sequence stratigraphy. The list is endless..... Get the word out!

## GOALS

DDD is an informal medium for the exchange of information and ideas among scientists with an interest in taphonomy. This includes, but is not restricted to, those working in paleontology, archeology, sedimentology, stratigraphy, geochemistry, biomineralization, and decomposition. We are willing to accept virtually any contribution of taphonomic interest, including communications and brief reviews of new ideas, statements of current research, lists of recent publications, announcements of meetings, requests for information, pleas for help, cartoons, etc. Please pass copies of this newsletter on to your colleagues, especially those in related fields. Comments and suggestions are always welcomed.

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We currently produce one issue a year, more-or-less. Unfortunately, there is no such thing as a free lunch, even a rotten one. DDD currently receives no outside funds, so its continued existence depends on your financial support and on the forbearance of our home institutions. In order to pay for printing and mailing, we are requesting that all those who wish to receive future issues send a donation of \$5.00/year. Please make checks payable to Roy E. Plotnick. Of course, if you want to be a really good friend of taphonomy, larger contributions are most welcome. See the back page. A list of current contributors can be found at the end of this issue.

The editors would like to thank William Miller III and Humboldt State University for distributing this issue of DDD.

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Two notes from the editors: Due to the usual excuses, this issue has been delayed.

In addition, if you have sent your donation for this issue and have not received it, let us know as soon as possible. Our apologies.

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Of special interest for students/grant writers: Science Vol. 257 (18 Sept. 1992) discusses "Real Life" issues in the sciences, concerning funding, funding sources, careers in science and even includes a survey about how happy scientists are in their fields (Earth Scientists ranked high in this regard).

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According to Susan Kidwell, the official taphonomy handshake is a "high five," followed by the wiping of your hand on your shirt, while exclaiming "Yecch!"

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Paleontological Society Shortcourse:

Taphonomic Approaches to Time Resolution in Fossil Assemblages.

Subtitled: "Time the Final Frontier"

Conveners: Susan Kidwell and A. Kay Behrensmeyer

GSA, Boston, Mass.

A note about the short course:

"Time..the final frontier..." Susan Kidwell and Kay Behrensmeyer are organizing the 1993 GSA short course on taphonomy: "Taphonomic Approaches to Time Resolution in Fossil Assemblages." The all-day course will be organized in three parts: 1) empirical actualistic studies of time-averaging in modern environments; 2) quantitative models, simulations, and analyses of synoptic data sets; and 3) stratigraphic evidence based on case studies. There will be thirteen half-hour slots covering a wide range of environments and organic remains (marine, terrestrial, micro-, macro-, animal, plant). Please let your taphonomically inclined colleagues and students know about this short course. A more detailed description is attached to this newsletter. They hope to have time for audience participation--i.e., questions and answers--and also are searching for a good pub to retire to after the session. Anyone who has ideas about this, please contact Susan or Kay.

Potential Upcoming GSA Taphonomy Theme Session: In addition to the short course, it will also be good to organize a taphonomy theme session for the first or second day of the regular GSA meeting, so there would be more impetus for those interested in taphonomy to come to the first part of the meeting. Susan and Kay are not going to organize this too, but hope that some of you might do so!

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Symposium: Paleontological Perspectives on Global Change.

Convener: Roy Plotnick

North-Central Section Meeting of GSA

Rolla, Missouri

March 29-30, 1993

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Note on Deep-Sea Paleoecology Symposium at NAPC

(July 1992): the results from this symposium are to be published in *Palaios* in 1994; The importance of this symposium was to identify the most important issues in the historical biology of deepwater marine organisms and ecosystems, and to recognize the problems best approached using a combination of biologic and paleontologic methods. Long term development of benthic ecosystems will be emphasized.

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Newsletter:

*Zooarcheological Research News* is published four times a year. This newsletter should be of great interest; much of the work discussed is taphonomic or more broadly paleoecological. A recent issue includes news of a "ICAZ Fish Remains Working Group," a listing of recent papers in vertebrate taphonomy, and a series of course outlines in Zooarcheology. Editors are Pam J. Crabtree and Douglas V. Campana, Department of Anthropology, New York University, 25 Waverly Place, New York, NY 10003. Subscriptions are \$8.00/year in the U.S. and Canada and \$10.50 (surface) or \$14.50 (airmail) elsewhere (U.S. funds).

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Books

Geochemistry of Organic Matter in Sediments and Sedimentary Rocks. by L. Pratt, J. Comer, and S. Brassell. SEPM Short Course 27.

Terrestrial Ecosystems Through Time (1992), edited by A. K. Behrensmeyer, J. D. Damuth, W. A. DiMichele, R. Potts, H.-D. Sues and S. L. Wing. The University of Chicago Press.

