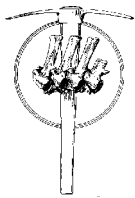


SOCIETY OF  
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## OFFICIAL BUSINESS

### Minutes of the 54th Annual Meeting, Seattle, Washington, October 22, 1994

William A. Clemens, President, called the meeting to order at 3:00 PM and welcomed the group to the 54th Annual Meeting. He then announced the grad student meeting at 5:00 PM on October 22.

John Flynn, Secretary, gave his report, which included the following motions: motion to accept 1993 annual meeting minutes; motion to accept 1994 midyear meeting minutes; motion to accept the Secretary's report. All motions were seconded and approved by vote of attending SVP members. Flynn also reviewed the 1993 94 election ballot results noting that Louis Jacobs will serve as Vice President, John R. Bolt as Treasurer, and Lawrence Flynn as the Member-at-Large in 1994 95.

John R. Bolt, Treasurer, presented his report which included an overview of the Society's financial position as well as a review of the 1994 95 budget. A motion to accept the Treasurer's report was made, seconded, and approved.

Richard Cifelli, *JVP* editor, presented the *JVP* Committee report for 1993 94 which included an overview of the *Journal*'s average page length, average contributions, rejection rate percentages, page print totals, and comparisons to previous years. A motion was made to accept the report, which was seconded and approved.

John R. Wible, Development Committee Chair, presented the Development Committee report, in which he highlighted a new fund-raising campaign which will specifically target reducing the backlog of manuscripts for the *JVP*. A motion was made to accept the report, which was seconded and approved.

William A. Clemens, President, presented the Information Management Report in Annalisa Berta's (Chair) absence. The report included the following: an announcement that the 1991 *BFV* was going to press at the end of October; a note of thanks to Herbert Axelrod for printing the *BFV* gratis; a review of the VRTPALEO list server by Sam

McLeod; a review of the PaleoNet list server by Norm MacLeod which is a linked series of general and specialty servers, Ftp sites, gopher holes, and World Wide Web pages designed to reconnect paleontology with itself. A motion was made to accept the report which was seconded and approved.

Kathleen Scott, Education Committee Chair, presented the Education Committee report which included a reminder to the attending SVP members to turn in their education surveys and that the winner of the of the Predoctoral Fellowship would be announced during the Annual Banquet. A motion was made to accept the report, which was seconded and approved.

Michael Woodburne, Government Liaison Committee (GLC) Chair, presented the GLC report, which included a recap of the Committee's activities as well as the statement that the GLC is committed to continuing support of the Baucus bill. A motion was made to accept the report, which was seconded and approved.

Laurie Bryant presented the Bureau of Land Management (BLM) informational report, which included an overview of the BLM's continuing efforts to support a working permit process through Washington, D.C. Ms. Bryant noted that this process increases the visibility of paleontology within the BLM. A motion was made to accept the report, which was seconded and approved.

Kevin Padian, Program Committee Chair, presented his Committee's report, which included an appeal to the attending SVP members to provide feedback regarding the lengthened and dedicated viewing for poster sessions as well as the abstract review process. A motion was made to accept the report, which was seconded and approved.

Pamela D'Argo, SVP Business Manager, presented an overview on Smith, Bucklin and Associates, the association service firm now handling the business office. A motion was made to accept the report, which was seconded and approved.

Jim Clark presented information on NAPC.VI scheduled to be held in Washington in June 1996. Clark encouraged symposia organization and participation from the attending SVP members.

Richard Stucky, Outreach Committee Chair, noted that the Committee, which was created two years prior, was a very active committee with one of their main tasks being to formalize a statement regarding the responsibilities of professional paleontologists to the amateur community. Richard Stucky directed the group's attention to the handout and called discussion from the group. After some brief discussion, a motion was made to accept the statement of Responsibilities of Professional Vertebrate Paleontologists to the Amateur Community, which was seconded and approved. A motion to accept the Outreach Committee report was then made, seconded, and approved.

Outreach Committee Co-Chair, Sally Shelton, then took the podium to acknowledge Richard Stucky's hard work, dedication, and outstanding contributions to the Society in

his role as Outreach Committee Chair. Sally Shelton presented Richard Stucky with a plaque in honor of these accomplishments.

William A. Clemens presented the Executive Committee report, which consisted of several discussion items: 1) presentation of proposed by-law change statement on ethics:

William Clemens called on David Krause to discuss the proposed by-law change. Discussion, as well as queries, followed, particularly regarding the final point in the proposed by-law. A motion was made to strike the last point from the by-law. The motion was then amended, and the Chair stated that the motion should be configured to convey a sense of the meeting and request that the Executive Committee strike the last point from the version by mail ballot to the members. The motion was seconded and discussion ensued. A vote was taken by a show of hands; 17 in favor, majority against motion. The motion was defeated.

2) Approval of evolution statement: William Clemens called upon Kevin Padian to discuss the statement. A motion was made to accept the statement. It was seconded and approved. After brief group discussion, however, the motion was amended to include the following phrase at the end of the evolution statement: Acceptance of evolution need not preclude belief in God. The religious beliefs of vertebrate paleontologists generally reflect those of the population as a whole. A vote was called for on the amendment and the amendment was defeated by voice vote.

An editorial amendment was proposed for the third paragraph, as noted in the Secretary's copy. The vote was called for on the editorially amended original statement motion. The motion was passed by voice vote.

William Clemens introduced Marcus Milling, AGI Executive Director. Milling thanked the group for allowing him to present. He reviewed the four goals of AGI as follows: 1) to assist in intersociety events and act as an umbrella organization to the geological community; 2) to provide informational services, one of the primary services being GeoRef, which includes 1.8 million citations; 3) to provide earth science education for grades K 12; 4) to create greater public awareness of how geoscientists improve society's needs by providing a focused voice in Congress on geological issues. Milling thanked the group for their attention and noted that AGI is looking forward to working together with SVP in the future.

Mary Dawson, 1995 Host Committee Chair, announced the 55th Annual Meeting to be held in November 1995 in Pittsburgh. She noted that the Carnegie Museum has hosted the SVP every 20 years (1939 [pre-SVP], 1959, 1979); but now a rash decision to break the trend has occurred because of the 100-year anniversary of Carnegie. The dates of the meeting are November 1 4, 1995.

William Clemens then called for new business from the floor. The following reports were then given.

Dinosaur Society report: Steve Gittleman, President, reported on activities and opportunities of the Dinosaur Society and stressed the importance of continued alliance with SVP for the betterment of both organizations.

Acknowledgment of Christie Rabke: William Clemens recognized Christie Rabke of the University of Chicago Press for her gifts of \$100 book certificates and The Snouters to winners of the Romer Prize and Estes Award.

GSA short course announcement: Don Prothero announced GSA's short course on Major Features of Vertebrate Evolution at the Sheraton Hotel at 9:00 AM in the Grand Ballroom.

Open Executive Committee meeting: William Clemens announced the open Executive Committee meeting on Saturday from 12 1 PM in room 304F HUB.

William Clemens called Jason Lilligraven to the podium for the motion of thanks. Resolution by standing acclamation. Clemens then introduced the new Executive Committee members: Lawrence Flynn, Member-at-Large; Louis Jacobs, Vice President; David Krause, President. Clemens then acknowledged the outgoing members and praised their efforts: Brent Breithaupt, Member-at-Large; Rufus Churcher, Past President. Clemens then called David Krause, incoming President, to the podium for the adjournment remarks. David Krause, 1994-95 President, acknowledged the leadership skills of William Clemens as outgoing President and asked for acclamation from the attending SVP members. A motion to adjourn the annual business meeting was then made, seconded, and approved. The meeting was adjourned at 5:43 PM. (John Flynn)

### **Report of the Treasurer for the Fiscal Year October 1, 1993 September 30, 1994**

As most SVP members know, the move of the Society's business office to Chicago was accompanied by a major change in the way we do business. For the first time in the Society's history, we are using an association services company rather than hiring our own business manager. During the transition from Lincoln to Chicago, it became apparent that we were approaching a point where a single business manager would be hard pressed to keep up. At the same time, bringing in a new business manager plus Treasurer and Secretary every few years was in effect discarding the hard-won knowledge of the entire staff of the business office. The Executive Committee therefore decided to explore the possibility of using an association services firm. After considering several options, the Committee voted to engage Smith, Bucklin and Associates (SBA). SBA, the largest association services firm in the U.S., is also used by the American Society of Zoologists. We believe that SBA will provide both the expertise and continuity which we need.

This Treasurer's Report presents the budget for 1994 95, as adopted by the Executive Committee. The financial results of the 1993 94 fiscal year, including investment

performance, are shown in the auditor's report which follows. Some items in one or both years' budgets require additional explanation and comment, as follows:

**Income.** Dues income has increased modestly, and a further increase is projected for 1994 95. This projection will be low if current efforts to increase membership are successful. Contributions to the general endowment were a very bright spot this year, due primarily to one very generous (and unexpected) donation. The projected contributions for 1994 95 are much less, in line with the level of contributions in other recent years. Here again, these may prove too low in light of the development campaign that is now underway. *JVP* income was substantially less than expected, due mostly to a very low level of page charge receipts. Despite this experience, the budget for 1994 95 anticipates a much higher level of page charge receipts. The Executive Committee, the Editors, and the Treasurer are committed to pursuing this vital revenue source. For 1994 95, we budgeted \$1,200 in advertising income for the *JVP*. This much-discussed potential revenue source seems likely to become an actual revenue source this year for the first time. The 1993 Annual Meeting made a substantial financial contribution (nearly \$26,000) to the Society, with the auction alone bringing in more than \$12,000. The 1994 auction raised \$9,000, also a very good result.

**Expenses.** The one-time cost of the transition from Lincoln to Chicago was higher than anticipated, for a total of \$8,519 an example of the type of cost we hope to avoid in future. Most of this represents shipping charges. Administrative expenses rose last year, and a further increase is budgeted in 1994 95. The Business Office is now providing support services for SVP activities that include a major development campaign, improving our page-charge recovery procedures, developing an annual business plan for the *News Bulletin*, updating our member database, and improving the timeliness and accuracy of our membership application process. The Executive Committee voted some \$6,700 for completion of the *BFV* Database Demonstration Project during 1994 95.

**Endowment Results.** This has been a difficult year for stocks and bonds, and the Society's investment results reflect that fact. As shown below, after transfers to the operating budget, the total market value of our endowment funds (\$878,565) was essentially unchanged year to year. However, the endowment continues to show a market value well above our initial investment.

In order to assure the Society of a predictable income stream, we are in the process of transferring the bulk of our Dean Witter mutual funds to Merrill Lynch, to be put into investment-grade corporate bonds, Treasury securities, and CDs, with maturities staggered over a period of five years. This is the beginning of a program in which some 60 75% of our endowment would ultimately be invested in fixed-income securities, with 40% 25% in stock-oriented mutual funds. The objective for the fixed-income portion of our investments would be primarily income, the objective for the mutual fund portion would be primarily growth, with some income.

**Transfers.** We began fiscal year 1993 94 with a negative fund balance of (\$33,145). This represented accounts payable from the previous fiscal year, including a *JVP* printing bill.

We could have carried much of this negative balance over to 1994 95, but after discussion with the auditors decided instead to wipe it out by making a one-time transfer from endowment. At the same time, we were faced with an operating deficit of \$69,872 for 1993 94. The operating deficit plus beginning fund balance totalled \$103,017; this amount was therefore transferred from endowment to operating. The sources of these funds were as follows: \$41,400 represented this year's interest and dividends; the remaining \$61,617 represented part of the accumulated difference between our initial investment cost and the current market value of securities.

Conclusions and Comments. In a single sentence: SVP is financially strong, but should be stronger; we have some work to do. As noted above, our operating deficit last fiscal year was \$69,872; an operating deficit of about \$54,000 is projected for 1994 95. The operating deficit is simply defined as the difference between operating income and operating expense. This calculation takes no account of endowment income. Thus an operating deficit in itself is not necessarily cause for concern, as long as it can be covered from endowment income. We should be able to count on spendable income of about 5% of the endowments market value, a figure which should leave some money for reinvestment. However, the 1993 94 deficit and the projected 1994 95 deficit are cause for concern, because these amounts are more than we can cover from our present endowment over the long run.

We clearly need to reduce our costs wherever possible to increase income and to consider our priorities carefully. The Society urgently needs additional endowment resources. This is now being addressed: after a long period of preparation, the Society recently launched a major development campaign. An increase in membership, which we are now seeking through a planned recruitment effort, is another very important priority. The Society should take more seriously the financial implications of the annual meeting, from both an income and liability standpoint. These points were brought out in conversations with the auditors and are included in their management letter. The annual meeting currently supplies an important part of our revenues, and its contribution could be increased through such measures as active promotion of, and realistic charges for, commercial exhibit space. As also noted by the auditors, our current accounting practices for the annual meeting should be improved. Planning is difficult at present, because the annual meeting coincides with the Executive Committee budget meeting. Budget decisions for each fiscal year must be made while that year's annual meeting is still in progress, and with very little information about the likely financial results of the meeting. (John Bolt)

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### **Bryan Patterson Award Announcement**

The Patterson Award Committee is now accepting applications for the 1995 Bryan Patterson Award to support student field work in vertebrate paleontology (see announcement in recent SVP mailing). Applicants and their sponsors must be SVP members or pending members. Both undergraduate and graduate students are eligible to apply.

Proposals for the Patterson Award **must** be for field work, and particular consideration will be given to proposals for field work that is innovative rather than routine, venturesome rather than predictable, unusual rather than run-of-the-mill. There will be either one award of approximately \$1,000 or two awards of \$500. The deadline for receipt of proposals is 15 April 1995. The winner(s) will be decided by 1 June 1995. Application forms can be obtained from Ken Rose, Patterson Award Committee Chair, Department of Cell Biology and Anatomy, Johns Hopkins University School of Medicine, 725 N. Wolfe Street, Baltimore MD 21205. (Ken Rose, Chair)

### **Business Office Update**

Please note that the SVP Membership Committee for 1994 95 has instructed the Business Office to provide a list of potential nominators (in the applicant's geographic area) to all individuals who request membership information. Should you have any questions regarding this new procedure, please contact Kathy Lundgren, SVP Membership Services Coordinator, at (312) 321-3708.

## **New Honorary Members**

### ***Percy M. Butler***

Percy Butler is emeritus professor of zoology at Royal Holloway, University of London, where he worked since 1957. As a student at Cambridge University he specialized in zoology, and commenced postgraduate research in 1934 under C. Forster-Cooper. He came to the U.S. on a Commonwealth Fund Fellowship to Columbia University in 1936-38, where he studied at the American Museum under W. K. Gregory. His Ph.D. thesis was entitled Contribution to the morphology of the mammalian dentition. It was never published, but sections were expanded into a series of papers between 1937 and 1956. They attempted to interpret tooth forms in the light of embryology ( Field Theory ). He was particularly interested in insectivores (primarily tenrecids, later erinaceids) and Mesozoic mammals. A paper on Erinaceidae (1948) led L. S. B. Leakey to invite him to describe the Miocene insectivores from Kenya, and this led on to a series of papers, down to 1984, on Miocene Pleistocene African insectivores, several jointly with Marjorie Greenwood, with a digression to chalicotheres in 1965.

Meanwhile, as a lecturer in zoology at Manchester University after World War II, he became interested in wear facets while studying milk molars of perissodactyls (1952). These give adaptive meaning to aspects of dental evolution, and are now widely studied. A sabbatical year at Pittsburgh in 1965-6 enabled him to examine fossil mammals in many museums. He also made a quantitative study of developing human tooth germs, prepared by B. S. Kraus, resulting in a series of papers on tooth growth and cusp development (1967-71), and one on correlations between upper and lower teeth in 1992. He feels very fortunate in being able to continue working after he retired. He has visited the U.S. and Canada several times; at the age of 82 he has recently published (with the late Giles MacIntyre) a paper on Haramiyids, and there are four more papers in press.

He says, I know no geology, and have never collected a fossil, so it is very gratifying to know that my contribution to vertebrate paleontology is appreciated.

### ***Charles A. Repenning***

As a child, Rep began his association with bones by bringing dead animals home on his bicycle, usually tucked inside his shirt. He entered Carleton College, Minn., in 1941, but was called into the Armed Forces in 1942 and eventually participated in the invasion of Europe where he earned his first acronyms MIA, POW, and DAV. Following the war, Rep completed his undergraduate study in geology (1949) at the University of New Mexico, then, working for the USGS, spent six years doing geologic mapping on the Navajo Indian Reservation. In the early 1960s, reducing his work to parttime for the USGS at Menlo Park, Calif., he entered graduate school at Berkeley, where he studied vertebrate paleontology under Stirton, Gregory, and Savage.

His best known and occasionally controversial contributions to VP include a comprehensive survey of the families and genera of the shrews of the world; a ten-year

study of fossil and living pinnipeds; Arctic studies resulting in numerous papers on Neogene faunal exchanges between Asia and North America; a 1968 GSA paper presentation which pointed out inconsistencies of the placement of the Miocene Pliocene boundary in VP of the U.S. and his *Hipparion datum* in the Old World a presentation which elicited a from-the-floor accusation of Traitor! from one member of the audience; and a series of papers several with Oldrich Fejfar of Prague reconstructing the evolution and biochronology of microtine rodents throughout the northern hemisphere and demonstrating that well-documented microtine faunas have the capability of discriminating age differences in the 5,000 to 10,000 year range.

Rep retired from the USGS in 1992, continuing his work in emeritus status. Due for publication this spring, his first complete faunal examination (the Froman Ferry fauna) is, in some respects, a departure from his prior focus on gaining an understanding of the biochronologic significance of specific lineages. He firmly believes, however, that the primary task of VP is to provide reliable evidence of a time frame for other earth science studies and is concerned that current employment trends coupled to a research focus on the spectacular may one day nudge the profession into becoming an expendable, endangered species.

