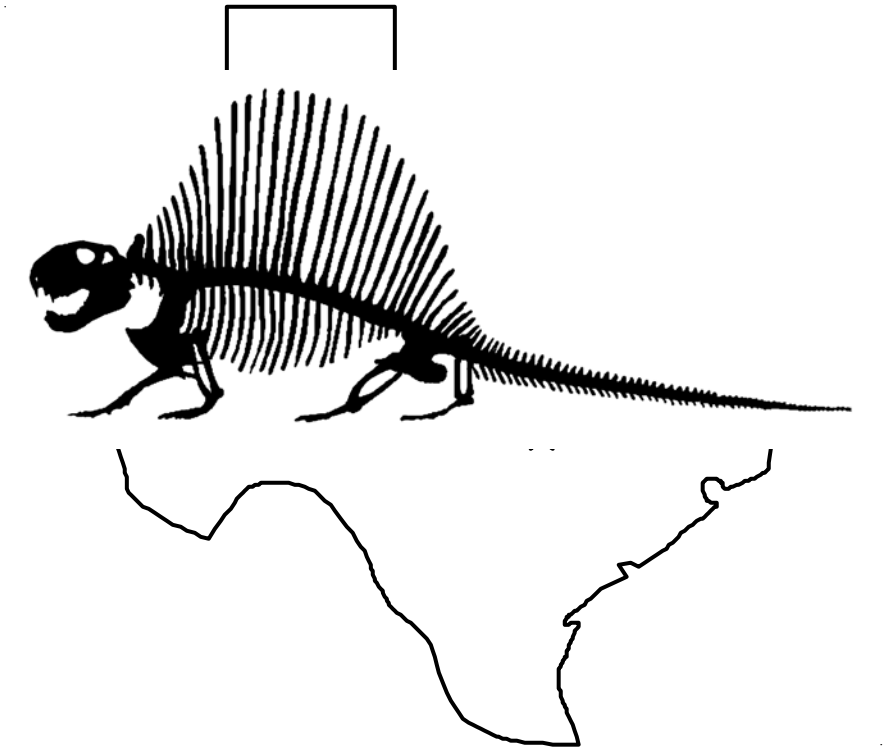
Paleo Footnotes

Newsletter of the Paleontological Society of Austin

Austin and Central Texas



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June 2008

PRESIDENT'S NOTE

I hope that everyone is as excited about this month as I am. Two good trips planned, Clifton on the 14th and Oklahoma on the 21st. It seems that July came early this year so take lots of water. Clifton is supposed to last from 10:00AM (be there by 9:30) until about 3:30PM, so you might also bring something to eat. A big hat is also a good suggestion.

Gas prices are causing all of us to think a little differently about travel. Car pooling sounds a lot better than missing the fun of a good trip. Call someone and ride together instead of staying home. A portion of the enjoyment we feel from these excursions comes from socializing with other collectors anyway.

At the next meeting we also need to decide where to go in July. Back in January we had penciled in "Clifton," so we now have only possibilities. Possible or not the Brazos sounds good. Show up with an idea of your own.

Ed

Next Meeting – June 17th

Micro-Gastropod Changes from the Early Cretaceous to the Recent in the Gulf Coastal Plain of the USA

By Christopher Garvie

(See the bio below)
Mr. Garvie notes that "This is an outgrowth of my first purely paleoenvironmental paper due to be published this June/July."

Tuesday 7 PM
Austin Gem & Mineral Society Building
6719 Burnet Lane, Austin, TX

Bio from Christopher Garvie

I was born in Aberdeen, Scotland, and grew up between Hamburg, Germany, and London, England. I majored in Mathematics and Physics at the University of Aberdeen. I have pursued a career in software development with extensive experience in aerospace systems design, simulation, and testing, - almost 10 years at the Johnson Space center and in a variety of manufacturing and financial applications. During my professional life, I have worked for a large number of major corporations such as Boeing. Lockheed, Compaq, and Messerschmidt, in England, France, Germany, and the United States,. That has provided an opportunity to collect from classic sites through a wide stratigraphic and geographic range.

I collected my first fossils from the Eocene of northwestern Washington while living in Seattle. Soon afterwards, we were living in Munich and began to collect from the Solnhofen Limestone in Bavaria and that really sparked my interest in paleontology. When I returned to Houston I joined the Paleontology section of the Houston Gem & Mineral Society and have been a member ever since. It was through the society with its regular field trips that I became acquainted with Texas fossils and geology and decided to specialize in the Eocene, when after my first visit I found a new species – beginner's luck! Over the years at the Paleontology Section of HGMS I have been field trip chairman many times and President once.

My interests in paleontology are in two main areas, systematic studies of Paleogene faunas and their paleoenvironment Both of these areas require large amounts of data (specimens, notes, etc.) and I have collected all the way down the Atlantic Seaboard

from New Jersey to the Florida keys and from Alabama to Texas in the Gulf Coastal Plain. The result of this is a collection of some 160,000 specimens from over 800 localities in 15,000 lots, all curated, identified, and accessible from a computerized database with another 20,000 specimens waiting to be identified and incorporated into the collection. ns
When I started serious collecting it soon became clear that only the 'easy to find' Texas faunas had been collected and described, - mainly from the Eocene (Middle Claibornian) with some early work in the Texas Paleocene. From some hints and notes in various publications and then further investigative field work this led to my discovering a large unknown lower Claibornian (Reklaw) fauna and an upper Paleocene Seguin fauna. The Reklaw fauna has been described in Bulletins of American Paleontology and the Seguin fauna is a work in progress. To date I have 9 other papers in paleontology. I am now living in Austin and I am a Research Associate at the Texas Natural Science Center, The Paleontological Research Institution and The Academy of Natural Sciences in Philadelphia.