Taphonomy: Releasing the Data locked in the fossil record, Vol. 9 of Topics in Geobiology, ed. by P. A. Allison and D. E. G. Briggs. Plenum Press, New York. 1991.

Cycles and Events in Stratigraphy. Einsele et al., (Eds.). Springer-Verlag Berlin Heidelberg. 1991.

Taphonomy Children's book: Bryd Baylor's If you are a hunter of fossils. New York, Scribner's and Sons (1979).

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**Friends of Taphonomy Meeting** (October 12, 1992, GSA), was a great success!

Convened by Sally Walker and Ben Greenstein:

Over 20 tapho-jovial-faces enjoyed the ambience of Arnold's Bar and Grill in downtown Cincinnati for a night of taphonomic revelry, feedback and libations. In fact, a movement is afoot to schedule future GSA taphonomic meetings for alternative edifices (e.g., local hot spots). All in attendance unanimously agreed that we should move to more informal settings in the future. However, because of the taphonomic disorder and deconvolution experience by arranging and rearranging the tables (at first in a "T" for obvious reasons, and then, finally in a "C" to Conform to Constraints of room and Conviviality), Sally feels that a Japanese restaurant with immovable tables and without chairs would be the next best choice for a DDD meeting.

A wide range of interests were highlighted at the meetings from coprolite taphonomy to how taphonomy could contribute to environmental issues (global climate change, calcium-carbonate recycling). This latter issue was very important and stimulated a foment of discussion: making taphonomic projects applicable to large-scale problems. These issues are discussed in the "From the Editors" column. It was agreed that a theme session on this aspect of taphonomic research would be an appropriate follow-up to the short course ("Time the Final Frontier") at the Boston GSA meeting. Moreover, Keith Meldahl was impaled with the responsibility of tentatively organizing a field trip (Biostratinomy of Boston Harbor since 1776? Cape Cod?) prior to the short course. A. K. Behrensmeyer notes: the field trip better not overlap with the short course.

Also, a motion was made to move the Friends of Taphonomy meeting to Wednesdays (or?) rather than Tuesdays. Why? To biologically accommodate the need to visit the other Friends meetings which are held on the same night. To quote Ben: "Let's face it, if you're a friend of taphonomy, you must be a friend of something else." Taphonomic feedback is most welcome on this motion to move the meetings to another time! Please let Sally or Ben know what you would like to do on this issue.

...

Taphonomy Sessions at NAPC and GSA (1992) were exceptional. While the NAPC meeting contained descriptive and experimental taphonomy with neontological and paleontological examples, GSA's "Taphonomy and Communities" provided for a wider diversity of taphonomic pursuits. Mathematical modeling, time-averaging, descriptive and experimental taphonomy (lab and field), large and small scale processes, were evenly divided in this theme session. Invertebrate taphonomy played a large role in both sessions, with few, but exceptional, vertebrate work presented. Next, who will tackle the GSA 1993 theme session on Global Issues and Taphonomy?

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Mailbag: A new department. Here we will entertain questions about taphonomy by scientists or other interested folk.

Our answer person, Blanche DuBois Muerte, will be happy to entertain any arcane questions that you might have concerning taphonomy and your life.

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But who's the father? *Science*, March 13, 1992: Special Women in Science Issue (1992): features A. K. Behrensmeyer and states that she "she is largely credited with leading a renaissance of taphonomic studies and has been called the "mother of taphonomy.""  
Nice to see Kay getting the credit she deserves.

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Various and sundry notes:

Comments on K. Flessa et al.'s (1992) recent *Palaios* paper concerning the Chevrolet:

--"Great! Now we can publish on Toyotas!"--Anonymous

--"Now, you can coin the word 'traphic' for the taphonomic effects of many Chevrolets" paraphrased from Don Chesnut, Kentucky Survey.

--"Actually, similar processes occur in a Volkswagon bug. Another paper?"--name not revealed to protect the innocent.

Comments seen in Press-Democrat, Yucca Valley, California:

"Paleontology is like doing cross-word puzzles." --again, name will not be revealed to protect the palabrally inclined.

...