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## NEWS FROM MEMBERS

### AUSTRALIA

#### *Western Australian Museum, Perth*

Since last reporting (June '93) we have been busy hunting reptiles from Early Cretaceous Birdrong Sandstone near Kalbarri and Exmouth. Two expeditions over the last year have produced two partial skeletons of pliosaurs and a partial ichthyosaur, the first articulated Mesozoic reptiles from the state. Dr. Mikael Siverson from Lund, Sweden, joined the Western Australian Museum as a postdoctoral research fellow early in 1994 and has made phenomenal progress in his search for Cretaceous sharks. The Alinga Formation had previously yielded one species; Mike now has 33 after a couple of field trips and extensive processing of bulk sediment, including many new species, some new genera, and many first records for the southern hemisphere or Australia. Mike also has an extensive fauna of teeth from the Gearle Siltstone of the Carnavon Basin, and can now provide new data on the biostratigraphic ages of these units.

Work on Devonian fish is progressing well with another new Gogo arthrodire recently described (*Palaeontology*, December 1993). Work is in progress on the Gogo osteolepiform *Gogonasus* (with Professor Ken Campbell and Dick Barwick, ANU). John Long has an honors student, Kate Trinajstic, working on growth, variation, and heterochrony in Gogo arthrodires, and hopes Kate will continue on with a Ph.D. on Devonian microvertebrates in 1995. An interesting development is that a group of primary school students in Western Australia have lobbied the government to have a Gogo fish as the state's fossil emblem. Thanks to all VPs who replied to their letters asking for support.

John Long spent much time overseas in 1994. He visited the USA for the first time and worked at the American Museum of Natural History and the Field Museum (Chicago), and gave talks at the DinoFest conference in Indianapolis thanks to all who helped or accommodated John during this quick trip. In September October John spent nearly six weeks working in South Africa with Eric Anderson, Norton Hiller, and Rob Gess on the newly discovered Late Devonian fish fauna from near Grahamstown. This fauna contains several new species of placoderms (*Bothriolepis*), groenlandaspids), sarcopterygians (including coelacanth), acanthodians, and an early paraselachiomorph close to early holocephalans.

John and Ken McNamara have completed two papers looking at the role of heterochrony in dinosaur evolution a short one for the forthcoming Currie and Padian Dinosaur Encyclopedia, and a more detailed version for a new book on heterochrony by Belhaven Press (K. J. McNamara, ed.).

By now John's new color book *The Rise of Fishes 500 Million Years of Evolution* should be available through Johns Hopkins University Press in the USA and UK. The new edition of *Palaeozoic Fishes* (Chapman and Hall) should be finished by early 1995. (John Long)

## CANADA

### *Canadian Museum of Nature*

Steve Cumbaa's work on the Carrot River project is progressing well. Preparation is underway at the Royal Saskatchewan Museum in Regina on a largely complete, partly disarticulated *Xiphactinus* from Late Cenomanian Early Turonian marine deposits along the Carrot River in east-central Saskatchewan. The specimen was found in 1992 during joint fieldwork with the RSM. As this is apparently one of the oldest relatively complete specimens of the genus, Steve and his colleagues are taking pains to place it in as tight a biostratigraphic and temporal framework as possible. Pollen and dinoflagellates in the sediments surrounding the fish are being studied by David Jarzen of the CMN and David McIntyre of the Geological Survey of Canada in Calgary. David McNeil from that institution is looking at the forams, and Alan Deino of the Institute of Human Origins is trying to determine a radiometric age from the overlying bentonite.

Rob Holmes has completed a description of the mosasaur *Plioplatecarpus primaevus* from the Bearpaw Formation of Saskatchewan, and has sent out copies for informal review. When all comments are in, a final version will be submitted for publication. He is also working with Mike Caldwell on a small *Plioplatecarpus* specimen (probably not the same species as the Saskatchewan material) from Scabby Butte, Alberta. That specimen is remarkable in having two virtually complete pectoral paddles in natural articulation. It should tell us something about locomotion in these animals.

A great deal of media attention was focused on a 26,000-year-old horse carcass from Last Chance Creek near Dawson City. A poster paper on the subject assembled by Dick Harington, Ruth Gotthardt, Greg Hare, and Steve Morison has been shown at Juneau, Whitehorse, Dawson City, and Edmonton. Dick says samples from this horse and another well-preserved horse carcass from Siberia are undergoing mitochondrial DNA analysis by Marcia Stott at the University of California at Davis. In July and August Dick undertook field work at a Pliocene site near Stratocona Fiord, Ellesmere Island, with the help of John Tener, Clayton Kennedy, and Natalia Rybczynski; at an Early Pleistocene site (Fort Selkirk, Yukon) with assistance from Dave Gill, and in Dawson City and Sixtymile areas of the Yukon. The best cranium of an extinct short-faced bear from Canada (from the vicinity of Dawson) is presently under study in our laboratory. (Dick Harington)

### ***Royal Ontario Museum***

Hans-Dieter Sues spent most of December in Yunnan, China, with Wu Xiao-chun. Chris McGowan will be on sabbatical for the calendar year 1995. He plans to work up more of the Williston Lake ichthyosaurs. Kevin Seymour and coeditor Kathlyn Stewart (Canadian Museum of Nature) are pleased to announce that the Churcher festschrift will be published by the University of Toronto Press, expected Fall 1995. Ian Morrison and his crew prepared the new theropod from Niger, *Afrovenator*, collected by Paul Sereno and team from the University of Chicago in 1993. Next the sauropod! Ryosuke Motani ably defended his master's thesis on the Triassic ichthyosaur *Utatsusaurus*; he has now started his Ph.D. We welcome Hans' new graduate student Thomas Carr, who is working on tyrannosaurids. Loris Russell still comes in from time to time, and is working on a manuscript concerning the stratigraphic relationships of Alberta's dinosaurs. We celebrated his 90th birthday with him last spring! (Kevin Seymour)

### ***Royal Saskatchewan Museum***

Our *Tyrannosaurus* skeleton, Scotty, was partially excavated in 1994. Much of the specimen is still in the ground waiting for work to continue in the spring. The RSM's success in 1994 led to the funding for a temporary field station at Eastend, which will open at the beginning of 1995. The field station will include a laboratory where people can watch preparation of the *Tyrannosaurus* and other bones. It will also be a jumping-off point for research in the area, including the rest of the *Tyrannosaurus* excavation. Tim Tokaryk will head up the field station and Joan Scott, Wendy Sloboda, and Melanie Vovchuk will also work there. Allison Gentry will take over the laboratory in Regina. (John Storer)

### ***Royal Tyrrell Museum of Paleontology***

Betsy Nicholls and Don Brinkman have described a new ichthyosaur species from the Wapiti Lake Triassic, due to appear in the Halstead memorial volume. The specimen has beautifully preserved, complete flippers with unusually elongated carpals. Betsy, Don, and Jack Calloway finally submitted their study on mixosaurian ichthyosaurs from Wapiti Lake to *Palaeontographica*. While *Phalarodon* is the same as *Mixosaurus nordenskiöldii*, neither belong in the genus *Mixosaurus*. Acid preparation has begun on Late Triassic Pardonet Formation ichthyosaurs collected in northern B.C. last summer.

Congratulations to Betsy and Jack Calloway for their successful organization of the Marine Reptile Symposium at last year's SVP annual meeting in Seattle. Betsy is finishing her work on Merriam's Hosselkus thalattosaurs and working on Canadian plesiosaurs, which are surfacing faster than they can be prepared. A complete, beautifully articulated short-necked plesiosaur was collected from the Albian of northern Alberta and

preparation is underway, supported by a \$20,000 grant from Suncor. Finally, plesiosaurs have come in from the Santonian of Vancouver Island, the Albian of the Queen Charlotte Islands and the Campanian Maastrichtian of Saskatchewan (the latter under study with Tim Tokaryk).

Don Brinkman divides his time between primitive cryptodire turtles and microvertebrate assemblages in the Upper Cretaceous of southern Alberta. The turtles include primitive eucryptodires from China, being studied with Peng Jiang-hua, and a small paracryptodire from Dry Mesa Quarry being studied with Ken Stadtman and David Smith of Brigham Young University.

Microvertebrate studies have focused on Judith River Group teleosts. There is an interesting pattern in the distribution of mammals: marsupials are significantly more abundant near the Judith River Bearpaw contact, whereas placentals are unusually abundant in the middle part of the Judith River. Sites were visited this past summer to obtain larger sample sizes.

Thanks to a National Geographic grant, Don and Dave Eberth, working with Chen Pei-ji of the Nanjin Institute of Paleontology and Yuan Feng-tien from North-Western University in Xian, studied the stratigraphy and sedimentology of Jurassic and Lower Cretaceous beds in the Junggar Basin in Xinjiang, China. The beds contain a rich vertebrate assemblage, but depositional environments and the relative stratigraphic position of many localities were previously uncertain.

Peng Jiang-hua successfully passed his candidacy at the University of Calgary and is well along in his study of the microvertebrate assemblages of the Foremost and Oldman formations in southern Alberta.

Assisted by Lorie Barber, Tim Schowalter explored the Scollard Fm. and the Devil's Coulee nesting site for microvertebrates. Joint work was done with Dick Fox's crew in the Scollard. Material from a site near the K T boundary proved to be rich in fish but very poor in mammals. However, two new mammal-bearing sites were discovered in the section.

At Devil's Coulee, what Tim hopes to be the beginning of nice series of lizard specimens were collected (including a partial skull and mandibles of a teiid and what was once an entire skeleton of another lizard). Washing recovered little additional material of the latter specimens, but several more lizard jaws were collected. Devil's Coulee also yielded a partial *Neurankylus*, including articulated limb elements in the shell, but the anterior part of the specimen was eroded away. Tim and Lorie also discovered a nest, probably of a hypsilophodont, with 11 eggs visible. Preparation of these has just begun.

Stephen Godfrey is working with Phil Currie on a nifty (his word) bird-like theropod sternum and the large azhdarchid pterosaur remains from Dinosaur Provincial Park. He and Rob Holmes (Canadian Museum of Nature) have a couple of papers in press on Cretaceous and Carboniferous critters.

Phil Currie's 1994 field season was both productive and long. Dinosaur footprints were recovered in Edmonton (Maastrichtian), Dunvagan (Cenomanian), and Fort McMurray (?Albian), and additional sites looked at along the St. Mary's River (hadrosaur tracks with skin impressions) and Grande Cache (literally thousands of footprints, the best trackway in Canada so far). Darren Tanke's camp excavated a tyrannosaurid skeleton and skull along the Battle River, while Kent Wallis recovered a *Centrosaurus* skull discovered several years ago by Don Brinkman from the South Saskatchewan River.

As usual, numberless bones were recovered from Dinosaur Provincial Park, ranging from tooth-marked bones to an almost complete skull of a small champsosaur, which is being studied by Dick Fox. The *Centrosaurus* bonebed was a major focus, although few bones were excavated. A number of *Centrosaurus* bonebeds are now known, all about four meters above the base of the Dinosaur Park Formation. Phil suggests that they may represent a mass death event in a single river channel. Three new bonebeds were discovered at the same level, between existing bonebeds. All of these bonebeds lie along an easterly trending transect and none have been discovered outside of this corridor. The extreme ends of the bonebed field are 8 km apart.

Other quarries in the park produced a partial ornithomimid skeleton (cf. *Struthiomimus*), skull and partial skeleton of a young tyrannosaurid, skull and partial skeleton of a small immature lambiosaurine, a *Centrosaurus* skull, and the lower jaws and maxilla of the smallest tyrannosaurid known from Alberta.

At Devil's Coulee, Tim Schowalter's hypsilophodont nest was collected and three new hadrosaur nests with embryos were discovered. Earthmoving equipment removed about 20 m of overburden from the juvenile hadrosaur bonebed, and a large enough area was cleared to allow for at least five years of systematic excavation.

Phil continues to work with Kevin Padian on the Dinosaur Encyclopedia for Academic Press; most of the major manuscripts have been received. The second volume of papers from The Dinosaur Project is nearing completion and will again appear in the *Canadian Journal of Earth Sciences*. Description of Royal Tyrrell Museum and Museum of the Rockies *Tyrannosaurus* specimens and of *Albertosaurus* (primarily based on a nearly complete specimen from Dinosaur Park collected in 1991) will lead to two separate monographs. Other work on *Dromaeosaurus*, *Saurornitholestes* (with David Varricchio), *Pachyrhinosaurus* (with Wann Langston and Darren Tanke), hadrosaur teeth (with Niel Beavan and Tony Russell), and carnosaur classification are at varying stages of completion.

Phil is supervising or cosupervising University of Calgary students Sara Edwards (horn growth in ceratopsians), David Trexler (*Maiasaurus*), and Darla Zelenitsky (dinosaur eggs); as well as University of Copenhagen students Aase Jensen (tooth-marked dinosaur bone) and Peter Makovicky (theropod vertebrae).

Michael Ryan returned to Tyrrell in June and headed up the second successful year of our DAY DIGS program. Over 500 people participated in the excavation of a large



*Edmontosaurus* skeleton. They provided the Museum with both the funds and manpower to continue excavation of the first extensive bonebed quarry in the Horseshow Canyon Formation. Summer student Matt Vickaryous is working over the winter at the University of Calgary to recover microvertebrate material from the site. As well, University of Alberta paleontology student Kurt Armbruster discovered a *Euoplocephalus* tail club near the bonebed, only the second such to be recovered from the formation.

Michael finally presented the results of his dissertation on the taphonomy of the *Centrosaurus* bonebed from Dinosaur Provincial Park at the Seattle SVP meetings. He hopes to have the first paper from this study submitted in early 1996. Also in October, Michael assumed the position of Coordinator of Public Programs at the Royal Tyrrell Museum; he still hopes to find time to continue research. (Bruce Naylor)

## FRANCE

### *Laboratoire de Biogéochimie Isotopique, University of Paris 6*

The laboratory directed by Pr. André Mariotti has now entered a new phase of research on paleodiets and paleoenvironments using stable isotopes in vertebrate mineralized tissues since the return on Hervé Bocherens, who spent one year and a half in Washington, D.C., as a postdoctoral fellow at the Carnegie Institution of Washington and research associate at the Smithsonian Institution.

Graduate student Paola Iacumin is sharing her research activity between Paris and Trieste, at the Istituto di Mineralogia e Petrografia dell'Università degli di Trieste, under the direction of Pr. Antonio Longinelli. She is studying the carbon and nitrogen isotopic ratios of collagen, carbon and oxygen isotopic ratios in the carbonate fraction, and oxygen isotopic fraction in the phosphate fraction of carbonate hydroxylapatite of fossil mammals from Pagglici Cave, Italy, and from human skeletal remains of the Nile Valley. She will present her preliminary results at the Eighth European Union of Geosciences in Strasbourg in April 1995.

Élise Dufour, coming from the University of Montpellier, is starting a Ph.D. thesis on carbon and oxygen isotopic ratios in Neogene fish otoliths, in order to reconstruct marine paleoenvironments of the Atlantic and Mediterranean basins.

Hervé Bocherens attended the Fourth Advanced Seminar on Paleodiet, in Banff, Canada, in September 1994, where he presented an oral communication on the use of stable isotopes in Pleistocene mammal bones for paleodietary reconstructions.

Current projects in progress at the lab also include investigations of the variability of isotopic signals in modern bones and teeth, control of the preservation of isotopic signals in mammal enamel during the Cenozoic, and application of these approaches to the understanding of the paleodiet and paleoenvironment of Siberian mammoths and Alaskan

giant short-faced bears. This research takes advantage of the helpful technical skills of Daniel Billiou. (Hervé Bocherens)

***Laboratoire de Paléontologie des Vertébrés, CNRS, Université Paris 6***

Jean-Claude Rage reports that his stock of in-press manuscripts is growing smaller. His work on the Paleocene snakes from Itaborai (Brazil) is gaining momentum. The first part (Madtsoiidae and Aniliidae) is ready, and the second part (Boidae) will soon be, although some practical problems still have to be settled. The third part will soon be begun. Jean-Claude is working on several elements of the Early Maastrichtian Laño fauna from the Spanish Basque Country: the amphibians are being described with Sylvain Duffaud and the squamates with Nathalie Bardet. Among other joint projects, Jean-Claude is writing a preliminary paper with Sylvain Duffaud and Denis Vasse on a rich Early Eocene herpetofauna from Prémontré in the eastern Paris Basin.

Marc Augé is going on with his thesis on lacertilians from the European Paleogene. Sylvain Duffaud is starting a thesis on terminal Cretaceous and Paleogene herpetofaunas, with special emphasis on amphibians.

When not excavating archaeological sites in his native Switzerland (or dinosaur sites in southern France), Lionel Cavin is going on with his thesis on Mesozoic fish assemblages. He is also describing newly discovered Late Cretaceous fish material from various localities in southern France.

Nathalie Bardet was lucky enough to get a research position with the Centre National de la Recherche Scientifique (note: perhaps it was not only sheer luck, scientific merit may have had something to do with it E.B.). Funds from the Singer-Polignac Foundation allowed her to travel to Argentina to work with colleagues from the Museo de la Plata (Zulma Gasparini, Marta Fernandez, and Marcelo de la Fuente). She used the opportunity to attend the Vth Congreso Argentino de Paleontología, which took place in Trelew, Patagonia. Two papers were presented, one on the marine reptile faunas from the Middle and Upper Jurassic of Europe (with J. M. Mazin, P. Vignaud, and S. Hua), and one on those from the Upper Cretaceous (with X. Pereda). They will appear in the proceedings of the meeting. A paper on the plesiosaurs from the Middle and Upper Jurassic of the Anglo-Paris Basin was also submitted at the IVth Congress on Jurassic Biostratigraphy, which was held in Mendoza. The discovery of a specimen of *Pliosaurus brachyspondylus* in the Middle Jurassic of France was reported in a paper in the *Revue de Micropaléontologie* (coauthored with G. Lachkar and F. Escuillié). Nathalie also attended the special symposium on Sea Dragons of the Past at the SVP meeting in Seattle, where two papers were presented: a review of European ichthyosaurs (with J. M. Mazin and P. Godefroit) and a revision of the pliosaur *Simolestes* (with P. Godefroit). A revision of the Late Cretaceous plesiosaurs of Europe, coauthored with Pascal Godefroit, will appear soon in the *Bull. Inst. Roy. Sc. Nat. Belgique*. Finally, a description (coauthored with P. Wellnhofer and D. Herm) of the hitherto most recent known ichthyosaur, from the

Cenomanian of Bavaria, will be published in the next issue of *Mitt. Bayer. Staatsslg. Paläont. hist. Geol.*

After doing his duty to the French nation (in the Paris police force), Stéphane Hua is now working full time on his thesis on marine crocodylians. After a visit to Lison, he was able to finish his monograph on *Machimosaurus mosae* (Mesosuchia, Teleosauridae), which has been submitted to *Palaeontographica*. Stéphane is currently working on a metriorhynchid skull found in the Bajocian of southern France, found by F. Atrops (Université Claude Bernard, Lyon), which should shed some light on a poorly known stage in the history of that family. He presented some of his results on metriorhynchids at the 42nd Symposium of Vertebrate Palaeontology and Comparative Anatomy held in Le Havre in September. Thanks to Rupert Wild (Stuttgart) and Gérard Breton (Le Havre), Stéphane will now be able to start working on the histology of the Thalattosuchia with Vivian de Buffrénil. Important paleohistological discoveries are to be expected. After that, Stéphane will turn his attention to other families of marine crocodylians. In addition, he has also become involved in work on quite a different kind of crocodylian, when he travelled to Warsaw with Eric Buffetaut to work with Halszka Osmolska on *Gobiosuchus kielanae*, a very peculiar terrestrial protosuchian from the Upper Cretaceous of the Gobi Desert.