The Not Dead Poets Society: The following poem appeared in the January 1993 issue of *The Atlantic Monthly*:

## THE SEA MOUSE

What lay this morning  
on the wet sand  
was so ugly  
I sighed with a kind of horror as I lifted it

into my hand  
and looked under the soaked mat of what was almost fur,  
but wasn't, and found  
the face that has no eyes, and recognized

the sea mouse--  
toothless, legless, earless too,  
it had been flung out of the stormy sea  
and dropped

into the world's outer weather, and clearly it was  
done for. I studied  
what was not even a fist of  
gray corduroy:

I looked in vain  
for elbows and wrists;  
I counted  
the thirty segments, with which

it had rippled its mouselike dance  
over the sea's black floor-not on  
feet, which it did not have, but on  
tiny buds tipped with bristles,

like paint brushes-  
to find and swallow  
the least pulse, and so stay alive, and feel-  
however a worm feels it- satisfaction.

Before me  
the sea still heaved, and the heavens were dark,  
the storm unfinished,  
and whatever was still alive

stirred in the awful cup of its power,  
though it breathe like fire, though it love  
the lung of its own life.  
Little mat, little blot, little crawler,

it lay in my hand  
all delicate and revolting.  
With the tip of my finger  
I stroked it,

tenderly, little darling, little dancer,  
little pilgrim,  
gray pouch slowly  
filling with death.

- Mary Oliver



CURRENT RESEARCH IN TAPHONOMY:

ALEC AITKEN

UNIVERSITY OF SASKATCHEWAN

Current Research: I have been investigating the taphonomy of marine benthic invertebrate communities in modern and Quaternary glacial-marine environments throughout the Canadian Arctic Archipelago. Modern and Quaternary thanatocoenoses are dominated by the remains of suspension-feeding bivalve genera. Preservation potential of the arctic invertebrate macrofaunas varies with habitat; 14% of genera in nearshore (less than 50m) habitats, 11% in inner shelf (50 to 300m) habitats and 9% in outer shelf (300 to 900m) habitats. I would like to hear from other researchers working in high latitude environments, modern or ancient, regarding their work on marine paleoecology.

WILLIAM I. AUSICH

OHIO STATE UNIVERSITY

Current Research: Echinoderm taphonomy to determine carbonate depositional environments (with D.L. Meyer). Crinoid taphonomy to determine connective tissue types.

ANNA K. BEHRENSMEYER

SMITHSONIAN INSTITUTION

Current research/publications: The book, Terrestrial Ecosystems Through Time (eds. A. K. Behrensmeyer, J. D. Damuth, W. A. DiMichele, R. Potts, H.-D. Sues and S. L. Wing, was published in July, 1992, by the University of Chicago Press. It grew out of a workshop held in 1987 by the evolution of Terrestrial Ecosystems Program at the National Museum of Natural History and turned into an integrated treatment of the history of land ecosystems, including a very long chapter on "Paleoenvironmental Contexts and Taphonomic Modes," compiled by Behrensmeyer and R. W. Hook. The 43 pages of references in this chapter are an almost up-to-date source on preservational contexts for land organisms. Other chapters also should be interesting to land paleoecologists, and (we hope) marine types as well. The first chapter on "Evolutionary Paleocology" presents issues relevant to marine as well as terrestrial settings. The 568 page book can be ordered in paperback from U.C. Press, for a bargain price of \$29.95.

I also have a paper on my 15-year old bone study in Amboseli Park, that should be coming out soon, in National Geographic's Research and Exploration journal. This journal has the advantage of presenting dead things in living color. Another, longer article on this is in the works for Paleobiology. An anthropological colleague, Dr. Martha Tappen (Peabody Museum, Harvard University), has recently completed her Ph.D. on vertebrate taphonomy in eastern Zaire. This study is comparable in many ways to my initial bone surveys in Amboseli, so not there are two such studies to use as analogues...two are much better than one, but more are needed.

CARLTON BRETT

UNIVERSITY OF ROCHESTER

Current research: Everything taphonomic, especially the Paleozoic.

Recent publications:

- Brett, C. E. 1988. Paleoeecology and evolution of marine hard substrate communities: An overview. *Palaios* 3:374-378.
- 1988. Comparative taphonomy and ecology of fossil "Mother Lodes," book review of Extraordinary fossil Biotas: Their Ecological and Evolutionary Significance (H. B. Whittington and S. Conway Morris, eds. Philosophical Transactions of the Royal Society of London, Series B, 311; London, 1985). *Paleobiology* 14:214-220.
- Parsons, K. M., C. E. Brett, and K. B. Miller, 1988. Taphonomy and depositional dynamics of Devonian shell-rich mudstones. *Palaeogeography, Palaeoclimatology, Palaeoecology* 63:109-139.
- Baird, G. C., C. E. Brett, and R. C. Frey, 1989. "Hitchhiking" epizoans on orthoconic cephalopods: preliminary review of the evidence and its implications. *Senckenbergiana Lethaia* 69: 439-465.
- Baird, G. C., C. E. Brett, and J. T. Tomlinson, 1990. Host-specific acrothoracid barnacles on Middle Devonian Playceratid gastropods. *Historical Biology* 4:221-244.
- Brett, C. E. and Y. Bordeaux, 1990. Taphonomy of brachiopods from a Middle Devonian shell bed: Implications for the genesis of skeletal accumulations. In: Brachiopods Through Time, D. I. Mackinnon, D. E. Lee, and J. D. Campbell (Eds.). A. A. Balkema, Rotterdam.
- Brett, C. E., K. B. Miller, and G. C. Baird, 1990. A temporal hierarchy of paleoecologic processes within a Middle Devonian epeiric sea, in: Paleocommunity Temporal Dynamics: The Long-term Development of Multispecies Assemblies, W. Miller, III, (ed.). The Paleontological Society Special Publication, No. 5:178-209.
- Bordeaux, Y. L., and C. E. Brett, 1990. Substrate specific associations of epibionts on Middle Devonian brachiopods: implications for paleoecology. *Historical Biology* 4:203-220.
- Speyer, S. E. and C. E. Brett, 1991. Taphofacies controls: background and episodic processes in fossil assemblage preservation, in: *Topics in Geobiology*, P. A. Allison and D. E. G. Briggs, Plenum Press, New York. pp. 501-545.
- Brett, C. E. and A. Seilacher, 1991. Fossil lagerstätten: a taphonomic consequence of event sedimentation, in Cycles and Events in Stratigraphy, Einsele et al., (eds.). pp. 283-297.

ROBYN BURNHAM

UNIVERSITY OF MICHIGAN

Current research: Cretaceous and Tertiary research on angiosperms, particularly with reference to environments and conditions of deposition. Modern taphonomic research in extant tropical and subtropical forest of South and Central America.

Recent publication:

- Burnham, R. , S. Wing, and G. Parker. 1992. The reflection of deciduous forest communities in leaf litter: implications for autochthonous litter assemblages from the fossil record. *Paleobiology*, 18:30-49.

KARL W. FLESSA

THE UNIVERSITY OF ARIZONA

Current research: continuing taphonomic studies in the Gulf of California with my graduate student, Michael Kowalewski. We are working on time-averaging of shelly faunas and beach ridge formation. Also, any and all information on radiometric dating of shells (beach to outer shelf; fossil/recent) would be greatly appreciated. My other graduate student, Lynn Myrick, is pursuing sediment reworking rates by biological agents (rays/callianassid shrimps) in Cholla Bay, Mexico.

Recent publications:

Flessa, K.W., A.H. Cutler, and K. H. Meldahl, 1993. Time and taphonomy: quantitative estimates of time-averaging and stratigraphic disorder in a shallow marine habitat. In Press to *Paleobiology*, vol. 19.

Most often cited publication:

Flessa, K.W., M. Kowalewski, and S. E. Walker. 1992. Post-collection taphonomy: shell destruction and the Chevrolet. *Palaos* 7:553-554.

RUSSELL W. GRAHAM

ILLINOIS STATE MUSEUM

Current Research. Progress continues on several taphonomic projects at ISM. Russ Graham and Jim Oliver have just completed a manuscript on the taphonomy of a modern ice-trapped coot assemblage, which they plan to submit to *Paleobiology*. The essence of this paper is that ice forms a substrate which permits the imprinting of terrestrial processes on assemblages deposited in lacustrine environments. Also, analysis of avian and mammalian scavengers shows that they disarticulate bird skeletons in different ways. From these observations, they conclude that joint frequency on a landscape is not necessarily a direct function of joint strength but may dependent on the types of scavengers that attack a carcass and the sequence of their appearance at a death site.

Russ continues his work on taphonomy in cold environments. This now involves two projects in the Northwest Territories of Canada. For the last couple of years Russ has been monitoring the fate of about 100 carcasses of caribou which were part of a larger herd that starved to death on an island on the Bathurst inlet. However, this past year Russ documented and collected bone assemblages from wolf and fox dens. Both of these studies are in cooperation with Renewable Resources of the Northwest Territories. These studies should provide further insight into the taphonomy of bone assemblages derived from different vectors in cold climates. Bone weathering, time-averaging processes, and bone modification are of special interest in these studies.

BRIAN SCOTT HOCKETT

440 JUNIPER NO.1

ELKO, NEVADA

Current research: My research focuses on the deposition of leporid (cottontail and hare) bones

in open-air and cave/rock shelter sites. This research has focused on the role that raptors, woodrats, coyotes, and humans play in deposition of leporid bones from Hogup Cave, Utah.

Recent publications:

- Hockett, B. S. 1991. Toward distinguishing human and raptor patterning on leporid bones. *American Antiquity*. 56:667-679.
- 1990. Arachnid taphonomy: Note on scorpion remains in archaeological context. *Nevada Archaeologist* 8:7-10.
- 1989. Archaeological significance of rabbit-raptor interactions in Southern California. *North American Archaeologist* 10:123-139.
- 1989. The concept of carrying range: a method for determining the role played by woodrats in contributing bones to archaeological sites. *Nevada Archaeologist*. 7:28-35.

ROGER L. KAESLER

THE UNIVERSITY OF KANSAS

Current research: Stef Taunton and I continue our research on resistance of ostracode carapaces to biostratinomic agents. At present we are tumbling ostracodes in various substrates. I suppose that it should come as no great surprise that we have learned that ostracodes, like so many kinds of organisms, are not particularly resistant to abrasion. After transportation of only about 1,000 meters in ooids, most valves show pronounced effects of transportation.

Recent publications:

- Taunton, S., and R. L. Kaesler, 1991. Experimental taphonomy of the ostracoda: tumbling and transportation of *Cyprideis beaenensis* (LeRoy, 1943). *Geological Society of America, Abstracts with Programs* 23(5):A344-A345.

STEVE KERSHAW

WEST LONDON INSTITUTE OF HIGHER EDUCATION

Current research: a) Diagenesis of stromatopoids sponges; effects on mineralogy and taxonomy.  
b) Growth controls on stromatoporoid biostromes on Gotland, Sweden.  
c) Growth controls on chaetetid sponges, Carboniferous of U.S.A.

Recent publications:

- Kershaw, S. and R.R. West. 1991. Chaetetid growth form and its controlling factors. *Lethaia*, 24: 333-346.
- West, R.R. and S. Kershaw. 1991. Chaetetid habitats, pp. 445-455 IN J. Reitner and H. Keupp, eds. *Fossil and Recent Sponges*. Springer-Verlag.

R. LEE LYMAN

UNIVERSITY OF MISSOURI-COLUMBIA

Current research: Late Quarternary mammalian paleoecology and taphonomy of the Pacific Northwest. Most research focuses on zoogeography and differential survivorship of skeletal parts, especially as the latter is mediated by the structural density of bones.

Recent publications:

- Lyman, R.L. 1992. Influences of Mid-Holocene Altithermal Climates on Mammalian Faunas and Human Subsistence in Eastern Washington, Journal of Ethnobiology 12, in press.
- Lyman, R. . 1992. Anatomical Considerations of Utility Curves in Zooarchaeology. Journal of Archaeological Science 19:7-22.
- Lyman, R.L. 1992. Prehistoric Seal and Sea-Lion Butchering on the Southern Northwest Coast. American Antiquity 57:246-261.
- Lyman, R.L., L. Houghton and A. Chambers. 1992. The Effect of Structural Density on Marmot Skeletal Part Representation in Archaeological Sites. Journal of Archaeological Science 19:557-573.
- Lyman, R.L. 1991. Taphonomic Problems with Archaeological Analyses of Animal Carcass Utilization and Transport, in Beamers, Bobwhites, and Blue-Points: Tributes to the Career of Paul W. Parmalee, edited by J.R. Purdue, W.E. Klippel and B.W. Styles, pp. 125-138. Illinois State Museum Scientific Papers 23.
- Lyman, R.L. 1991. Prehistory of the Oregon Coast: The Effects of Excavation Strategies and Assemblage Size on Archaeological Inquiry. Academic Press, San Diego.
- Lyman, R.L. 1991. Late Quaternary Biogeography of the Pygmy Rabbit (Brachylagus idahoensis) in Eastern Washington. Journal of Mammalogy 72:110-117.
- Lyman, R.L. 1991. The Holocene History of the Red Fox (Vulpes vulpes) in Eastern Washington. Northwest Science 65:22-26.
- Lyman, R.L. 1991. Subsistence Change and Pinniped Hunting. in Human Predators and Prey Mortality, edited by M. C. Stiener, pp. 189-199. Westview Press, Boulder.
- O'Brien, M.J., R.L. Lyman, and T.D. Holland. 1989. Geoarchaeological Evidence for Prairie-Mound Formation in the Mississippi Alluvial Valley, Southeastern Missouri. Quaternary Research 31:83-93.
- Lyman, R.L. 1989. Taphonomy of Cervids Killed by the 18 May 1980 Volcanic Eruption of Mount St. Helens, Washington, U.S.A. in Bone Modification, edited by R. Bonnischsen and M. Sorg, pp. 149-167. University of Main Center for the Study of Early Man, Orono.
- Lyman, R.L. 1989. Seal and Sea Lion Hunting: A Zooarchaeological Study from the Southern Northwest Coast of North America. Journal of anthropological Archaeology 8:68-99.
- Lyman, R.L. and G.L. Fox. 1989. A Critical Evaluation of Bone Weathering Data as an Indication of Bone Assemblage Formation. Journal of Archaeological Science 16:293-317.
- Lyman, R.L. 1988. Zoogeography of Oregon Coast Marine; Mammals: The Last 3000 Years. Marine Mammal Science 4:247-264.
- Lyman, R.L. 1988. Significance for Wildlife Management of the Late Quaternary Biogeography of Mountain Goats (Oreamnos americanus) in the Pacific Northwest U.S.A. Arctic and Alpine Research 20:13-23.
- Lyman, R.L. 1988. Was There a "Last Supper" at Last Supper Cave? in, Danger Cave, Last Supper Cave, and Hanging Rock Shelter: The Faunas, by D.K. Grayson, pp. 81-104. American Museum of Natural History Anthropological Papers 66(1).
- Lyman, R.L. and M.J. O'Brien. 1987. Plow-Zone Zooarchaeology: Fragmentation and