Gilles Cuny has several papers issuing from his thesis on European vertebrate faunas at the Triassic Jurassic boundary in press. His excavations at the *Plateosaurus* site at Lons-le-Saunier (French Jura) have come to an end, but the exploitation of new sites with vertebrate microremains should now be started. Gilles is collaborating with Pascal Godefroit (Brussels Museum) for the study of the Late Triassic localities at Saint-Nicolas-de-Port (France) and Medernach (Luxemburg). The study of the *Megalosaurus* femur from the Callovian of Gray (eastern France), with Eric Buffetaut, Georges Lachkar, and colleagues from the University of Besançon, will soon be published in *Bull. Soc. géol. France*. In addition, Gilles is now working on the selachians from the Jurassic and Cretaceous of the Vaches Noires Cliffs near Villers-sur-Mer on the Normandy coast. The Vaches Noires were one of the highlights of the field trip which followed the 42nd Symposium of Vertebrate Palaeontology and Comparative Anatomy, organized in September in Le Havre (Normandy) by Eric Buffetaut, Gilles Cuny, and Gérard Breton (Natural History Museum, Le Havre). About 120 participants from a dozen countries attended the meeting, which benefitted, among other things, from rather untypically fair weather. Gilles is still looking for a job or a post doc; all offers are welcome.

Xabier Pereda-Suberbiola is working on several papers issuing from his thesis on armored dinosaurs from Europe. A note coauthored by Humberto Astibia (Bilbao) and Eric Buffetaut on the occurrence of the nodosaurid *Struthiosaurus* in the Late Cretaceous of the Iberian Peninsula should appear soon in the *Bull. Soc. géol. France*. A phylogenetic study of the Family Nodosauridae and a revision of the ankylosaurs from the middle part of the Cretaceous of England are under way. Moreover, a paper on the first find of a stegosaur in Spain, coauthored with Catalonian colleagues Lourdes Casanovas and Pepe Santafé, will be published in the *Revista Espanola de Paleontologia*. On the other hand, Xabier has repeatedly worked with Humberto Astibia and his Ph.D.

student Txabi Murelaga of the Universidad del Pais Vasco in Bilbao. At the Congreso Argentino de Paleontología in Trelew in April, a paper on the fossil tetrapod faunas from the Basque Country was presented. A monograph on the rich Late Cretaceous vertebrate locality at Laño (Trevino) is under way and will include contributions from geologists and paleontologists from Bilbao, Vitoria, Madrid, Paris, Montpellier, Dijon, etc. Xabier also joined his colleagues from Bilbao in new excavations at the Miocene Tarazona locality in Aragon, in the Ebro valley, and in prospections in the Tertiary of the Bardenas in Navarra.

In 1994, Eric Buffetaut was fairly successful in his attempt to spend as much time as possible out of Paris. Much time was spent exploring the Late Cretaceous vertebrate localities of the foothills of the French Pyrenees with Jean Le Loeuff and his group from the Dinosaur Museum in Espéraza. Several Late Maastrichtian localities with assemblages strongly dominated by hadrosaurs are now known from that area, and apparently confirm our conclusions about the replacement of a titanosaur-dominated fauna by a hadrosaur-dominated one during the Maastrichtian in southern France, as set out in a paper published by Jean Le Loeuff, Eric Buffetaut, and Michel Martin in the *Geological Magazine* (131, 5, 1994). During the summer months, excavations have gone on at the Early Maastrichtian Bellevue site, which has yielded crocodylian skull elements, teeth of small theropods (dromaeosaurids?), and bones of a robust ornithomimid, in addition to the very abundant titanosaurid sauropods. It now appears that the Bellevue titanosaurs were armored, like some of their South American and Madagascan counterparts; large bony scutes of various sizes from that locality will soon be described. Among summer visitors to Espéraza was Dave Weishampel, who, among other things, could observe that the Late Cretaceous dinosaurs from the French Iberian island were by no means the dwarfs they sometimes have been portrayed to be. Jean Le Loeuff and his coworkers at the Espéraza Museum are enlarging their field of activity to the Cretaceous of southern Morocco and Eric is taking part in the study of newly collected material from the richly fossiliferous beds first explored by René Lavocat nearly 50 years ago. A note on a jaw of a new ziphodont trematochampsid crocodylian, presented to the Museum by Roland Reboul, will appear in the *C. R. Acad. Sc. Paris*. A sizeable collection brought back from Morocco by Jean Le Loeuff, Alain Cabot, and Claude Moreno, after an eventful field trip in October, is under study by the Espéraza group. It includes various rather unusual crocodylians, as well as vertebrae and jaw remains of a spinosaurid dinosaur, sauropod vertebrae, a variety of fishes, etc.

Eric went to Thailand twice in 1994 to work in the Mesozoic with Varavudh Suteethorn, Yaowalak Chaimanee, and other Thai colleagues. In February, together with his wife Haiyan Tong, they spent some time at the Middle Jurassic Mab Ching locality in the southern peninsula, where many vertebrate remains were collected, including two rather well-preserved turtle shells. Other interesting specimens from Mab Ching (to be described soon in the *Geological Magazine*) include two temnospondyl intercentra found by Lertsin Raksaskulwong (Bangkok), which, together with the intercentrum previously found in northeastern Thailand (described in *N. Jb. Geol. Paläont. Mh.*, 7, 1994), show that post-Triassic temnospondyl amphibians were widespread in Southeast Asia in the Jurassic. This was confirmed in November when Eric was shown the first identifiable

vertebrate elements to be collected from the nonmarine Mesozoic of northern Thailand which turned out to be one more temnospondyl intercentrum. Most of the February field work, however, was in the Sao Khua Formation at Phu Wiang (northeastern Thailand), with Valérie Martin. More bones of baby sauropods and of the early ornithomimosaur first found in 1993 were found. In addition, part of the vertebral column and the well-preserved pelvis of a large theropod were excavated. In November, besides presenting a preliminary paper on the Jurassic vertebrates from the southern peninsula at the Symposium on Stratigraphic Correlation of Southeast Asia in Bangkok, Eric joined Varavudh's party for excavations at a newly discovered site in the Sao Khua Formation near the city of Kalasin. Abundant sauropod material, including what seems to be a partially articulated skeleton, was found. Of special importance was a jaw fragment with teeth, sauropod dental remains having proved elusive at Phu Wiang.

Besides working with Halszaka Osmolska and Stéphane Hua on *Gobiosuchus*, Eric used part of his two-week stay in Warsaw for comparative work on Ankylosaurs and ornithomimosaur from the Gobi Desert. One of the results was the identification of the ankylosaur rediscovered in the Uppsala collections in 1993 as *Pinacosaurus*, which extends the geographic range of this genus to Shandong in eastern China.

Eric's search for undescribed Mesozoic reptiles in French museums was successful again in 1994. During the Symposium of Vertebrate Palaeontology and Comparative Anatomy in September, Eric identified in the local Natural History Museum what is apparently the oldest known French sauropod (a scapula from the Callovian of Normandy) and also found an undescribed well-preserved pterosaur humerus from the Kimmeridgian of the Le Havre region. Both specimens will be described soon. Eric's paper (with Gilles Cuny and André Pharisat) on William Buckland's French *Megalosaurus* (kept at the University of Besançon) appeared in *Terra nova* (6, 3, 1994).

Finally, in July Eric and Haiyan attended the festivities organized for the end of the paleoecological excavations in the Kimmeridgian lithographic limestones at Cerin in the southern Jura mountains. After 20 years of work there with the colleagues from the University of Lyon, it was a somewhat melancholy occasion, but much work remains to be done on the material collected over that long period, including the description of some pterosaur material.

Haiyan Tong is now devoting much of her research to fossil turtles. She has been busy with specimens she collected in Thailand, including the above-mentioned fairly complete shells from the Jurassic of Mab Ching, which turn out to be related to the Chengyuchelyidae from the Jurassic of China, and the Eocene turtles from the Krabi lignite mines of southern Thailand. Haiyan is also working on abundant material from the Campanian and Maastrichtian of southern France, from the Espérazza Museum, and several private collections. Some of this material is excellent and should provide a wealth of new data about the Late Cretaceous turtles of Europe. In a completely different field, Haiyan also spent a couple of days hunting for dragon teeth with Eric in traditional Chinese drugstores in Hong Kong and Macau. The result was a collection of Miocene

mammal teeth from China, which was the basis for an exhibition on dragon teeth at the Espérazza Museum.

Valérie Martin is currently putting the last touch to her thesis on sauropods from Thailand. A recent twist to the story is that the Sao Khua Formation, from which her material comes, long considered as Late Jurassic in age, now appears to be Early Cretaceous, on the basis of palynological and fission track dating by British geologists. This could explain why the Sao Khua sauropods are clearly distinct from those from the Jurassic of China. In any case, a new taxon, *Phuwiangosaurus siridhornae* (the specific name is based on that of one of the royal princesses of Thailand, who has a keen interest in paleontology), has been erected for part of the Thai material and described by Valérie, Eric, and Varavudh in *C. R. Acad. Sc. Paris* (II, 319, 1994). Valérie has also been working with Eric on the oldest known Thai dinosaur, which consists of the distal end of the ischia of a robust prosauropod, found by Nares Sattayarak and Varavudh Suteethorn in the Late Triassic (and hitherto barren of vertebrate fossils) Nam Phong Formation in northeastern Thailand. Eric's and Valérie's visit to Germany in June was partly aimed at comparing this specimen with prosauropods in Munich and Berlin. In the course of her work on sauropods, Valérie became interested in the various questions posed by their necks and has addressed the problem by dissecting various more or less comparable vertebrates (ranging from ostrich to crocodile) and by discussing sauropod necks with renowned experts in that particular field, John Martin (Leicester) and Dino Frey (Karlsruhe).

Emmanuel Gheerbrant is still processing fossiliferous samples from Thanetian and Ypresian beds in the Ouarzazate Basin of Morocco. Most of the mammal specimens hitherto recovered are insectivores. The third and last part of the study of the Thanetian mammals from the Ouarzazate Basin should be published this year in *Palaeontographica*. All the sediment from the Thanetian mammal locality at Campo (Spain) has now been processed and sorted. About 40 mammal teeth, most of them fragmentary, have been recovered. Most of them belong to insectivores and condylarths. Their description should begin this year. The study of the mammals from the Campano Maastrichtian Laño locality (Spanish Basque Country) is now completed. It will be published in a monograph dealing with various aspects of that vertebrate locality. Meanwhile, the main results have been presented at the 42nd Symposium of Vertebrate Palaeontology and Comparative Anatomy in Le Havre, and a preliminary note with Humberto Astibia (Bilbao) has been published in *C. R. Acad. Sc. Paris* (II, 318, 1125-1131, 1994). Three species have been identified, belonging to a new group (a yet unnamed new family) which was probably endemic to Europe. Unfortunately, these forms are still known only from their lower dentition. The study, with Herbert Thomas, of the oligopithecine primates from the Oligocene of Oman has kept Emmanuel busy for a large part of the year. The Omani fauna includes four oligopithecine species, ranging from medium-sized frugivorous insectivorous forms such as *Oligopithecus* to diminutive specialized insectivorous forms, which are all new at the specific and generic level. Among those primates, the most abundant form is a new species of *Oligopithecus*, with more than 100 specimens. For the first time, a study of the variability of primitive simiiforms (which seems to be quite large) becomes possible. Emmanuel has also conducted new prospectings and

excavations with Claude Abrial in the Upper Cretaceous of the French Pyrenees, which led to the discovery of two new Maastrichtian vertebrate localities containing dinosaurs. The search for mammals at those sites is going on and some promising fragments have already been found. Emmanuel has also started two new collaborations. One is with J. L. Hartenberger (Montpellier), on a primitive insectivore from the Chambi locality in Tunisia, represented by a maxilla fragment with P4/ M3/. The other one is with J. Sudre (Montpellier) on a maxilla fragment (with dP4/ M1/) from the phosphates of Morocco, which seems to belong to an archaic tethythere. Finally, Emmanuel has written a general paper on the radiation of mammals at the Cretaceous Tertiary transition, which should be published in *Pour la Science* in 1995.

Sevket Sen coordinated the study of the mammals from the Turolian Kemiklitepe locality in Turkey. Eleven papers have been gathered into a fascicle of the *Bulletin du Museum National d'Histoire Naturelle* (price: 290 FF). Sevket is collaborating with colleagues from the University of Thessaloniki (G. Koufos and D. Kondopoulos) on the magnetostratigraphic and paleontological (micro- and macromammals) study of the continental Neogene of Chios Island. Two papers are in press. During the summer of 1994, Sevket took part in excavations at the Neogene sites of Sinap Tepe near Ankara, together with John Kappelman (Austin, Texas), Mikael Fortelius (Helsinki), and Peter Andrews (London). The discovery of more than 100 sites with micro- and macromammals, covering the time-span from the Middle Miocene to the Late Pliocene, will allow the establishment of a detailed chronology of faunal successions.

Denis Geraads has described the rhinos and giraffes from the Upper Miocene of Kemiklitepe (Turkey) and coauthored two general papers for the volume on that locality edited by Sevket Sen. His collaboration with Professor Erksin Güleç of the University of Ankara is going on, and he will contribute to the monograph on the Middle Miocene Candir locality. Denis is also working on various other Late Neogene faunas (a paper is being prepared on the Middle Miocene ruminants from İnönü). His interest in the Omo faunas of Ethiopia has not abated: a note with Yves Coppens on a multivariate analysis of the Omo fauna will be published in the *C. R. Acad. Sc. Paris*, and a paper on a new Bovini is in press in the *Annales de Paléontologie*. However, Denis' activities concentrate mainly on Morocco (see *SVP News Bulletin*, February 1994). New excavations are undertaken in *Homo erectus* levels, and several notes have been published or are in press on dating and biochronology. Excavations at the terminal Pliocene Ahl al Oughlam locality are also going on. A paper on the micromammals is in press at *Geobios* and the study of the carnivores is now completed (with 23 species, it is the richest African locality). (Eric Buffetaut)

## **JAPAN**

*National Science Museum (Natural History Institute), Tokyo*

Makoto Manabe joined us in October as a curator of the VP section. Makoto completed his Ph.D. at the University of Bristol in September. Makoto's thesis was entitled *Convergence and innovations in aquatic adaptation in Ichthyosauria*. Makoto will continue to work on ichthyosaurs and dinosaurs, and he will start several projects on plesiosaurs and pliosaurs. It is a pity to report that Keiichi Ono, who has been medically treated for several years, resigned from our museum.

Proceedings of one of the 29th IGC workshops *Rodent families of Asian origins and diversification* was published on May 30, 1994, as No. 8 of the National Science Museum Monographs. It includes papers of all 14 talks given at the workshop. See *SVP News Bulletin* no. 157 for more information. It is on sale from our Museum Shop: 257 x 182 mm, 195 + 9 pages, paperback, 3,000 yen (= US \$40) including postage. Our museum shop cannot accept foreign currency; but Yuki can accept US bank drawn personal checks, so anyone wanting to purchase a copy, he/she should ask for his assistance.

Teruya Uyeno has been keeping busy describing Miocene fishes of the families Scombridae and Siganidae, besides his administrative duty for the geology department. Yuki has been busy preparing a special exhibition on Extinct large mammals. He visited the Museo de la Plata of Argentina and Paleontological Institute of Russia, both of which are the main source of exhibit materials. Yuki attended the celebration and symposium of the 65th anniversary of the IVPP in Beijing in October and gave a talk on the first Tertiary small mammal fauna from Japan. He is now preparing a manuscript for the symposium proceedings. Yuki thanks all the people he met at the above-mentioned three institutions.

Visitors from overseas during 1994 included Dave Unwin of Bristol University, England. Dave stayed in Japan for two weeks and he looked at pterosaur materials for his functional morphology study. (Yuki Tomida)

## **ROMANIA**

### ***Faculty of Geology and Geophysics, University of Bucharest***

Again a good summer for dinosaur discoveries in the Hateg Basin of Transylvania. The student team from the University of Bucharest led by Dr. Dan Grigorescu continues the fruitful collaboration with Dr. David Weishampel from Johns Hopkins University, for the second consecutive summer in Romania. The joint searches are mainly supported by a National Geographic grant.

New fossiliferous sites were found in the Sibisel valley, the main outcrop of the Sanpetru Formation. The sites provided mostly sauropod and ornithopod remains, including skull fragments and some small theropods. Hopefully, the new discoveries will contribute to the clarification of the systematic status of these representative groups of the



Transylvanian dinosaurs assemblage, their origin and evolution in the frame of the Latest Cretaceous dinosaur faunas from southern Europe.

Another place where we searched last summer was Tustea in the northern part of the Hateg Basin, already known for the eggs and babies belonging to the hadrosaurid *Telmatosaurus transylvanicus*. We found an interesting assemblage, especially from the paleoecologic point of view, including ornithopod teeth (*Rhabdodon* type), turtle plates, and after washing and screening the mudstone matrix, small teeth (probably theropods) and a multituberculate incisor (a new place with micromammals in Hateg!).

Mrs. Cora Jianu, curator of the dinosaur collection in the Museum of Deva, started a Ph.D. program guided by Dr. Grigorescu on the microvertebrates from the dinosaur beds of Hateg. Under the same guidance, Mr. Zoly Csiki is preparing a master's thesis based on the inventory of the fossiliferous sites from both the continental formations of the Hateg Basin: Sanpetru and Densus-Ciula; he is also reviewing the poorly known Kadic dinosaur collection from Transylvania, housed in the Institute of Geology in Budapest.

During our field work we had the pleasure of being visited by a group of 16 American dinosaur lovers led by Dr. Jack Horner. Their tour of Dracula's country included Hateg and other places of geologic and paleontologic interest, as well as historical sites. We very much enjoyed the two weeks spent together and we hope Jack will come back to look more carefully at the nests and embryos from Tustea.

Dan Grigorescu presented a paper on Dinosaurs of Romania during La semaine de Paléontologie in Aix en Provence organized at the end of May by Mr. Gilles Cheylan, director of the museum in Aix. It was a very nice opportunity to meet old and new French friends: Phillippe Taquet, Eric Buffetaut, Monique Vianey-Liand, Jean Le Loeuff, as well as Dr. Moratella from Madrid and Jack Horner.

Mr. Vlad Cornea from the University of Cluj spent three months in France during the winter and spring, working on Neogene rhinocerotids with Dr. Brigitte Badre in Paris and Dr. Michel Brunet in Poitiers. Recently Vlad presented a paper on the Neogene and Quaternary rhinos from Romania during a symposium in Deva. (Dan Grigorescu)

## **SLOVAK REPUBLIC**

### ***Comenius University, Zoological Institute, Bratislava***

Jozef Klembara continues his studies on discosauriscids from the Boskovice Furrow in Moravia (Czech Republic). A paper on external gills, ornamentation of the skull roof bones, and the ontogeny of *Discosauriscus* will appear in *Paläontologische Zeitschrift* and the paper on the sutural patterns of the exocranial bones appeared in *Lethaia*. The description and the interpretation of the foraminate pits in the skull roof bones of *Discosauriscus* will appear soon in *Palaeontology*. The revision of the Moravian

discosauriscids, based on their cranial anatomy, is nearing completion. Most important is the find of a *Discosauriscus* specimen with a skull length about 65 mm; it is the largest individual of the Family Discosauriscidae found so far. A new toad from the Miocene deposits near Bratislava was described in a joint paper with Z. V. pınar (Prague) and . Meszáro (Bratislava), and it appeared in *Západné Karpaty, séria paleontológia, Bratislava*.

The postgraduate student Martin Kunderát (UPJ Ko ıce) joined our staff and starts the study of the ontogeny of the skull and other head structures, based on the enlarged wax-plate models of the Euroasiatic anguine *Pseudopus apodus*. The student Róbert Vizvári finishes his master's thesis on the comparisons of adults of Asiatic and North American members of the Subfamily Anguinae. (Jozef Klembara)

## UNITED STATES OF AMERICA

### Northeast Region

#### *Carnegie Museum of Natural History, Pittsburgh, Pennsylvania*

The past year has been an extremely active one for staff of the Section of Vertebrate Paleontology. With funding from our NSF facilities grant, compactors have now been installed in the Little Bone Room in the basement of CMNH, which now holds virtually all of our Cretaceous and Cenozoic mammal collections. The large collection of Cretaceous Paleogene mammals that was formerly housed in the Section office space upstairs is now stored in the basement, thus freeing up additional space for curatorial offices and the section library. At the time of this writing, efforts are being concentrated on reorganizing the Big Bone Room which will ultimately house all of our lower vertebrates. For those of you who want to use CMNH collections during SVP '95 in Pittsburgh, this means it is crucial that you contact either Elizabeth Hill (412) 622-3247 or Mary Dawson (412) 622-3246 ASAP so that the necessary arrangements can be made (if possible).

Chris Beard and Mary Dawson continued their joint field projects in China with colleagues from the IVPP during April and May 1994. April was devoted to field work in the middle Eocene Shanghuang fissure fillings in Jiangsu Province, where Ross MacPhee (AMNH) joined Chris and IVPP colleagues Qi Tao, Wang Banyue, and Guo Jianwei. Because of ongoing, intensive commercial quarrying activities at the limestone quarry that bears the Shanghuang fissures, we concentrated our 1994 field efforts on maximizing our harvest of Shanghuang fossiliferous matrix, rather than devoting considerable time to additional reconnaissance. As a result, more than 25 tons of raw matrix were extracted from the Shanghuang fissures. This material is now being screenwashed and sorted in both Beijing and Pittsburgh. New Shanghuang fossil vertebrates are being recovered virtually every day as a result of these activities. Our first published papers on the Shanghuang mammalian fauna have now appeared (primates, *Nature*, 368:604-609);

cricetid rodents, *Annals of Carnegie Museum*, 63:239-256) and additional papers are either in press, submitted for publication, or near completion.

May, 1994 was devoted to a multidisciplinary, paleontological rescue project in the Yuanqu Basin, central China. Because of a planned hydroelectric dam on the Yellow River downstream from the Yuanqu Basin, virtually all of the classic middle late Eocene fossil localities known from the Heti Formation will be submerged by 1997. Members of the 1994 field crew for this project included IVPP colleagues Tong Yongsheng, Wang Jingwen, Huang Xueshi, and Guo Jianwei, as well as CMNH (Dawson, Beard, Leonard Krishtalka, Alan Tabrum) and University of Texas (John Kappelman, Wulf Gose) personnel. Numerous exciting fossil vertebrates were recovered through screenwashing, quarrying, and surface prospecting of Heti Formation exposures in 1994, but among the most noteworthy was a dentary preserving p3 m3 of a new genus and species of Tarsiidae, found by Alan Tabrum. This specimen is the most complete fossil tarsiid known, being rivalled in antiquity only by isolated teeth of *Tarsius eocaenus* from the Shanghuang fissures. Extraordinary progress was also made by Kappelman and Gose during 1994 toward correlating Heti Formation fossil vertebrate localities with measured sections that are being sampled for paleomagnetic stratigraphy. Preliminary laboratory analyses indicate that black and white stripes are recoverable from the Heti Formation.

Back in the United States, Beard led a third season of CMNH field work at the Clarkforkian Big Multi Quarry, Fort Union Formation, Washakie Basin, Wyoming, in July. The field crew consisted of Barbara Pitman, Alan Tabrum, and Keith Parsons. Keith, who is a Ph.D. student at the University of Pittsburgh in history and philosophy of science, lived up to his potential by drawing us into heated discussion on whether or not the specimens we were collecting represent real data as opposed to mental constructs. Having opted for the former interpretation, our early analyses of the fauna suggest that Big Multi is more likely to be correlative with Cf1 (especially the Bear Creek, Mont., fauna) than with Cf2, as received wisdom had indicated. At the time of this writing, Dawson and Beard have nearly completed a manuscript on the fossil rodents from Big Multi Quarry, which include the first well-preserved dentitions of the earliest North American paramyid (*Paramys atavus*) as well as the first North American record for the enigmatic rodent family Alagomyidae (otherwise known from Mongolia and China). Results from our field work at Big Multi Quarry, together with cooperative research with Tong Yongsheng and Wang Jingwen on the Bumbanian Wutu mammalian fauna of Shandong Province, China [see *Annals of Carnegie Museum*, 64(1)] may force a reassessment of biostratigraphic correlations that equate the base of the Bumbanian in Asia with the base of the Wasatchian/Spornian on other Holarctic continents.

Late July and early August found Dawson and Beard engaged in field work in the Kishenehn Basin of northwestern Montana, where they were joined by Kurt, Norm, and Leona Constenius, and Hal and Betty Pierce. The 1994 Kishenehn season, which concentrated on exposures along the Middle Fork of the Flathead River, was among the most productive in recent memory, with many new records of Uintan mammals being recorded for the basin, including the first fossils of Equidae (*Epihippus*), Amarynodontidae (*Amarynodon advenus*), Amphicyonidae, and Primates (cf. *Stockia*). We wish Hal Pierce

best wishes in recovering from his recent surgery, and look forward to working with him and all the rest of the gang in the Kishenehn Basin again this year.

Alan Tabrum used small grants from the Montana Bureau of Mines and Geology and our in-house Netting Research Fund to pursue field projects in southwestern Montana. The Netting project was directed at relocating as accurately as possible some of Earl Douglass' old sites, based on information contained in recently acquired copies of Douglass' original field notes. Results were variable, but in the best cases the horizons that produced various specimens can be relocated with surprising precision. Alan was assisted in the field by Barbara Pitman, Bill Leistner, and Jeff Tabrum. John Storer was a welcome visitor and joined the group for about a week's work at various localities in southwestern Montana.

Amy Henrici has spent most of her time preparing Permian fossils from Germany and mounting a *Hyracotherium* skeleton. Her paper on a new pelodytid anuran from the Cabbage Patch beds of Montana was published in 1994 (*Annals of Carnegie Museum*, 63:155-183). Also, a manuscript on a primitive rhinophrynid anuran from the Morrison Formation of Utah was submitted to *GSA Special Papers*. Current research involves a small collection of pipids, probably *Xenopus*, from Yemen. (Chris Beard)

### ***New York Paleontological Society***

Frank Haase plans to spend his upcoming sabbatical in Germany, where he will continue his research. Peter Wellnhofer has invited Frank to visit him in Munich and has promised to show him *Archaeopteryx bayarica* (the seventh archaeopteryx specimen), which Peter is describing.

Meanwhile, Paul Nascimbene is continuing to work with David Grimaldi and his team at the AMNH as they excavate and prepare insect-bearing Late Cretaceous (Turonian) amber from New Jersey. The arthropod inclusions found so far have been quite diverse. Early in December, Dieter Schlee flew in from Stuttgart, Germany, to work with Dave, Nash, and the rest of the team at the sites. Frank Haase made an appearance on the second day and lent his support to the team's efforts.

Nash will be teaching a course in paleontology at the Morris Museum in Morristown, New Jersey, beginning January 26.

The New York Paleontological Society continues to meet on the third Sunday of each month at the American Museum of Natural History in New York City. Upcoming talks include: Trilobites of the eastern United States by Bruce Lieberman of Yale University on January 15, and Insects in amber: Their paleodiversity and coadaptive evolution with flowering plants by David Grimaldi of the AMNH on February 19. (Paul C. Nascimbene)

### *The State Museum of Pennsylvania, Harrisburg*

Last year at this time we reported briefly on the discovery of a dinosaur trackway site located in southeastern Pennsylvania. Since that report this site has become rather well known through nationwide reports, most notably on NPR. The Graterford trackway locality, as we call it, is located on the property of the State Correctional Institution of Graterford (Montgomery County), Penna. The discovery of the dinosaur tracks was made by inmate Wayne Covington in the fall of 1993 while herding cows through ravines on the prison's grounds. With the help of the Pennsylvania Geological Survey, Mr. Covington, and the cooperation of the officials at the State Correctional Institution, we continued to work the site during the spring and early summer of 1994. In the bottom of two ravines, track-bearing horizons of the Late Triassic Lockatong Formation were exposed. Two sets of trackways were removed and numerous individual prints were also collected. One trackway measures nearly 2.8 x 1 m and the other 6 x 2 m. At least two footprint-bearing horizons have been recognized. The upper horizon contains footprints of the small reptile *Rhynchosauroides* of *Gwyneddichnium*, the lower contains the dinosaur-bearing footprints. We have tentatively identified three ichnotaxa: *Atreipus milfordensis*, *Grallator* sp., and *Coelosaurichnus* sp. A short paper on the Graterford dinosaur trackway site has been submitted to *Pennsylvania Geology* and will appear in the winter issue.

Another dinosaur track locality, near Yocumtown, Penna., has recently been discovered. First photographed in 1931, and later in a newspaper article, the site fell into obscurity. Recently, we were invited to investigate a dinosaur footprint locality in the backyard of a local resident. To our astonishment, his backyard turned out to be the long-lost Yocumtown site! Remarkably, weathering had not significantly altered the footprints in the 60 years that they were exposed.

In early August, on the far northwest end of Pennsylvania, Drs. Dale Tsudy and Jeff Gryta (Edinboro University) discovered a median dorsal plate of the Late Devonian placoderm *Dunkleosteus* while mapping the local geology in Erie County. Retrieving this specimen posed a particular challenge as it lay in a stream beneath at least 15 cm of water! We successfully removed the specimen, although in hundreds of pieces. It has since been restored and is nearly complete. This is only the second (possibly third) record of *Dunkleosteus* from Pennsylvania.

Other fish specimens have also made their way into our collections. Last spring, David Brown, who helped us with our *Gyracanthus* (originally identified as *Ctenacanthus*) field work, donated a large fish from one of the Late Devonian Catskill sites we had been working during the previous year. The specimen, which represents the posterior end of the animal, consists of the caudal, anal, pelvic, pectoral, and possible second dorsal fin. It has imbricated body scales and measures 50 cm in length. We have identified it as belonging to the crossopterygian *Holoptychius*, based on scale morphology. We thank Keith Thomson (Academy of Natural Sciences, Philadelphia) for verifying the identity and orientation of this specimen. Kesler Randall, who joined us as curatorial assistant May of 1994, is presently studying this rather unique specimen.

Our Dino Lab is now one year old and preparation of the Ghost Ranch block, which is the focus of this exhibit, is proceeding very well. Four additional skulls of the coelurosaur dinosaur *Rioarribasaurus* (formerly referred to as *Coelophysis* [in part]) have been discovered since we commenced work on the block. The preparation of the block is being spearheaded by volunteer Kevin Dermody with the able assistance of Karen Boner, David Klein, and Kim Sebestyen. We have been refining the exhibit over the past year. Recently, a closed-circuit camera has been mounted on the side of the binocular microscope which allows museum visitors a detailed view of what the preparator is working on. An interactive audio system also has been installed, giving visitors an opportunity to talk directly to the preparator while he/she is preparing the fossils in the block.

When Kevin Dermody is not working in Dino Lab, he is usually found in the section's collection area helping to organize the fossil invertebrates. In April, Kevin was acknowledged at our annual volunteer recognition ceremony for his extraordinary service (over 500 hours of volunteer time).

Kesler Randall has successfully mastered our Paradox data base program. This involved the development of the paleobotanical, invertebrate, and vertebrate data fields, tables, and forms. In addition, he has computerized our entire vertebrate paleo collection (all 578 specimens!). We intend to keep him busy by continually adding to this collection. In the meantime, Kesler has also been actively engaged in field work and research since his arrival.

Bob Sullivan continues work on various projects when not overseeing the day-to-day operations of the section. Bob (along with S. G. Lucas, A. Heckert, and A. P. Hunt) is presently working on a paper on the type locality of *Coelophysis*. Speaking of *Coelophysis*, Bob has submitted another comment to the BZN, which was summarized in his presentation at SVP in Seattle. Other projects include a paper describing a small lizard fauna from the Denver Formation (early Paleocene) with S. Lucas. The Messel papers are still in progress and Bob patiently waits for his (and R. Estes') Colombia teiid paper to be published (both previously reported in the *SVP News Bulletin*, no. 159, October 1993). Bob and Al Holman's manuscript reviewing the Eocene Oligocene Squamata has been submitted and should appear sometime in 1995. (Bob Sullivan and Kesler Randall)

## **Southeast Region**

### ***LSU Museum of Natural Science***

Processing samples for more fossils and study of cores drilled this fall at our Barstovian sites in western Louisiana are proceeding. Schiebout's paper entitled Fossil vertebrates from the Castor Creek Member, Fleming Formation, western Louisiana has been published in the *Gulf Coast Association of Geol. Societies Trans.* V. 44. We are hopeful

for additional grant support for this research which will allow adding additional graduate student workers.

Schiebout is proposing a GSA theme session entitled Gulf and Atlantic Coast Vertebrate Paleontology for the 1995 GSA meetings in New Orleans.

Suyin Ting and Alton Dooley are continuing their dissertation research. Julia Sankey-Georgiev will be visiting Big Bend to get oriented in late December and early January. Mark Dixon, researching otoliths, visited our collections this fall. (Judith Schiebout)

### ***Murray State University, Murray, Kentucky***

Excavations into late Pleistocene sediments at Hilltop Cove, Trigg County, Ky., have begun. Cindy Gordon, a new master's student, has been screening the overburden from what we hope will be some undisturbed layers. Lots of small vertebrates and some *Platygonus* cf. *P. compressus* as well as *Dasyopus bellus* material suggest the dig could be profitable. We will also prospect other caves in the Cadiz area in the near future.

Bob Martin has finished a manuscript on tempo and mode in the muskrat phyletic series for a volume to be published by the University of Toronto Press and another on a preliminary test of Hutchinson's rule of limiting similarity for the Kowalski symposium volume to appear as a special issue of *Acta Zoologica Cracoviensia*. He also continues work on a larger study examining species turnover, body size relations, and community similarity of small mammal faunas from the Meade Basin of Kansas.

The evolution of European *Dolomys* and its suggested relationship to North American *Ondatra* (+ *Pliopotamys*) has become a controversial subject of late. Bob thanks Charles Repenning, Adam Nadachowski, Wighart von Koenigswald, Leonid Rekovets, and Alexey Tesakov for interesting information and opinions; all are helping shape his thoughts as he and Romanian colleagues Constantin Radulescu and Pierro Samson ponder fossil *Dolomys* material from the Dacic Basin. This information flow is testimony, in part, to the effectiveness of e-mail. (Robert A. Martin)

### ***The University of Florida, Gainesville***

Bruce MacFadden spent the fall semester teaching evolutionary theory and getting settled back into life in the US. His main research interests of late have been carbon isotopes of mammalian herbivores as they relate to community evolution and global change. Bruce has also been working on manuscripts started during his Fulbright to Bolivia, including two with Federico Anaya describing the preinterchange fauna from Inchasi, Bolivia, and dating of some altiplano Miocene sites, the latter of which also described oroclinal

bending of the Andes. Bruce is also currently working on a paper on the systematics of Pleistocene horses from Tarija, Bolivia.