Identifiability. Journal of Field Archaeology 14:493-498.

Lyman, R.L. 1987. Zooarchaeology and Taphonomy: A General Consideration. Journal of Ethnobiology 7:93-117.

Lyman, R.L. 1984. Bone Density and Differential Survivorship of Fossil Classes. Journal of Anthropological Archaeology 3:259-299.

KONSTANTIN A. LUTAENKO

FAR EAST STATE UNIVERSITY (VLADIVOSTOK)

Current research: Holocene mollusks: migrations, taxonomy and taphonomy.

Recent publications:

Lutaenko, K.A., 1991. On the origin of warm-water elements of the malacofauna of Peter the Great Bay, Sea of Japan. Biologiya Morya N.1:12-20. English version: The Soviet Journal of Marine Biology, 1991, vol. 17:7-12.

-----1991. On mid-Holocene migrations of warm-water molluscs in the Sea of Japan. Doklady Akademii Nauk. SSSR, v. 321:596-598.

-----1988. Shells of molluscs from the Holocene deposits on the coast of Ussuri Bay, Sea of Japan. Marine Biology, Vladivostok, N.6:65-67.

-----1992. Auto-paleontology and formation of fossil record incompleteness. Proceedings of the Academy of Sciences (Moscow), Biological Series N4:582-589.

KEITH MELDAHL

OBERLIN COLLEGE

Current research: I am studying the effects of variations in tidal range, wave energy and coastal topography on styles of shell bed formation in shallow marine Plio-Pleistocene deposits from the Gulf of California. I'm also exploring the time-stratigraphic significance of shell bed formation in these deposits. I continue to work with Alan Cutler and Karl Flessa on radiocarbon dating of Holocene mollusc shells in our study of stratigraphic mixing and disorder. I am also working with a student on an actualistic leaf taphonomy study.

Recent publication:

Meldahl, K. H. and A. H. Cutler, 1992. Neotectonics and taphonomy: Pleistocene molluscan shell accumulations in the northern Gulf of California. Palaios 7:187-197.

Flessa, K. W., A. H. Cutler, and K.H. Meldahl, 1993. Time and Taphonomy: quantitative estimates of time-averaging and stratigraphic disorder in a shallow marine habitat. Paleobiology, v. 19, In Press.

WILLIAM MILLER III

HUMBOLDT STATE UNIVERSITY

Current research: Structure and development of a Septastrea coral bank, lower Pleistocene of eastern North Carolina; Paleoecology of flysch trace fossils, mostly from Cretaceous rocks in northern California; Origin of high-energy, open coast marine shell beds, Pleistocene of northern California; ecologic interpretation of graptolite trace fossils; theoretical aspects of

paleoecosystem temporal dynamics.

Recent publications:

Miller, W., III (Ed). 1990. Paleocommunity temporal dynamics. Paleontological Society Special Publication No. 5, 421 p.

-----1991. Hierarchical concept of reef development. Neues Jahrbuch für Geologie und Paleontologie, Abhandlungen 182:21-35.

-----1991. Intrastratal trace fossil zonation, Cretaceous flysch of northern California. Ichnos 1:161-171.

-----1991. Bathysiphonid (Protista: Foraminiferida) localities in Franciscan flysch, northern California, with a redescription of Bathysiphon aaloi Miller, 1986. Tulane Studies in geology and Paleontology 24:71-78.

-----In Press. Paleoecology of graphoglyptids. Ichnos.

Walker, S. E., and Miller, W., III. 1992. Organism-substrate relations: towards a logical terminology. Palaios 7:236-238.