Dave Webb reports a bumper crop of excellent students in his vertebrate paleontology class. Last summer's scuba collections from the middle Aucilla River added several more pieces of worked ivory to what is already the New World's largest sample. One slender piece looks more like a hairpin than a foreshaft. The crew located a new section about 5 m thick with a rich bone layer at the bottom, but surprisingly the bones are bracketed by dates ranging from about 26,000 to about 34,000 radiocarbon years, instead of our usual late glacial dates, thus providing a very useful set of comparisons. We moved our crew and equipment to the river intending to spend the month of October, but the highest water in many years flooded our field headquarters and darkened our river. After three days of drinking Red Cross water, we abandoned the season. Thanks to the National Geographic Society, the work on the Aucilla River will continue this spring.

Bob Chandler has been busy this fall teaching a course at UF called Systematics and Biogeography of Birds. The Santa Fe River has been too high and dark to dive in for giant flightless birds (*Titanis walleri*). He is preparing to go to northwestern Argentina in March to look for phorusrhacoids supported by NSF funding. Bob continues to edit or write the Fossil History sections for the Birds of North America project sponsored by the American Ornithologists' Union and the Academy of Natural Sciences of Philadelphia.

David Lambert has begun the process of converting chapters from his dissertation into manuscripts to submit for publication, beginning with the revamping of a long-dormant paper describing the spectacular *Enhydritherium terraenovae* partial skeleton from Moss Acres Racetrack. His work on the community evolution of late Miocene North American mammal faunas is momentarily on hold while he awaits word on funding via a NSF SGRE grant. If the funding goes through, he hopes to visit one or more Great Plains collections sometime during this winter in order to supplement his data from Florida faunas. In between bouts of writing, he taught a course in human anatomy and physiology at Santa Fe Community College this fall in order to gain additional teaching experience. He is still looking for a faculty position for the 1995-6 academic year, and is at this moment awaiting the results of an interview for an evolutionary biology position at the University of Wisconsin Whitewater.

Glynn Hayes, a new graduate student in geology, has undertaken study of Florida's richest-oldest land vertebrate fauna, and Arikareean fissure complex known as Brookville 1 (A through E). Highlights of this locality were noted in June's news report.

This December Steve Emslie, Ann Pratt, and Richard Hulbert all returned to their old haunts at the University of Florida to restart work on the Plio-Pleistocene Haile 15C locality, which has already yielded some spectacular *Eremotherium* skeletons and a treasure trove of beautifully preserved turtles in addition to a wealth of other specimens. This time around, the specific target of the search is bird fossils. We were delighted to be visited this fall by Paul Koch from Princeton University, who took samples from many of our late Pleistocene collections for stable isotope studies.



## Midwest Region

### *Illinois State Museum*

Jeff Saunders remains busy. With Olga Potapova of the Zoological Institute, St. Petersburg, Russia, he is studying subfossil faunas from Castle Creek in the Black Hills, South Dakota. Based on butchery modifications the Castle Creek faunas derive in the main from human hunting; associated  $^{14}\text{C}$  dates suggest deposition along the flood plain primarily during the 17th, 18th, and early 19th centuries. Eight weeks of field work completed in October with the cooperation of the U.S. Forest Service resulted in the recovery of faunas including *Canis lupus*, *Felis concolor*, *Odocoileus* spp., *Cervus elaphus*, *Bison bison* (?*B. b. athabascae*), and *Ovis canadensis* (*O. c. auduboni*). Four hundred nineteen specimens include bones recovered through excavations in sediments comprising the modern flood plain (three superimposed assemblages) and bones lifted from the creek bed. Beyond providing voucher specimens of native Black Hills fauna, the Castle Creek material gives insight into human use of the fauna in the pre-Custer era and taphonomical information from comparison of in situ and redeposited bone assemblages. In March Jeff will return to St. Petersburg to continue a joint study of mammoth feet with Gennady Baryshnikov in the Zoological Institute. This project is viewed in the long term to be a mammoth atlas based on the large sample from Berelekh, Siberia. However, it begins at ground level. Jeff is preparing to begin in July a taphonomic study of hyena-ravaged faunal material associated with Paleolithic artifacts and human remains at Denisova Cave in the Altai Mountains, Siberia. G. Baryshnikov will conduct and guide the paleozoological studies of the Denisova material and it is anticipated that Bonnie Styles of the ISM and Olga Potapova will collaborate in the study of fish and birds, respectively. For Jeff this is an opportunity to extend and enhance Pleistocene hyena studies begun at the Haro River in Pakistan. (Jeff Saunders)

### *Indiana State Museum, Indianapolis*

The two year lapse since our last entry in the *SVP News Bulletin* reflects our hectic schedule. Ron was sidetracked for eight months to help take over some of the duties of the vacated Assistant Director position. Soon afterwards the Museum director established an operating budget for the Natural History section (for 1994, and again for 1995). With the continuing odors, and general things gone dead in Natural History, the adjacent Fine Arts section relocated to another floor of the building, and natural history filled that space, expanding some 30% in preparation and collection storage. It was well needed.

Museum staff and volunteers again spent nine days each in the summers of 1993 and 1994 continuing excavation in Megenity Peccary Cave, working through some 150 cm of silt and sand fill in the Bat Room, though still one meter above anticipated bedrock. Remains of some 73 (MNI) flat-headed peccaries (*Platygonus compressus*) have thus far

been recovered from the Bat Room alone, along with major portions of an adult male dire wolf (*Canis dirus*). Associated microfauna was relatively sparse. Peccaries from this room included a greater number of older individuals and pathological specimens than from other room of the cave. Radiocarbon dates from bone collagen in the uppermost levels (top 40 cm) of this room gave an age of 24,420 +/- 340 BP. This date is typical of several middle Wisconsinan dates from other rooms of the cave. Incidentally, a tapir (*Tapirus*) tooth portion was recovered in the lab from the screen-washed materials of the Microfauna Room (1992 season); that was the second record of tapir from Indiana.

Staff and volunteers spent nine days excavating a mastodont (*Mammut americanum*) site in Warren County in September 1992. Only the remains of the mandible with teeth were recovered, with hardly any microfauna in the clay deposits. A conifer zone below yielded a radiocarbon age of 15,540 +/- 70 BP. Site stratigraphy was quite unusual, reflecting perhaps land drainage in historic times, and possibly some evidence (sand dikes, sills) of earthquake activity.

Staff and volunteers recently removed reference skeletons of 200 vertebrates (ranging in size from salamanders to a horse) skeletonizing naturally in a privately owned carcass cave. Carcasses rotted naturally year around for nearly three years, and produced high-quality, durable skeletons. Better carcass crates in the future should protect against bone scattering by wandering scavengers (raccoons, etc.). Staff and volunteers continue mapping Quaternary-aged bear wallows and claw marks in a cave on the Hoosier National Forest.

Reprints are now available for: Richards, R. L. 1992. New records of the stag-moose (*Cervalces scotti*) from the late Pleistocene of Indiana. *Proceedings of the Indiana Academy of Science*, 101: 83-94; Hunt, L. L., and R. L. Richards. 1992. The Lewis mastodont (*Mammut americanum*) locality, Wabash County, north-central Indiana. *Proceedings of the Indiana Academy of Science*, 101: 221-227; Richards, R. L. 1992. Small mammals of the Prairie Creek site, Daviess County, Indiana. *Proceedings of the Indiana Academy of Science*, 101:245-278; Holman, J. A., and R. L. Richards. 1993. Herpetofauna of the Prairie Creek site, Daviess County, Indiana. *Proceedings of the Indiana Academy of Science*, 102:115-131; Richards, R. L. 1994. *Microtus xanthognathus* and *Synaptomys borealis* in the late Pleistocene of southern Indiana. *Proceedings of the Indiana Academy of Science*, 98 (for 1988):561-570; Richards, R. L. 1994. Quaternary occurrence of the fisher, *Martes pennanti*, in Indiana. *Proceedings of the Indiana Academy of Science*, 98 (for 1988):571-580. Ron and Bill Turnbull (FMNH) have finally submitted a manuscript to *Fieldiana* on the *Arctodus simus* specimen from Indiana; they began that project in 1979. Ron, Bill, and Rufus himself also scurried about to meet editorial deadlines on their North American *Arctodus simus* paper for the Churcher volume.

Much of Ron's time these past two years have been spent on a major exhibition *Giants From the Bone Zone*, installed in August 1994, and running through June 1995. The exhibition features all of the large Late Pleistocene taxa known from Indiana (22 species), most represented by the actual fossils (some are one-of-a-kind from Indiana),

supplemented by in-house artist conceptions, life-sized cutouts, Indiana occurrence maps, a computer interactive component, and cave dig where the finder can keep one of the dire wolf or peccary tooth casts seeded there daily. A large wall chart depicting the large animals of Indiana's Ice Age will be available soon (it's out for printing bids). (Ron Richards)

### ***Mammoth Site of Hot Springs, South Dakota***

Preparators Kathy Anderson and Judy Davids have been busy preparing a skeleton of *Mammuthus exilis* (Pygmy Mammoth) collected last August on Santa Rosa Island in Channel Islands National Park, California. The skeleton, which is about 85% complete, was discovered by Tom Rockwell (San Diego State University) and collected by Larry Agenbroad (Northern Arizona University), Don Morris (National Park Service), Louise Roth (Duke University), and Tom Rockwell.

In November, Larry Agenbroad, with help from Yuji Kato, supervised a Japan Broadcasting Corporation film crew that was working on a documentary dealing with evolution. The documentary is scheduled to air on the Discovery Channel in March 1995.

Ray Davis joined the staff as Head Preparator in November. (Ray Davis)

### ***Michigan State University***

Laura Abraczinskas had her paper on the relationship of Michigan Pleistocene proboscideans to surficial salt deposits accepted by the *Michigan Academician* and it should be out shortly. Laura is teaching Al Holman how to use the Argus Collection Management System.

Carl Doney and Ken Ford successfully passed their respective comprehensive examinations for the Ph.D. degree in geological sciences at MSU and are facing up to the fact that they must complete their doctoral dissertations. Shawn Clouthier successfully completed his M.S. degree in geological sciences on the topic of Carbon and nitrogen isotopic evidence for Tertiary grassland distribution and the evolution of hypsodonty in North American Great Plains horses (32 MA to Recent). A short paper on some of his thesis findings has been submitted to *Nature*.

Research Associate Jerry Case, assisted by Paul D. Borodin, James J. Leggett, and Paul Nash Nascimbene, continues collecting amber specimens for the AMNH Entomology Department. Jerry has just finished two manuscripts with P. Borodin and J. Leggett; one on sharks of the New Egypt Formation (Upper Cretaceous) of New Jersey, and the other on sharks of Late Eocene age from a new locality in northwestern Georgia.

Jerry, P. Borodin, Lev. A. Nesson, Nicholai Udovichenko, and Alexander Averianov have submitted a manuscript on Middle Eocene sharks from Uzbekistan, Central Asia, involving a newly discovered site in the center of the Kizylkum Desert. Jerry and Henri Cappetta have a paper in press in Munich that details Late Maastrichtian sharks from northeastern Texas, including three new genera and 21 new species. Jerry, H. Cappetta, P. Borodin, and J. Leggett are currently working on a new selachian fauna of Middle Eocene age from southern Alabama that has yielded several new species and occurrences for the USA.

Research Associate Dick Seltin continues to steadfastly prepare his important collection from the Permian of Texas, but has found time to travel in the UK and on the continent in the last couple of years. Dick continues to be a valued member of most of the graduate committees in VP at MSU.

Al Holman plans to travel to Leiden next summer to study Pleistocene amphibians and reptiles collected by Thijs van Kolfschoten. He also will visit Rachael Walker and Bill Bartels in the southern Green River Basin of Wyoming and Michael Voorhies and George Corner in Nebraska later in the summer. Al and George Corner are currently working up the extensive Miocene herpetofauna from the West Railway Quarry (Cr 114), Cherry County, Nebraska.

Starting in late September of 1995 we are having the Dinosaurs a Global View exhibit in the MSU Museum for a few months. In conjunction with this, dino speakers and other activities are in the offing. (Al Holman)

### ***South Dakota School of Mines and Technology, Rapid City***

Last May Jim Martin returned to Fossil Lake in Oregon to continue the long term project with the Bureau of Land Management to collect and place into stratigraphic context the fossils from this important late Pleistocene site. Radiocarbon dates will soon be available to help sort out some localities.

Jim Martin spearheaded efforts to collect dinosaurs from the Morrison Formation near Sundance, Wyoming. The project is being accomplished with the cooperation of the Wyoming Department of Transportation. His former student John Foster, now a doctoral student at the University of Colorado, has contributed much to the development of the site. Not only have they been finding *Camarasaurus*, *Allosaurus*, and perhaps *Apatosaurus*, but they also report pantotheres and multituberculates. Russ Jacobson and Steve Soroka have assisted with a group from the University of Illinois Museum of Natural History. They will return in 1995 and a group from the Denver area will also be assisting. Beth Fisher of Denver, a veteran of many Museum expeditions, is organizing this group in Denver. Mike Cronin, a doctoral student, and Lisa Yemma, a new master's student, will be assisting this and other dinosaur activity next summer.

Gorden Bell, the Haslem Post-Doctoral Fellow in Paleontology, has worked with his wife Patti Bell, SDSM&T doctoral student Bruce Schumacher, and undergraduate Paul Wegleitner to meticulously document the distribution of marine reptiles in the area south of the Black Hills. The project is being done in cooperation with the Buffalo Gap National Grasslands. Plesiosaurs, mosasaurs, and fish are showing up in abundance. They have also found our first plesiosaur in the Carlile Formation. Bruce is carefully preparing the skeleton of a very complete short-necked plesiosaur from the Niobrara. Gorden and Jim, with volunteers Dan Varner, Marcia Bell, and Bill Schurmann, have been busy with a plesiosaur, mosasaur, turtle, and pterosaur parts, and other marine creatures near Rapid City. The stratigraphy of the site is more interesting than one would expect in the Pierre Shale.

Philip Bjork has had a great experience of working with four students and the Badlands National Park on the Giant Pig Dig. Kim Stevens is focusing her attention on a detailed map of a very complicated array of bones preserved in the classic Badlands of the Park. A jumble of bones that includes giant pigs, rhinos, and three-toed horses have been found. How they got there is still a mystery. Kim was assisted by Mike Cronin, Tina Wilcox, and Jeff Richmond. The Pig Dig will continue next summer with Kim leading the charge and new master's student Greg Kruse assisting.

Gorden and Jim also went to the Missouri River to carry on work with the New Jersey State Museum and David Parris and a host of East Coast folks including David Cicimurri, a new master's student. Dave will work with Jim on a marine Cretaceous problem. The results have been impressive with some juvenile mosasaur material emerging and much associated fauna. Lee Azure, the City of Chamberlain, the Crow Creek Indian Tribe, and the Corps of Engineers have all pitched in to make this annual effort successful.

The biggest surprise of the year occurred this fall when Philip Bjork went with Jim Haug and Mike Forsha of the State Archaeological Research Center to a discovery at the Richmond Hill Mine. While quarrying limestone for neutralizing acid water, LAC minerals cut through a cave system filled with fossiliferous sediment. In the short time that has transpired, Philip Bjork has processed about 400 pounds of very rich sediment from a small pocket and a few other samples. The site is called the Unwily Coyote Site because of the abundance of a coyote-sized canid. To date about 30 kinds of fossil vertebrates have been found. Pikas and lizards are notable components. This is a very important discovery for helping to understand the erosional and climatic history of the Black Hills. A second site in the quarry has just emerged after a recent phone call from the mine. This prompted a visit by Phil Bjork and daughter, Lara. They gathered 50 lb of bone-bearing matrix on a balmy first day of winter at 5600 ft. At least three more taxa were added to the assemblage from this complex of cave deposits. Age of the deposit is older than we initially thought. A major excavation will be underway this summer.

In the laboratory we are slowly chipping away at the tons of material of the past summer. Our efforts continue with the help of volunteers Marilyn Dahm, Ken Brown, Bill Schurmann, and Walt Dennison. Janet Bertog has been looking at gastric residues from marine reptiles with the help of SEM and microprobe for the patterns of preservation in

digested remains. Her work is part of our undergraduate research requirement in geology. She would appreciate hearing from anyone with similar interests. Finally, we are happy to report that Mark Fahrenbach has completed a thorough study of the Englewood Formation (Devonian Mississippian). Ten environments of deposition, vertebrates, invertebrates, diagenesis, and a dissertation almost as thick as the formation have emerged under the guidance of Jim Martin. (Philip R. Bjork)

### ***University of Kansas***

We recently had two distinguished visitors from China. Professor Lian-hai Hou and his student, Zhonghe Zhou, were here for a month visiting Dr. Martin about fossil birds. They've been working an Early Cretaceous quarry that's extraordinary in the number and quality of specimens.

Dr. Kocharov of the Ioffe Physico-Technical Institute of St. Petersburg is once again visiting colleagues in lovely Lawrence. He is continuing work on possible astrophysical causes of climatic cyclicity with Dr. Martin.

I'm afraid that a week before Christmas all is quiet throughout the museum. One could say that no creatures is stirring not even a mylagaulid. (T. J. Meehan)

### ***University of Michigan, Museum of Paleontology***

Philip Gingerich, Muhammad Arif, and Will Clyde report that they had a very successful field season in Pakistan. Two weeks were spent collecting paleomagnetic samples from 100+ sites spanning the early and middle Eocene, and they still managed to find about ten good partial skulls and skeletons of middle Eocene archaeocetes from both nearshore and deeper environments. Archaeocete morphological and taxonomic diversity was evidently higher during Lutetian times than it was later in the Eocene.

David L. Fox continues to study incremental growth lines in proboscidean tusk dentin, expanding work on *Loxodonta* to include *Gomphotherium* tusks from the Miocene of North America. David hopes this project and a planned study of changes in ecological structure of faunas from the Miocene will shed light on extinctions of Proboscidea in North America. Mark Uhen continues his work on *Prozeuglodon*, with occasional diversionary side trips into *Coryphodon* species-level taxonomy and clade shape analysis. Jonathan Bloch is continuing his analysis of late Paleocene early Eocene freshwater limestones and plans to publish a paper with Phil Gingerich describing a new species of *Carpolestes* soon.

William J. Sanders successfully defended his dissertation on australopithecine vertebrae in September. Bill is now completing a paper describing fossil proboscideans for an edited volume (T. Harrison, NYU, editor) on the geology and paleontology of the Manonga Valley, Tanzania. Bill has also been busy preparing a skull of *Basilosaurus* for display. Bill, Ron Tykoski, Jason Head, and Jason Anderson, have been preparing specimens of *Rhodocetus*, *Sinonyx*, and *Prozeuglodon* for casting and full skeletal mounts in the U of M Exhibit Museum. Jason Head is completing reconstructions of new turtles from the Siwaliks of Pakistan and is busy applying to graduate schools. Ron Tykoski is also applying to graduate school and is preparing an *Edmontosaurus* skull for display in the Exhibit Museum.

Gregg Gunnell has recently completed papers on a new adapiform primate from the middle Eocene of California and on mammalian faunal composition as it relates to the Paleocene Eocene boundary in the northern Bighorn Basin, Wyoming. Gregg's paper on Bridgerian omomyid primates from southwestern Wyoming is due to be published in the February issue of the *Journal of Human Evolution*. Gregg also is continuing to work on the new data management system that will be installed at the UMMP. (Gregg F. Gunnell)

## **Southwest Region**

### ***New Mexico Museum of Natural History***

The Paleozoic Trackways Project is nearly complete. The project included a study and evaluation of several early Permian trackway sites near Las Cruces, New Mexico. These are some of the most important early Permian trackway sites known. Many workers have participated in the project which will include an edited volume on the sedimentology and paleontology of the site published as a *New Mexico Museum of Natural History Bulletin*. Participants in the study include Spencer Lucas, Adrian Hunt, Martin Lockley, Nicholas Hotton, Jerry MacDonald (the discoverer of the site), and Hartmut Hauboldt. Jerry MacDonald has recently published a book *Earth's First Steps* which describes the discovery and study of the site. Gary Morgan worked through the summer and fall on cataloguing the nearly 1500 trackway specimens into the museum's database. The collection includes a diverse assemblage of amphibian and reptile tracks, as well as numerous invertebrate tracks and plants. Gary and Andrew Heckert moved the nearly ten tons of tracks into newly installed shelving in the collections room.

Spencer Lucas spent part of last summer in eastern Kazakhstan with Bob Emry and Fred Grady of the National Museum of Natural History. He also attended a field conference in western Kazakhstan to examine Oligocene and Miocene stratigraphy near the Aral Sea. Spencer continues to work on Triassic Cretaceous stratigraphy and paleontology in southern Arizona and New Mexico and northern Mexico and numerous other projects.

Tom Williamson continues to collect and study early Paleocene vertebrates from the Nacimiento Formation of the San Juan Basin, northwestern New Mexico. He is currently

describing several new mammal genera and species from the classic Puercan and Torrejonian faunas. Tom and Spencer are also describing a nearly complete skeleton of a new genus and species of leptictid from the Nacimiento Formation that was presented at the SVP and GSA meetings in Seattle last October. In addition, Tom is working on Late Cretaceous vertebrate localities in the San Juan Basin. Some exciting new specimens were recovered from the lower Campanian Menefee Formation last summer. These include a partial skeleton of a centrosaurine ceratopsian. The specimen includes parts of the skull, several limb bones, vertebrae, ribs, and part of the pelvis. This is among the oldest ceratopsians found in North America and the first short-frilled ceratopsian from New Mexico. Found nearby was a partial skull of an alligator which represents a new species of *Brachychampsa*. This is among the oldest alligators known. So far, the Menefee Formation has proven to be much more productive than originally anticipated and Tom plans to continue work within the unit next spring. Rom is also studying vertebrate assemblages from Late Cretaceous localities of the Fruitland and Kirtland formations and in marine and nearshore units of the San Juan Basin. Tom recently supervised the excavation of a large allosaurid (possibly referable to *Saurophagus*) from the Morrison Formation west of Albuquerque. The specimen was discovered by museum volunteers Ron and Rod Peterson. This specimen was partially articulated and includes both hind limbs, part of the pelvis and sacrum, and several anterior caudal vertebrae. Search for more of this individual will continue next spring. Preparation of a partial skull of a diplodocid from the same locality is nearly complete.

Adrian Hunt completed his dissertation last spring and will be publishing part of it, a revision of the Phytosauria, as a *New Mexico Museum of Natural History Bulletin*, next spring. Volunteers recently collected another partial skull of a phytosaur near Tucumcari, New Mexico, this summer. The skull is nearly a meter wide making it among the largest phytosaurs ever found. The *Typothorax* skeleton in the museum's prep lab remains covered in blue latex.

New arrival Gary Morgan is investigating Miocene and Pliocene localities in New Mexico. He is working closely with amateur Paul Sealey on late Miocene and Pliocene localities near Gila, and with Steve Fowler and Michael Byers on Miocene fossils of the Santa Fe Group in the Santa Fe area. Gary has decided to return to graduate school and will begin work on a Ph.D. in earth and planetary science at the University of New Mexico starting in winter 1995. His dissertation project will be on the biostratigraphy of Hemphillian and Blancan sites in southern New Mexico. Preliminary field work in this area has been promising, including the discovery of a late Hemphillian site with abundant *Astrohippus*, *Dinohippus*, and camels and a Blancan site with *Nannippus*, *Equus*, *Heimauchenia*, *Stegomastodon*, and several arvicoline rodents, as well as abundant birds and frogs. He is also curating and computerizing the museum's late Tertiary and Quaternary specimens. Tom Williamson and Gary are documenting a Miocene trackway that includes tracks of camels and a large carnivore from the Santa Fe Group near Rio Rancho, New Mexico.

Ruby Williamson is currently working on sorting and cataloguing the recently acquired fossil collection from the New Mexico Bureau of Mines and Mineral Resources. This



collection consists of approximately 25,000 vertebrate and invertebrate fossils collected from New Mexico over the past 50 years or so. Ruby is also completing the cataloguing of Late Triassic vertebrate fossils. This collection consists of several thousand specimens, mostly from the Chinle Group of eastern New Mexico.

Graduate student Andrew Heckert is documenting a Late Triassic (Carnian) fauna from the Bluewater Creek Formation near Fort Wingate as part of a master's thesis. This fauna includes *Buettneria*, Phytosauridae, Stagonolepididae, and a small theropod dinosaur. This dinosaur is the most complete Carnian dinosaur known outside of South America. Andrew presented a poster on a partial skeleton of this small theropod at the SVP and GSA meetings in Seattle.

Ancheng Ma is continuing processing screenwashed matrix from localities in the Regina Member of the San Jose Formation, San Juan Basin, as part of a dissertation on early Eocene (Wasatchian) micromammals.

The museum will open a paleontology preparation exhibit this summer. The exhibit will include a fully functional preparation facility that will be manned by museum volunteers. Among the first specimens to be prepared will be parts of *Seisomosaurus*. (Tom Williamson)

### ***Oklahoma Museum of Natural History***

Planning and preparation for a new museum facility are moving briskly ahead. Bond money from the City of Norman and the State of Oklahoma will provide a basis for a new building together with a grassroots fundraiser that will begin in March April. Groundbreaking is planned for about January 1996. The new museum will be located on the southwestern corner of campus near the OU Law Center. Donald E. Savage recently joined us to help ramrod the development of the vertebrate paleontological exhibits. Autumn visitors to the collection included Wann Langston, J. Howard Hutchison, and King Richey.

Recent field collecting by OMNH crews has produced some interesting new finds in the Permian and Cretaceous. Volunteers Bill May and Charles Sanders and Rich Cifelli's VP class visited the Permian fissure fillings near Fort Sill, Okla. Several nice specimens of labyrinthodont amphibians, captorhinomorph reptiles, and pelycosaurs were collected during a number of trips. Some of this material is presently being studied by Robert Reisz (University of Toronto), who reports more species diversity for the locality than had previously been recognized.

We have continued to pick up pieces and portions of Early Cretaceous tenontosauroids in southern Oklahoma, including several bones from a juvenile individual. But another exciting find has been the recent discovery of a portion of the neck of a superegg sauropod. Although preparation of field-jacketed cervicals is just beginning, at least one

of the vertebrae, probably from about the middle of the neck, is about 4.5 ft long. Associated cervical ribs seem to extend 6-7 ft. Unfortunately, the remainder of the animal (toward either end) was not connected.

Bill May has begun for us a volunteer training program, with one-night-a-week classes, run more-or-less concurrently with the regular semesters. Potential volunteers are trained in various aspects of fossil preparation and preservation and matrix processing by screenwashing. Bill also has been a big help in collecting, sorting, and identifying Oklahoma Permian tetrapods that are now being catalogued into the collection.

Rich and graduate student Randy Nydam recently completed a manuscript on a platynotan lizard specimen that resulted from Cifelli's work in the Cretaceous of Utah. Randy is also doing some of the preparation and cataloguing of amphibians and reptiles from the Utah sites. Graduate student Kent Smith is looking into the possibility of working on a Barstovian mammal locality in central Nevada for a dissertation project.

A catalogue of type and figured fossil vertebrates in the OMNH collection, by Nick Czaplewski, Rich Cifelli, and Wann Langston, was published in 1994 as Special Publication 94-1 of the Oklahoma Geological Survey. (Nick Czaplewski)

### ***Department of Anthropology, University of Arizona***

John W. Olsen and Anatoly P. Derevianko (Siberian Branch, Russian Academy of Sciences) have concluded a long-term research agreement with the Mongolian Academy of Sciences to pursue a program of trilateral cooperative Paleolithic field research in western Mongolia beginning in 1995. Since the 1960s, the Soviet Mongolian Historical and Cultural Expeditions have identified approximately 1100 Stone Age sites in Mongolia, of which the majority are Paleolithic. At least a dozen localities in the depressions and valleys of the Mongolian and Gobi Altai ranges of western Mongolia have yielded assemblages of artifacts on high (90-130 m) terraces that Derevianko and his colleagues equate with the early Paleolithic.

The valley of the Nariyn-gol, on the southern Hangai Plateau, has yielded aeolized pebble tools as well as less abundant unabraded flake tools strewn on high (140 m) terraces. Tools typologically classified as early Paleolithic are also found on lower terraces in the Nariyn-gol valley, which Derevianko takes to be evidence of their redeposition. At some localities, such as Nariyn-gol 17, large cores are found surrounded by conjoining flakes, thus a percentage of these western Mongolian sites seems to preserve a record of discrete activities rather than being exclusively reworked palimpsests.

While the majority of early Paleolithic finds from Mongolia are surface occurrences and, therefore, only roughly datable by geological correlation and typological affinity, one locality bears particular promise for future investigation and will be the focus of Olsen's

and Derevianko's first collaborative field season in 1995. The Tsangan-Aguy cave lies near the southeastern extremity of the dolomitic Ikh-bogdo range. Excavations conducted from 1987-89 revealed a 50-m-long corridor with unconsolidated deposits reaching a depth of 3 m near the cave entrance. The cave's complex stratigraphy yielded a small collection of stone tools, including a bifacially flaked handaxe and a single platform pebble core in association with a microfaunal assemblage and charcoal that may resolve important issues concerning the cave's chronology and paleoecological history. Sites such as Moil'tyn-am, in the Orkhon valley have preserved a stratified record of northern Mongolia's upper Pleistocene occupation, thus it is hoped that the Tsangan-Aguy sequence may ultimately be correlated with the lower deposits at Moil'tyn-am to yield an unprecedented record of diachronic change in Inner Asia.

The present lack of earlier Pleistocene human fossils from Mongolia strictly limits the extent to which archaeologists can draw definitive conclusions regarding the absolute antiquity of the technologically unsophisticated tool forms recovered in geological contexts that extend back to the Plio-Pleistocene boundary. Evidence for the occupation of Mongolia before the middle Pleistocene is intriguing and, if proven correct, may provide one of the geographical links between Central Asia's earliest sites (i.e., the 800,000-year-old Kul'dara complex in southern Tajikistan and the younger Sel-Ungur cave in central Kyrgyzstan) and those to the northeast in Siberia.

Olsen, Derevianko, and their Mongolian colleagues will return to Tsangan Aguy cave and other localities in western Mongolia in June and July 1995. (John W. Olsen)

### ***Vertebrate Paleontology Lab, University of Texas at Austin***

Ernie Lundelius has survived another semester of teaching. He is working on a Pleistocene fauna from the Brazos River terraces in north Texas. This will be extended to the faunas of the terrace deposits on the lower reaches of the Brazos River. Another project is the continuing work with Bill Turnbull on the fauna of Madura Cave in Western Australia.

Over the last year or so, Wann Langston has spent what seems like an eternity of struggling with multifarious diversions: Eocene trackways with W. A. S. Sarjeant, now published; South American gavials with Zulma Gasparini, now in press; catalogue of fossil vertebrates at the Oklahoma Museum of Natural History, with Nick Czaplewski and Rich Cifelli, now published; the skull of *Quetzalcoatlus* with Alex Kellner, in press; the axial skeleton of *Quetzalcoatlus*, now nearing completion; the taphonomy and geological context of the *Quetzalcoatlus* sites, with Tom Lehman, inter alia. Currently he is finishing up his collaboration with Phil Currie and Darren Tanke on the Pipestone Creek *Pachyrhinosaurus* assemblage talk about an embarrassment of riches! A brief contribution to Sam Welles' description of the braincase of *Acrocantliosaurus* also is in the works.

In August we completed the third and final year of our three-year Care of Collections grant. Melissa Winans has started work on our next improvement project: A VP Lab gopher server which will make our expanded databases directly available for viewing on the main University of Texas gopher server (bongo.cc.utexas.edu).

Bob Hook continues to work with Don Baird on the Upper Carboniferous coal deposit at Five Points, Ohio. Thus far they have collected approximately 800 specimens and identified 30 fish and amphibian genera. Their preliminary paper on this locality appeared in the recently published POLLICHIA-Buch volume *New Research on Permo-Carboniferous Faunas*. Bob also is preparing an acanthodian-dominated fish collection obtained by a mine inspector from above the Pittsburgh Coal in Jefferson County, Ohio. His description of a new species of the temnospondyl amphibian *chenoprosopus* from the Permo-Carboniferous of north-central Texas was published late last year in the *Annals of Carnegie Museum*.

Pamela Owen, Brook Hall, and Matt Colbert passed their comprehensive exams for the Ph.D. and will now go to work on their dissertations. Pamela plans to look into the late Cenozoic history of the mustelid guild. Brook will begin shortly on the taphonomy of the Maricopa tar seep in southern California. Matt has started a phylogenetic and historical biogeographic study of the Genus *Tapirus*. Our other VP students report progress on their various projects. (Melissa Winans)

## **Rocky Mountain Region**

### ***Dinamation International Society, Fruita, Colorado***

The Devil's Canyon Science and Learning Center finally opened this past July. This serves as the exhibits facility and headquarters for DIS. It includes a large state-of-the-art preparation laboratory with crane hoist for moving the big stuff around. Mike Perry is pretty happy to have an office with a view. We all were extremely pleased by all our friends and colleagues who came from throughout the region and Mexico for the dedication. DIS is maintaining a presence at the Fruita Natural History Center where Kirkland's office and our original lab remain.

DIS has just signed a cooperative agreement with the Mexican National Institute of Anthropology and History and the State of Coahuila to assist in developing a paleontological program in the State of Coahuila. This is the first time that government agencies in Mexico have ever signed such an agreement with an organization outside of Mexico.

DIS has also just signed a cooperative management agreement with the Bureau of Land Management and Museum of Western Colorado concerning several sites in the Grand Valley area of Western Colorado. These are Dinosaur Hill, the Fruita Paleontological Resource Area, the Split Rock Trail area, and the Rabbit Valley Research Natural Area.

DIS is looking forward to working with the BLM and MWC in developing interpretive and research plans for these natural laboratories in the Morrison Formation.

Research on the Morrison Formation is progressing. Just as Kirkland and Carpenter's (1994, *BYU Geology Studies*, 40:25-42) paper describing the Jurassic ankylosaur *Mymoorapelta* comes to light, new Morrison ankylosaurs are discovered that will add considerably to the story. In addition to discoveries of material at Dry Mesa by Rod Scheetz, in the Como Bluff area by Bob Bakker, and Garden Park area by Ken Carpenter, a very important site was discovered here in western Colorado by Ken Hups that is being excavated by Adrian Hunt and Martin Lockley. This specimen appears to represent *Mymoorapelta* and is fairly well articulated. Although the animal appears to be going in head first, the outcrop of very hard sandstone makes excavation and preparation a difficult process. So far, much of what has been uncovered seems to support *Mymoorapelta* being close to *Polacanthus* and that the caudal plates run horizontally down the tail. In addition, it appears that there were smaller equilateral plates sticking out below the sacral shield in the hip area. A paper with Hunt and Scheetz on this new material is being prepared for the upcoming GSA Morrison volume, as is a paper on Morrison fishes.

Kirkland and Don Burge's field work on the Lower Cretaceous was funded by National Geographic this past summer and resulted in the recovery of a great deal more bones from the Gaston Quarry. However, it is going to take a fair bit of outcrop enhancement to expose more bones as there is about 8 m of overburden. Finally, Kirkland has joined forces with Rich Cifelli in the University of Oklahoma program on the Lower Cretaceous of Utah with DIS and the College of Eastern Utah taking on the bulk of the dinosaurs and Oklahoma taking on the microfauna. This collaboration is already resulting in a number of exciting revelations about the Cedar Mountain Formation and its preserved faunas. (Jim Kirkland)

### ***Fossil Butte National Monument***

Rachel Benton has accepted the position of Park Paleontologist at Badlands National Park. Peter Ambrose, appointed as a temporary replacement for Rachel while she was pursuing her Ph.D., is now permanently on board as Fossil Butte's paleontologist. Rachel contributed significantly to the scientific and curatorial areas of the monument's operation. Her talents will be missed. She was able to return to Fossil Butte briefly to conduct field work and coordinate a meeting in which the future of research in and around the monument was discussed.