ROY E. PLOTNICK

UNIVERSITY OF ILLINOIS AT CHICAGO

Current research: Implications of fractals, percolation, kinetic growth models, and other models derived from statistical physics to problems in geology, paleontology, and ecology, including stratigraphic completeness and ranges. Theoretical landscape ecology.

Recent publication:

Wetmore, K.L. and R. Plotnick. 1992. Correlations between test morphology, crushing strength, and habitat in Amphistegina gibbosa, Archaias angulatus, and Laevipeneropolis from Bermuda. J. Foraminiferal Research, 22:1-12.

JENNIFER S. PROUTY

CORPUS CHRISTI STATE UNIVERSITY

Current research: description and paleoenvironmental interpretation of ?Pleistocene coquinas along the mainland shore of Laguna Madre. These are among the only lithified outcrops in the South Texas coast. I am comparing them with modern coquinas forming immediately seaward on Padre Island.

GEORGE M. STAFF

Round Rock, Texas

Current research: I am currently involved in a project to determine the rates of taphonomic alteration of shell material in various shallow water marine environments of Texas. Shell samples whose taphonomic characteristics have been recorded are being left at several fresh and marine locations for extended periods of time (months to years) to examine the rates of calcite loss, the amount of bioerosion and accumulation with time, and the effects of shell microstructure on taphonomic alteration.

Recent publications:

Callender, W.R. , Powell, E.N., and Staff, G.M. in press. Taphonomic rates on the Louisisana continental slope.

Staff, G.M. and Powell, E.N.. in preparation. Comparing living benthic communities of the shallow continental shelf to their death assemblage: continued insight into fossil assemblage formation.

RICHARD TERRY

UNIVERSITY OF CINCINNATI

Current Research: Finishing PhD study of Banff Formation (Lower Carboniferous) echinoderms of Western Alberta. Also quantifying echinoderm preservation for other Lower Carboniferous faunas from Iowa and Ohio.

SALLY E. WALKER

UNIVERSITY OF ARIZONA

Current research: continuing studies in fossil forensics: biotic interactions and mollusc shell preservation (pagurids, brachyurans, fish); Bioerosion and shell-fouling; outer shelf-slope taphonomy of mollusc shells; staying out of chevrolets, volkswagens and toyotas to prevent further in situ studies on taphonomic disarticulation.

I am happy to hear that an undergrad class at U. Tennessee at Martin, is testing the pagurid taphonomic criteria I proposed, in the Eocene of Mississippi. Critiques welcome!

Recent publications:

Walker, S. E. 1992. Criteria to recognize marine hermit crabs in the fossil record using gastropod shells. J. Paleontology, 66:535-558.

Walker, S. E. and W. Miller, III. 1992. Organism-substrate relations: Toward a logical terminology. Palaios, v. 7:236-238.

Flessa, K. W., M. Kowalewski, and S. E. Walker, 1992. Post-Collection taphonomy: shell destruction and the Chevrolet. Palaios, v. 7:553-554.

Walker, S. E. and S. B. Yamada, In Press. Mistaken crab predation on empty mollusc shells: implications for the gastropod fossil record. Palaeontology.

Walker, S. E. In Press. Gastropod fossils reworked by the living land hermit crab, Coenobita clypeatus, on Bermuda. Palaios.



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**DONORS TO THE DEAD:** The following individuals have made contributed to the cost of producing and distributing this issue. Our thanks.

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## MISTER BOFFO



# THE DAWN OF PALEONTOLOGY

I THINK I  
KNEW THIS  
GUY.



SID ON  
TAPHO-  
REDEMPTION



MONDAY JANUARY 7, 1990  
By The TUCSON WEEKLY

The Arizona Legislature passed the "Road Kill Bill," making it legal for motorists who accidentally run over big game animals with their cars to keep the carcasses. The bill cautioned that its passage did not "imply that any part of the carcass is edible."



.. DEAD!  
I'M  
D..DEAD



In a few days, Superman will die. But don't worry. The Man of Steel will be back. The question is how. (Maybe it was just a bad dream.)

A PASSING OF A GREAT  
MAN FROM THE BIOSPHERE..

(THE SNOWBIRDS ARE THE  
WORST)

# 1993 Paleontological Society Shortcourse:

## Taphonomic Approaches to Time Resolution in Fossil Assemblages

### *Time, the final frontier...*

Next year's Paleo Society shortcourse will be on taphonomy. The field has blossomed greatly and has seen several mutiauthored volumes reviewing the field in the past few years, and so a broad and necessarily generalized overview would be largely redundant. Consequently, we have focussed on one aspect that would have the greatest interest to a broad cross-section of paleontologists and historical geologists: the general problem of time resolution in the fossil record. From the perspective of their different methodologies, depositional systems and taxonomic groups, speakers will discuss what we now know about the problem of time-resolution (and why), our ideas on how to deal with it, and what this means for interpreting ecological and evolutionary processes at a variety of scales (interactions of individuals up to speciation).