Pursuant to our goal of expanding scientific efforts in the monument, H. Paul Buchheim of Loma Linda University completed a study of possible scientific quarry sites either on or near the monument, which would serve as both an interpretive tool for visitors and a scientific venue for researchers. We are also planning to take a greater interest in the study of the Wasatch Formation, which occupies a considerable area of the monument.

Miriam McColloch, a seasonal ranger and invertebrate paleontologist, recently presented a paper on Mississippian fenestrate bryozoans at Perm State University, Perm, Russia. She also published an article in *Journal of Paleontology* on Permian fenestrate bryozoans from the Toroweap Formation. (Dave McGinnis)

### ***Garden Park Paleontology Society, Canon City, Colorado***

Garden Park Paleontology Society (GPPS) has had a busy fall attending both the SVP meeting in Seattle and the Partners in Paleontology conference in Colorado Springs. Presentations were given at both conferences by Pat Monaco. Currently GPPS is working with the City of Canon City on the opening of the Dinosaur Depot visitor center in early 1995. Denver Museum of Natural History is allowing the preparation of the 1992 *Stegosaurus* to happen at this facility through means of a specimen loan. We are hoping that anyone visiting the south-central Colorado area drop by when going through Canon City on Highway 50 this coming summer and see Phase I of Dinosaur Discovery Center. (Pat Monaco)

### ***Hagerman Fossil Beds National Monument***

Survey work at the monument continues as more of the known sites are surveyed and new ones are discovered. One new site is of particular interest as it has produced the first lizard material from the monument. Unlike many of our blowout localities where collecting is done by crawling the surface, we bulk-sampled this new locality and ran the sediments through nested sieves, resulting in an abundance of smaller and fragile specimens not usually represented. Looks like we need to reexamine some of our other localities and try some bulk sampling to see if they would be equally productive. During the course of the survey work some interesting larger specimens have turned up. A distal end of a tremarctine humerus was found by one of our sharp-eyed volunteers, Hugh Harper. This is only the third bear specimen found at Hagerman. An almost complete articulated beaver skeleton was found by Greg McDonald. We managed to get it jacketed but because of its location in one of the more inaccessible portions of the monument we were unable to get it out before our early snows. Looks like we'll have to wait until spring for this one.

As part of their bone bed tour last summer, Kay Behrensmeyer and Alan Cutler stopped by to look at the Horse Quarry. We are looking at the possibility of a joint Smithsonian Park Service project to reopen a portion of the quarry to look at the taphonomy of the bone bed. Like many projects these days, this will depend on availability of funding. Following the Seattle meetings, Christian de Muizon spent a week at Hagerman, where he and Greg concentrated on the description of a new ground sloth from Peru. The preliminary manuscript is now done and with a little more fine tuning, should be ready for submission.

In addition to his duties at Hagerman, Chris Force was involved in Idaho just west of Grangeville. This last summer the lake was drained and during the course of cleaning out the bottom the bulldozer operator spotted some large bones, which turned out to be mammoth. Initial excavations uncovered what appears to be the remains of six or seven individuals. Chris spent a week working with, the Idaho Museum of Natural History, the state archaeologist, and representatives of numerous other state and federal agencies. Thanks to Chris' efforts with our laser transit, a preliminary map of the exposed bone was produced. The site was reflooded to protect the site over the winter but continued work is planned for next summer.

Planning for the WAVP meetings in Hagerman April 6 8 continues and we look forward to a good turnout. Anyone interested in more details should check the notice in the Bulletin Board. (Greg MacDonald)

### ***Idaho Museum of Natural History***

The VP contingent in southern Idaho continues to grow with the addition of Steve Robison, a Forest Service geologist with a master's degree in VP from Brigham Young. Steve manages to get in a bit of field work from time to time and has come up with ?Miocene plant, insect, and fish material from a lacustrine valley fill, plus dino and croc material from the Wayan Formation including eggshell, teeth and jaw fragments, vertebrae, and partial manus/pes elements, most from small individuals. Bill Akersten and Allen Tedrow went out with him on several occasions. Administrative hassles, proposal preparation, scheduling, and other problems resulted in little other field work this summer; Bill did manage to get to the International Congress of Vertebrate Morphology in Chicago, really great and informative. On the way back, he retrieved a female Asian elephant skeleton which the Brookfield Zoo had buried for IMNH some four years ago. Allen Tedrow checked a locality in the Payette Formation along the lower Salmon River where archaeologists had collected a chunk of chert containing a Miocene insectivore mandible but no more mammal showed up. He did get a few pieces of fish and a nice fossil flora. Allen McCrady is recovering from surgery on a knee which went out while collecting *Bootherium* material from the Booth Canyon fauna.

The biggest news is the discovery and preliminary excavations in a mammoth graveyard at Tolo Lake in northern Idaho during early September. At least six excellently preserved mammoths and one bison were discovered during excavation of a small portion of this 30-acre lake which had been drained for rehabilitation. Depending on the assumptions one makes, at least 30 and possible 200 mammoths could be entombed there. We also recovered some microfaunal material. The Idaho Department of Fish and Game (owners of the lake) has given us up to two summers to work there so we are now looking for major funding in order to get the job done right in the short period of time. If funding comes through, we will be hiring an excavation supervisor/preparator and excavation crew members on short notice. Anyone interested should drop a line and résumé to Bill now because work will begin before the next issue of the *News Bulletin*. (Bill Akersten)

***Department of Geology, Sheridan College, Sheridan, Wyoming***

This past October, Mike Flynn's paleontology class discovered a subadult diplodocus located in the upper half of the Morrison Formation along the western edge of the Powder River basin. We estimate that the dinosaur is 75-85% complete. The excavation will continue with the start of the next field season.

This past fall we opened a new Morrison Formation quarry with a number of disarticulated sauropod material located.

Our small Geology Museum, featuring mostly vertebrate fossils, has been flourishing since its opening. Plans are being formulated to expand the Science Center to house a larger display area and to double our preparation lab size and storage area.

Mike will again spend part of next field season conducting field work and teaching students in the Cloverly and Morrison formations of the Big Horn Basin. Come and join our field team and others working in the basin at Washakie County Museum's fifth annual paleontological symposium Digging-Up-The-Past in Worland in July 1995. (Mike Flynn)

***University of Colorado at Boulder***

During the 1993 field season in the Bridger Basin we discovered an unusually rich locality containing much cranial and postcranial material of *Omomyx*. The museum returned there with students and used the site as the focus for a five-week field school this past summer. The importance of the site is exceptional because, unlike other occurrences, most of the *Omomyx* skeleton is represented. The sample is also peculiar because *Omomyx* are, by far, the most common mammalian fossils represented.

In addition, we continued work on the upper part of the Bridger Formation, adding more material to our collection from unit E of Matthew, we now have more than 30 families of vertebrates represented from this hitherto hard to exploit unit. Our work elsewhere in the Bridger is also productive. We have found several layers that are productive over relatively long outcrop distances. The work would be much more difficult without the companion project of E. Evanoff's on the Bridger stratigraphy and mollusks. Graduate student Paul Murphey is working on the paleoecology of some of the Bridger C sediments.

Robinson has continued work in the Powder River Basin and is still having some luck robbing anthills there. (Peter Robinson)



### ***University of Wyoming, Department of Geology and Geophysics***

Jay Lillegraven is especially looking forward to the academic year. Why? Because he will be on sabbatical leave! Jay will be writing up the results of his paleontological, stratigraphic, structural, and paleogeographic research carried out through the past four years in Wyoming's Hanna Basin. Funding permitting, he plans to revisit most of the major North American collections of Paleocene mammals.

Jaelyn Eberle is busy writing up her dissertation research on Lancian and Puercan mammals from the Hanna Basin. She plans to defend in the fall of 1995. Following the SVP meeting in Seattle, she visited the University of Alberta collections in Edmonton. In early December, she visited the University of Chicago collections as well. Jaelyn thanks Drs. Dick Fox, Leigh Van Valen, and Virginia Maioranna for their hospitality. Jaelyn will be presenting a paper at the symposium on latest Cretaceous and earliest Tertiary faunas at this year's Rocky Mountain Section of the GSA meeting in Bozeman, Montana, in May.

Anton Wroblewski and Ross Secord continued their thesis work on faunas from the Hanna and Carbon basins of southeastern Wyoming.

Brent Breithaupt (UW Geological Museum) continues to work on a variety of historical and taphonomic papers, as well as running the museum. New exhibits include a *Tyrannosaurus rex* skull cast from Montana and one of the world's largest, complete freshwater fossil fishes an enormous garfish from the Eocene Green River Formation of western Wyoming. (Brent Breithaupt)

### ***Utah Geological Survey***

The office of State Paleontologist of Utah has moved from the Utah Division of State History to the Utah Geological Survey. The move included Dave Gillette, who remains the State Paleontologist, paleontology assistant Martha Hayden, former State Archaeologist David Madsen, and archaeology assistant Bill Shaver. Kevin Jones has been appointed the new State Archaeologist and will remain at the Division of State History. Paleontology laboratories will stay at the old Rio Grande Building for about two years, until a new state office building is completed. Dave Gillette will continue to process paleontology permits for field work on state-owned lands.

With the move to UGS, we expect to resume the bibliography of Utah paleontology and make major improvements in the state-wide locality files. During the next year, Dave will initiate a long-term comprehensive record of the fossils of Utah for eventual publication.

Dave and Martha have been deeply involved with the organization of the state-wide volunteer group called the Utah Friends of Paleontology, now in its third year since incorporation as a nonprofit organization. UFOP has four active chapters and a

membership exceeding 100. This year we have made a concerted effort to establish a three-tier certification program for serious volunteers.

On-going projects include osteology of the columbian mammoth from Huntington Canyon, Quaternary vertebrates of Little Dell Reservoir just east of Salt Lake City, Quaternary vertebrates of the eastern flank of the Oquirrh Mountains near the Bingham Copper Mine, Quaternary paleoenvironmental studies at Hill Air Force Base and Dugway Proving Grounds, and various dinosaur excavations in the Upper Jurassic Morrison Formation including a site near Green River (Utah) where Robin Kolb and Julie Mesare (Washington State University) have begun master's theses. And in his spare time, Dave continues with preparation of the *Seismosaurus* skeleton in Albuquerque and is finalizing a manuscript on the gastroliths from that excavation.

Two notable publications in 1994: *Seismosaurus*, The Earth Shaker by Dave Gillette (Columbia University Press), and Geology and taphonomy of the *Coelophysis* Quarry, Upper Triassic Chinle Formation, Ghost Ranch, New Mexico by Hilde Schwartz and Dave Gillette ( *Journal of Paleontology*). (Dave Gillette)

## **West Coast Region**

### ***University of California Museum of Paleontology and UC Berkeley Department of Integrative Biology***

This is definitely a period of transition for us all. The collections are packed, and we are waiting to move into new quarters in UC Berkeley's completely renovated Valley Life Sciences Building. Current plans call for labs to move sometime during the spring semester, and for the collections to move sometime after that. The moving schedule has been revised so many times, however, that we are all taking the new plan with a grain of salt. We anticipate enjoying the many amenities, such as an ethernet, that will be available in the new building. UCMP will have an expanded exhibit space, the centerpiece of which will be a cast of *Tyrannosaurus rex* mounted in the center of the building's central spiral staircase. Our Own a Piece of the Rex campaign, spearheaded by UCMP's new Director of Public Programs Judy Scotchmoor, has raised \$30,000 to pay for installation. Over 600 donations have poured in from 32 states and six countries. Visitors to the exhibit will be able to search the list of donors for their names, as well as call up information on *T. rex*, using a dedicated, interactive computer.

Bill Clemens is adjusting to life after the presidency. He again wants to acknowledge all the members, particularly those who served on the Executive Committee during the past two years, for their help and support. You, too many to name individually, contributed greatly and in many different ways to the growth in size and diversity of programs of the SVP. Thanks to you all!

Since the meetings in Seattle, Bill has been able to get back to work on an analysis of the mammals and correlation of the Alaskan North Slope, Late Cretaceous vertebrate faunas of Alaska it looks as though they are falling in the crack between the Lancian and Edmontonian. Also, publication by Carl Swisher, Lowell Dingus, and Bob Butler (*Canadian Journal of Earth Sciences*, 30:1981-1996) of a series of  $^{40}\text{Ar}/^{39}\text{Ar}$  radiometric age determinations on ashes preserved in the Tullock Formation in eastern Montana has provided a new framework for studies assessing the tempo of faunal recovery during the ca. one million years of the Puercan.

In January Bill will be accompanying Mark Goodwin on a trip to Ethiopia. They will be revisiting some of the Late Jurassic/Cretaceous sites that C. B. Wood, Chuck Schaff, A. Getaneh, and Mark discovered and worked in 1976 and 1993.

Tony Barnosky reports that his Porcupine Cave excavation finally is finished. Last summer, with crew from UCMP and the Denver Museum of Natural History, all excavations were backfilled and restored. Processing of the hundreds of thousands of specimens continues. All of the Pit matrix has been picked (thanks largely to Chris Bell), and preliminary identifications indicate that at least 80 species are present. The microtine rodents continue to present surprises: most notable is a wonderful sequence of *Lemmiscus*, which shows a transition from four-triangled upper first molars to five- and six-triangled upper first molars, with associated(?) changes in upper third molars over perhaps 300,000 years. Tony and Chris Bell are comparing the hundreds of *Lemmiscus* specimens with similar numbers of modern specimens to understand what the morphological transition says about species concepts and how new species originate. Sample size is not a problem here... the thousandth specimen was measured last week!

Tony continues to work on the Miocene Railroad Canyon deposits. Colleagues Jianjun Zheng and Bill Harbert (University of Pittsburgh) have nearly completed the paleomagnetic analysis of the over 300-m section, and, using radiometric and tephrochronologic correlations supplied by Carl Swisher (Berkeley Geochronology Center) and Mike Perkins and Bill Nash (University of Utah), placed the fossiliferous section as spanning an interval from about 20.5 to 15.5 million years ago. This would place the mid-Tertiary unconformity at about 18 or 19 million years old in the Beaverheads, which implies a time-transgressive erosional event from west to east in the northern Rockies during the middle Miocene. Tony has also been working on Barstovian squirrels from the northern Rockies with undergraduate student Audrey Stephan, who has identified at least ten species from the Hepburn's Mesa Formation. Apparently sciurid diversity was considerably greater in the middle Miocene northern Rockies than it is today.

Tony has accepted a position as Professor of Earth Sciences and Director of the Mountain Research Center at Montana State University, beginning July 1, 1995. He will also have a joint appointment in Biology. Students (and others) wanting to know more about the interdisciplinary graduate program he is developing at MSU are invited to contact him (e-mail [tonyb@fossil.berkeley.edu](mailto:tonyb@fossil.berkeley.edu), phone (510) 642-9487).

Kevin Padian, like most of us, is burdened with too many projects and not enough time for them all. He recently published a couple of papers on Triassic Jurassic topics in Fraser and Sues' *In the Shadow of the Dinosaurs*. Another paper (on the historical relationship between form and function) is forthcoming in Jeff Thomason's *Functional Morphology and Vertebrate Paleontology*, and one has just been published in Bill Sarjeant's tribute volume to Bev Halstead on the controversy between Owen and Seeley over *Dimorphodon*. A transcription and commentary on a missing Hunterian lecture of Richard Owen's from 1837, discovered at Berkeley, is in press with *Journal of the History of Biology*. The *Journal of Geology* has accepted a paper by Kevin and Michael Bell (Cheltenham and Gloucester College, UK) on the circumstances of a mass death assemblage of thousands of Cretaceous pterosaur bones on an inland arid plain in Chile. Meanwhile, Kevin, Armand de Ricqlès, and Jack Horner have just published a paper on a new species of azhdarchid pterosaur, identified on the basis of bone histology, in *Comptes Rendus de l'Acad. des Sciences*, Paris. They are currently finishing a larger paper on the general bone histology of pterosaurs and its implications for growth, development, and ecology. All of this work has been reported at previous SVP meetings.

Current projects include a paper by Kevin and Tony Fiorillo on the taphonomy of the Late Triassic *Placerias* Quarry of Arizona. A reanalysis of the macro- and microvertebrates, as well as of the depositional environment of the quarry, suggests that it was not a year-round bog or marsh, but a typical soil that was seasonally flooded. This interpretation in turn changes the understanding of the distribution of various taxa and their respective skeletal elements. Other projects include collaboration with Dennis Carter and Marjolein van der Meulen of Stanford on the engineering and development of pterosaur bones, a review of early avian evolution with Luis Chiappe of the AMNH, and a principal components analysis of pterosaur morphometrics with Ken Warheit. Kevin and Phil Currie are moving ahead with the *Encyclopedia of Dinosaurs* for Academic Press, after a long period of down time due to travel, field work, and the loss of some crucial secretarial help. They appreciate the forbearance of all the contributors and ask that manuscripts be sent directly to Phil.

Kevin will also be working with postdoc Michel Laurin, who arrived at UCMP intending to stay for up to two years on an NSERC (Natural Sciences and Engineering Research Council of Canada) fellowship. Michel plans to study the Paleozoic and Triassic tetrapods in our collection.

Michel has recently been moving toward the publication of his Ph.D. thesis, entitled *The osteology of Seymouriamorphs and its implications for the origins of amniotes*. He has formatted all the descriptive chapters and they should be submitted by late January. The new amniote phylogeny that he coauthored with Robert Reisz will be out in the *Zoological Journal of the Linnean Society* in 1995.

These are exciting times for the *Bibliography of Fossil Vertebrates*. The 1991 volume is at the printer. Judy Bacskai, George Shkurkin, and Bonnie Rauscher are hard at work on the 1992 volume, with the continued generous help of Joe Gregory, who volunteers his time. Jessica Theodor has almost completed the Paradox application that will let the BFV

switch from dBase to Paradox for the 1993 volume. This should result in a major increase in processing efficiency, especially when it comes to typesetting. Jessica, Bill Clemens, Annalisa Berta, and Daryl Domning are writing a grant proposal for digital capture of the Hay bibliographies. This is the first step toward the BFV's ultimate goal of having the entire cumulative BFV database available for electronic access.

The BFV staff always welcomes information about new publications, especially books and symposium volumes. Make sure none of your publications are missed!

Tony Fiorillo is continuing his work in the Judith River Formation of south-central Montana with a field season last summer, and another trip in the works this year. In addition, he and Cathleen May have embarked on what looks like a three-year project in the Morrison Formation of Colorado. At home in Berkeley, Tony is building new exhibits for the UCMP Virtual Museum on the World Wide Web, and, as Move Manager, is waiting a little more anxiously than the rest of us for the move to the new building to occur.

Graduate student research, teaching, and outreach activities continue apace. A few newsworthy items:

Joe Skulan passed his orals in December, and is either just finishing or just beginning a project on stable calcium isotopes in bone depending on what his preliminary results look like.

Chris Bell spent most of the summer identifying microtine rodents, and has been preparing manuscripts since then. His paper on *Anniella*, the legless lizard, is currently in press at *Copeia*. In addition to collaborating with Tony Barnosky on the morphology and systematics of *Lemmiscus*, he is busy describing a new middle Pleistocene fauna from Nevada.

Anne Weil had a whirlwind summer that took her out to Rich Cifelli's field camp in Utah to help out in the Cedar Mountain Formation, down to the VP lab in Austin, Texas, to gather data and visit friends, east to Baton Rouge (where she and David Froehlich from Austin encountered some true southern hospitality) to look at specimens from the Big Bend at LSU, up to South Dakota to join a field crew from the Illinois State Museum in the Black Hills, and finally even further north to Jordan, Montana, to assist her own advisor. Since then she has settled down at the computer to learn the intricacies of ARC/INFO and pull together a database for her thesis on Late Cretaceous earliest Paleocene mammalian biogeography.

Jessica Theodor is keeping so many balls in the air that she's just hoping she doesn't drop any on her toes. Over the summer she worked on finishing her thesis, packing the UCMP collections, and teaching third- and fifth-grade teachers about geology and paleontology, in addition to visiting the Strawberry Canyon Camp and talking to kids ages 3-10. During the fall semester, she added working for the BFV and setting up databases for the museum to her list of responsibilities.

A number of students have finished their degree work and/or moved on from Berkeley in the last few months. David Polly completed his Ph.D. and moved on to take the three-year Rackham Fellowship at the University of Michigan. We see a little more of Bob Dundas, who has also recently finished, and has been teaching at San Francisco State University. Gayle Nelms is in the final stages of her thesis, and has been teaching as a sabbatical replacement at Pacific Lutheran University in Tacoma. Tina Rouse, also in the throes of finishing, accepted an AAAS Congressional Fellowship, and is currently working for USAID in Washington and abroad. Cathleen May, still midthesis, took an opportunity that just couldn't wait and accepted a position as Rocky Mountain Regional Director of Paleontology with the Forest Service. Although we are all glad to see people completing their work and moving on to good positions, their enlivening presences have been missed at UCMP. (Anne Weil)

## **BULLETIN BOARD**

### **SVP '95 Pittsburgh**

The First Circulars for SVP '95 have been mailed and should be in the hands of many of you by now. The Host Committee would like to remind all interested members to be sure to return the intent form for the Second Circular and the abstract form if you will be presenting a paper or poster. We look forward to seeing you in The 'Burgh in November!

### **The Dinosaur Society Grant Program**

For research principally in the study of dinosaurs, their biology, paleoecology, reconstruction, biogeography, evolution, and extinction.

To cover the page costs for the publication of scientific papers in the dinosaur sciences either in the *Journal of Vertebrate Paleontology* or the *Memoirs of the Society of Vertebrate Paleontology*.

To support technical illustrations in conjunction with research principally in the study of dinosaurs.

Grants will vary in amount, depending on the need and nature of the project. They will range from \$1,000 to \$15,000. In 1995 one \$50,000 and two \$25,000 research grants may be awarded.

For more information and/or an application, please call, write, or fax: The Dinosaur Society, 200 Carleton Avenue, East Islip, NY 11730; (516) 277-7855; fax (516) 277-1479. (Thomas A. Lesser)

### **For Sale: Back Issues**

Back issues of the *SVP News Bulletin*, Feb. 1967 (no. 79) to present (complete); *Journal of Vertebrate Paleontology*, 1981 (vol. 1) to present; *Bibliography of Fossil Vertebrates*, 1984, 1985, 1986. Will sell most reasonably; make an offer. Paul W. Parmalee, Frank H. McClung Museum, University of Tennessee, Knoxville, TN 37996-3200. Phone (615) 974-6918; fax (615) 974-3827.

### **Information: IGCP 328 Palaeozoic Microvertebrates (1991 1995)**

The International Geological Correlation Programme project 328 was created for studying Palaeozoic vertebrate microremains (ichthyoliths such as scales, teeth, spines, isolated bones, branchial denticles, lepidotrichia, otoliths, etc.), their chronology (biostratigraphy) and the correlation between microvertebrate -bearing marine (type: conodont-bearing limestones) and nonmarine (type: some of the Devonian Old Red Sandstones) sedimentary successions. Despite its very geological title, this program is mainly devoted to systematic studies of Palaeozoic (Ordovician to Permian) vertebrate microremains: clarifying taxonomy, nomen-clature, phylogenetic relationships. However biostratigraphical scales and correlations also is a major aim. Participating in the debate on the environment(s) of the Old Red Sandstones (ORS) and allied lithofacies furnishes an always active subject of (friendly) discussions within the group. Correlating these ORS with the classical marine successions of Silurian Devonian times (with, e.g., conodonts, foraminifers, acritarchs, brachiopods, corals, trilobites, ostracodes, and so on) became its core problem during the recent years. Vertebrates (micro- and macroremains) and spores are used to try connecting both megafacies. Good results are now known for the Silurian. Lots of problems still arise for the Lower Devonian. Fairly good to excellent correlations have been published for the Middle Devonian to Lower Carboniferous carbonate successions, and mainly the ones with both conodonts and shark ichthyoliths. Upper Carboniferous and Permian series have been less studied for this purpose but are being more and more actively worked.

IGCP 328 officially began on June 1991 during the VII International Meeting on Early Vertebrates (Miguasha, Québec). It will end on December 1995, after its final meeting during the VIII International Congress on Early/Lower Vertebrates (Paris, September 4 9, indoor sessions; northern France and southern Belgium, September 9 15, field trip). The 1994 Annual Report of IGCP 328 lists some 250 published papers since its beginning three years ago (69 published and 94 in press, for 1994).

This year, IGCP 328 participants met for their annual scientific session on July 9, 1994, in the Institute of Palaeontology of the Russian Academy of Sciences, Moscow. It was organized by Dr. O. Lebedev and his colleagues of this institute. Seven oral communications dealt with Devonian Carboniferous ichthyoliths from Poland, Belarus, Russia (Moscow and South Ural), and Australia, in connection with bioevents and the D/C boundary problems. Devonian ichthyofaunas from Russia (Moscow region, Timan,

and Polar Ural) and Great Britain were presented on six posters. All these works mainly complement the systematic database of Upper Devonian to Moscovian vertebrates, in which chondrichthyans are well represented and very useful for biostratigraphy; these remains are often discovered together with index conodont species. Numerous vertebrate microremains are now known from the conodont-bearing Middle Devonian to Upper Carboniferous type sequences of northern France (Boulonnais) and southern Belgium (Ardenne) (Givetian, Frasnian, Famennian, Tournaisian, Viséan, Namurian), as well as from Poland (C. Derycke, Ph.D. thesis, 1994; M. Ginter, Ph.D. thesis, 1994). The annual general assembly of IGCP 328 also took place on July 9; a successor project to IGCP 328 to examine Late Carboniferous Permian Triassic in more detail, among other things, was discussed.

IGCP 328 convened a joint meeting with the SDS on the theme Devonian Eustatic Changes of the World Ocean Level (DECWOL), where about 100 people from 16 countries attended. Reviews of the Devonian of Europe (Russia, France, Belgium, Great Britain), North America (Appalachians), Australia, and Siberia were presented. Of particular note was the tentative correlation between the ORS of the Orcadian Basin, Scotland, and the T-R cycles of the marine Devonian of New York State, due to the discovery of marine incursion levels within the ORS (M. House, J. Marshall). The T-R cycles and conodont-goniatite zonations of the marine Frasnian of NY have also been presented (W. T. Kirchgasser). These results allow us to reopen the debate at the heart of IGCP 328 program, viz., the biostratigraphical correlations between supposedly continental facies such as the ORS and marine facies. We may hope for a solution to this problem, even from such well-known vertebrate-bearing series as the Escuminac (Scaumenac) Formation, Québec (Frasnian), and the Baltic States Devonian succession, which both yield numerous species or genera in common to Boulonnais, the Ardenne, Scotland, NY. To be continued at the final IGCP 328 meeting, next September 1995, in Paris, during the Early/Lower Vertebrate congress.

Seventy abstracts (House, M. & Lebedev, O., eds.) are available for US \$10 from Dr. Oleg Lebedev (Paleontological Institute, Russian Academy of Sciences, Profsoyuznaja 123, 117647 GSP, Moscow, Russia; fax 7-095-3391266). Papers from the IGCP 328 meeting will be published as a special number of *Ichthyolith Issues*. Several participants from the joint IGCP and SDS meetings were in the field in the Carboniferous, south of Moscow, on July 10, and in the Devonian of the Ukhta region, South Timan, July 15-22. All these activities were supported financially by IGCP 328 (IUGS/UNESCO), the SDS, the Russian Interdepartmental Committee of Stratigraphy (Devonian Commission), the Russian Academy of Sciences, and the Russian National Committee of Geologists. (A. Blicek)

### **New Canadian Prehistoric Animal Stamps**

An announcement for members interested in stamps: Canada Post Corporation has recently issued four stamps featuring *Arctodus simus*, *Mammuthus primigenius*, *Coryphodon*, and *Megacerops*. (H. S. B. Cooke)



## **Paleoworld Production**

A new series of Paleoworld is beginning production, and the Learning Channel is looking for opportunities to film active field work this summer. (Mike Benton)

## ***Records of the South Australian Museum***

The South Australian Museum has published its journal *Records of the South Australian Museum* on a continuous basis for 75 years. Original articles are accepted in the areas of natural science, anthropology, and museum studies. Brief communications not exceeding two pages will also be considered for publication. All submitted papers are reviewed by at least two referees.

Authors interested in publishing in *The Records* should contact the Museum to receive a copy of Guidelines for Authors before submitting any manuscript. Please address inquiries to: *The Records of SAM* Secretary\ c/o South Australian Museum\ North Terrace\ Adelaide SA 5000\ Australia.

## **CALENDAR OF EVENTS**

### **Second Announcement of the Sixth Symposium on Mesozoic Terrestrial Ecosystems, August 1 4, Beijing**

Due to the accommodation conflicts with the UN 4th World Conference on Women from August 15 to September 15, the 6th Symposium on Mesozoic Terrestrial Ecosystems is now to be convened one month ahead of its original schedule. Therefore, the Excursion No. 1 will take place from July 25 31 and the Excursion No. 2 from August 5 11, while the Symposium will be held from August 1 4, 1995. The deadlines for registration, payment (March 31, 1995), and submission of manuscripts (December 31, 1994, or, if submitted on diskettes, March 31, 1995) will not be changed. For further information, please contact Prof. Li Chuan-kuei at the IVPP, fax (861) 831-2683. (Li Chuan-kuei and Miao Desui)

### **Call For Papers Conference on Australasian Vertebrate Evolution, Palaeontology and Systematics, Canberra, 18 20 April 1995**

CAVEPS '95 will be held in the National Science and Technology Centre (NSTC) in Canberra and will not have a particular theme. We anticipate research reports covering a broad range of topics. We are calling for papers on any aspect of vertebrate paleontology, evolution, or systematics, as well as relevant broader issues (such as site management

problems). There will be three types of presentation: poster presentations, ten-minute, and 20-25 minute talks (with five and 120 minutes additional for questions/discussion). There will also be the opportunity to display specimens or casts. Currently, two or three days of scientific sessions are planned (starting 18 April), depending on the number of participants. If necessary, the first day excursions will be postponed until 21 April.

CAVEPS '95 will precede the Taphonomy Symposium to be held at the ANU the following week (27-29 April 1995). For further details on the Taphonomy Symposium, contact the organizers: K. Walshe/M. J. Mountain, Taphonomy Symposium, Department of Archaeology and Anthropology, Faculties, ANU, Canberra 0200, Australia.

The registration fees are: professional: \$45, student: \$30. This fee will cover postage costs, production of abstracts, and morning and afternoon teas (provided by the cafeteria of the NSTC). If you would like more information and wish to receive the second circular, please contact CAVEPS '95, c/o Vertebrate Palaeontology Research Lab, School of Biological Science, University of New South Wales, Australia 2052.

### **Dinosaur Art Show and Workshops, Fruita, Colorado**

A Dinosaur Art Show and Workshops will be held March 10-12, 1995, at the Devil's Canyon Science and Learning Center in Fruita, Colorado. Sponsored by Dinamation International Society and the Uncompahgre Plateau Paleo Society, this weekend will include a chance to purchase/sell dinosaur art, attend workshops on scientific illustration, lab techniques, casting, a field trip to the Fruita Paleo Area and lectures by Dr. Robert T. Bakker and Dr. James I. Kirkland. For more information about attending or entering, contact Dinamation International Society, Attn: Art Show '95, 550 Crossroads Ct., Fruita Co 81521, or within the United States, call 1-800-344-3466. Entry deadline is February 15, 1995.

### **Society for the Preservation of Natural History Collections (SPNHC) Annual Meeting, June 2-6, 1995, Toronto, Canada**

SPNHC '95 *Preserving the Record of Nature Through Countless Ages*, the 10th annual meeting of the Society for the Preservation of Natural History Collections, will be held at the Royal Ontario Museum, Toronto, Canada, June 2-6, 1995. The program will include papers and posters on natural history collections management issues. Within the world of natural history, SPNHC embraces the anthropological, biological, and geological sciences; collection managers, curators, registrars, and all those who utilize natural history materials will find interesting and valuable topics on the agenda. For additional information about the meeting, contact: Janet Waddington, Royal Ontario Museum, 100 Queen's Park, Toronto M5S 2C6, Canada.

## **Western Association of Vertebrate Paleontology Annual Meeting**

The annual meeting of the Western Association of Vertebrate Paleontology will be held 6-8 April 1995 in Hagerman, Idaho, and is hosted by Hagerman Fossil Beds National Monument, 221 North State Street, Hagerman, Idaho. A one-day field trip of the Glens Ferry Formation will be held on Thursday, April 6, and the regular meetings will be held Friday and Saturday, April 7 and 8. If there is enough interest, a special post-meeting field trip to Craters of the Moon National Monument is tentatively scheduled for Sunday, April 9. All individuals interested in presenting papers, attending the field trip, and wishing to register should write: WAVP '95, c/o Greg McDonald, Hagerman Fossil Beds National Monument, P. O. Box 570, Hagerman ID 83332. Housing in Hagerman and the surrounding towns is limited, so register early. (Greg McDonald)

## **Natural and Human-Induced Change in Madagascar An International Symposium at the Field Museum, 2-4 June 1995**

The island of Madagascar supports countless species of plants and animals found nowhere else. Yet environmental changes over several time scales and under both natural and human controls have caused the extinction of many species, and even survivors are now at grave risk. To mitigate the calamitous extinction wave now underway in Madagascar and to better understand tropical endangerment generally, we must carefully examine the processes that have shaped the island's landscapes, ecosystems, and cultures, as well as biotic responses to such changes.

The Field Museum will convene a three-day scientific meeting in Chicago to address these issues. The interdisciplinary program has been developed to complement the symposium Biogeography of Madagascar to be held by the Société de Biogéographie in Paris in September 1995. The Chicago meeting will consist of presentations to the general public, invited technical presentations, scientific workshops, and contributed poster presentations organized around geological, anthropological, biological, and resource management/conservation themes. Invited speakers will include leading French, Malagasy, and American researchers.

Up-to-date information about the meeting and registration will be maintained on the Field Museum's gopher ([fmppr.fmnh.org](http://fmppr.fmnh.org).70). Interested parties are urged to contact the meeting's organizers for registration materials and/or additional information, either B. D. Patterson (Center for Evolutionary and Environmental Biology, The Field Museum, Chicago IL 60605-2496; phone (312) 922-9410 x468; fax (312) 663-5397; e-mail: [symposia@fmnh.org](mailto:symposia@fmnh.org)) or S. M. Goodman (B.P. 738, WWF Aires Prot,g,es, Antananarivo (101), Madagascar; fax: 261-2-348-88). (Mark Alvey)

## **OBITUARIES**

### **J. C. Harksen, 1935 1994**

John Christian (J. C.) Harksen died in his sleep at home in Casper, Wyoming, on November 8, 1994. Born in Webster, South Dakota, J. C. was many things in his professional life paleontologist, stratigrapher, federal land manager. He worked underground for Morrison-Knudsen during the building of the Oahe Dam on the Missouri River, and later for the South Dakota Geological Survey, the USGS, and the Bureau of Land Management. He mapped much of the Tertiary of southwestern South Dakota, named the Sharps Formation, the Medicine Root gravel, the Red Dog Loess, and the Batesland Formation, redefined the Rosebud Formation, and established type sections for the Chadron Formation and the Scenic and Poleslide members of the Brule Formation. He was a long-time member of SVP and a Fellow of GSA. Most recently, he was protecting the public lands by making them put the grass back on oil and gas development projects around Casper. But the work he did best and loved most was coaching, training, and encouraging his field assistants, his colleagues, and me. His trophy wall had no awards with his name on them, only photographs of the people he had promoted ahead of himself. A keen observer who took endless delight in the mysteries of the natural world, he will be greatly missed and never replaced.