Because there are now far more researchers working on these problems than ever before, and far more than could be accomodated in a one-day program, we have asked speakers to take particular care to provide an overview or synthesis of results that goes beyond their personal work. We encourage others to participate by communication with authors well in advance of the shortcourse, and to join the exchange via oral and poster sessions during the main GSA meeting.

The course is organized into three parts according to methodology.

1. Empirical actualistic studies on scales of time-averaging in modern environments. How is the resolution of subfossil assemblages calibrated? Do assemblages having different degrees of bias have distinctive taphonomic or other signatures? Are there environmental gradients? What are the methodological limits to actualistic work, or pitfalls in their extrapolation to the stratigraphic record?

2. Quantitative models, simulations, and analyses of synoptic datasets. Extrapolating from "first principles" and empirical estimates for basic parameters, what is expected for the quality of the fossil record? How should mixing affect paleobiological signals? How can these methods be used to bridge gaps between actualistic and stratigraphic evidence? How do the results of numerical age calibration compare with those of taphonomic and stratigraphic studies?

3. Stratigraphic evidence based on case studies. What does the fossil record look like, and how is it's temporal resolution determined? How well do these results agree with actualistic information? Are there consistent paleoenvironmental and other stratigraphic patterns in the temporal quality of fossil datasets? What critical data or tests are needed from actualism?

#### Speakers:

8:15 Convene: Why time? (S.Kidwell &  
A.K. Behrensmeier, Co-convenors)

#### Part 1. Overviews of Actualistic Evidence

8:30 K.W. Flessa (marine macroinvertebrates)  
9:00 R. Martin (shallow marine microfossils)  
9:30 T. Webb (pollen)  
10:00 coffee  
10:30 R. Burnham (terrestrial macroflora)  
11:00 R. Graham (terrestrial vertebrates)

#### Part 2. Simulations and Models

11:30 A.K. Behrensmeier & R. Chapman  
(terrestrial vertebrates)

#### 12:00 Lunch

1:30 A. Miller & H. Cummins (marine inverts)  
2:00 A. Cutler (disorder & deconvolution)  
2:30 P. Sadler (variation in age-resolution over  
geologic time)

#### Part 3. Stratigraphic patterns

3:00 K. Johnson (Cretaceous terrest. macroflora)  
3:30 R. Rogers (Cretaceous terrest/marine verts)  
4:00 C. Brett (early Paleozoic marine inverts)  
4:30 S. Kidwell (Meso/Cenozoic marine inverts)

DEATH, DECAY, AND DISINTEGRATION  
The Newsletter for Research on Taphonomy

INFORMATION SHEET  
(Please Type or Print in English)

NAME: \_\_\_\_\_

MAILING ADDRESS: \_\_\_\_\_

\_\_\_\_\_

Please list below and on attached sheets as necessary, any contributions you might make concerning:

- 1) Announcements of meetings, workshops, new books, etc.;
- 2) Current research;
- 3) Recent publications.

RETURN TO:

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September 16, 1994

To: All subscribers to Death, Decay, and Disintegration  
From: Roy E. Plotnick, editor  
Re: Future of the newsletter

When Steve Speyer and I began DDD five years ago, we hoped that we would be able to publish an issue at least once a year for the indefinite future. Unfortunately, the future has now become definite. As you have no doubt noticed, the lag between issues has become longer and the amount of material published in each one has shrunk. Due to postage costs, I have tried to produce an issue only when I had enough material to justify the expenditure of money and time. I currently have on hand only enough material to justify a 3-4 page newsletter (if that). In addition, Sally Walker, the current co-editor, has indicated she cannot continue in that role. The time has come, therefore, for a decision to be made about DDD's future. It should be noted that we have about \$200 in unspent donations.

The options are:

1. DDD continues to publish. This is mostly a matter of receiving enough new material on a regular basis to justify my time and effort. If so, I would like a volunteer for co-editor.
2. DDD suspends publication. If I do so, I will return any contributions for issue 5 to those who made them. Any funds remaining will be donated to the Paleontological Society on behalf of "Friends of Taphonomy."

Please write, phone, or e-mail me with opinions, comments, suggestions, etc. We can also discuss this at the Seattle GSA Friends of Taphonomy meeting. I would welcome any other options.

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