May Meeting Minutes

Speaker: John Moffitt "Trilobites I Have Known" (comprehensive slide presentation on every trilobite known to man)

Short business meeting following 2 hour presentation:

Treasurer's report: our balance May 21: $5,673.80
April Auction results: $l,029 gross, $824.7l net

Old business: (l) Jean Wallace steadily improving and hopes to go home soon.
(No other old business)

New business: (1) Mineral Wells dump site (previous popular fossil-hunting site) for sale. The Dallas Paleo club has contacted us to contribute towards the purchase of this site with the hope of making it into a 'fossil city park'. Preliminary plans include putting a fence around it, adding Port-a-cans, but basically leaving it in undeveloped condition for the purpose of field trips and fossil collecting. The Dallas group is asking for a commitment of a check, not actual amount right now. The club seemed interested and voted to contribute at least $500. Treasurer David Lindberg will contact the Dallas group for more info.

(2) The Clifton, TX. field trip has been rescheduled for June 14, l0:00 - 3:00 pm

(3) The Oklahoma field trip has been scheduled for the weekend of June 21, with possible visits to previous sites such as Yellow Bluff and Hollis Hill. Ed Elliott will make the final plans.

(4) Linda McCall is publishing a paper on 'her' Edwards site and asked for any additional specimens, books or info to help in cataloging the few remaining unclassified specimens. Her deadline is in June.

After the meeting, John Moffitt offered some of his trilobites for sale.

Meeting minutes provided by Diann Strout.

Next Field Trip

June Field Trip
Paleozoic of South-Central Oklahoma
Saturday and Sunday June 21 & 22

I hope to see a lot of you in Oklahoma on the 21st or 22nd. We'll meet in Ada, Oklahoma at the Callixylon tree on the East Central University campus. We will first meet at 8:00AM Saturday. This incredible petrified tree is located

at the corner of Main Street and Francis Avenues. There will be parking spots along Main Street. Our collecting sites will be in the Devonian, Silurian and Ordovician. More detailed info will be provided at the next meeting but if you can't make it to the meeting call Ed Elliott at 821-2124.

The July trip is yet to be determined. But we should be back on our regular schedule of being the first weekend after the meeting. Ed is requesting suggestions from the membership, so this might be a great time to suggest a local you have either wanted to go back to or have yet to visit. Oh, and maybe somewhere cool and wet…

Places to Be…Things to Do

June 20-22--HOUSTON, TEXAS: Show; **International Gem & Jewelry Show Inc.**; Reliant Center at Reliant Park, 1 Reliant Park; Fri. 12-6, Sat. 10-6, Sun. 11-5; adults $7; contact Laurie Reluzco, 120 Derwood Cir., Rockville, MD 20850, (301) 294-1640; e-mail: laurie@intergem.net; Web site: www.InterGem.com

June 20-22--SANTA FE, NEW MEXICO: **Annual show**; Palace of the Governors Museum; Museum Courtyard, Lincoln Ave., Blue Gate Entrance; Fri. 9-5, Sat. 9-5, Sun. 9-5; free admission; children's hands-on workshop, presentations; contact Carlotta Boettcher, 120 Lincoln Ave., Santa Fe, NM 87501, (505) 476-5112; e-mail: carlotta.boettcher@state.nm.us; Web site: www.palaceofthegovernors.org

July 4-6--FARMINGTON, NEW MEXICO: Show, **"San Jaun Co. Rock & Gem Show";** San Jaun Gem & Mineral Club; Civic Center, 200 W. Arlington; Fri. 10-6, Sat. 10-6, Sun. 10-5; silent auction, free kids' rocks, wheel of fortune, door prizes, raffle, vendors; contact Mickie Calvert, (505) 632-8288; e-mail: Mickie2@earthlink.net; or Ruth Rightmire, 301 S. Johnson, Bloomfield, NM 87413; ruthrightmire@msn.com.

August 23-24--JASPER, TEXAS: **14th annual show; Pine Country Gem & Mineral Society**; VFW Bldg., FM 2799 and FM 1747, 7 miles west of Jasper; Sat. 9-5, Sun. 10-5; adults $2, students and children free; rocks, fossils, minerals, gemstones, jewels; contact Lonnie Stalsby, (409) 382-5314; e-mail: rducote@cmaacess.com

August 30-31--ARLINGTON, TEXAS: Show, **"Nature's Kaleidoscope"**; Arlington Gem & Mineral Club; Arlington Convention Center, 1200 Ballpark Way; Sat. 10-6, Sun. 10-5; adults $6, children $3; jewelry, beads, gems, minerals, fossils, rock food table, demonstrations, Kids' Korner, silent auction, door prizes; contact Karen Cessna(817) 903-5980; e-mail: cessnak@ont.com; Web site: www.agemclub.org

September 24–28 - HOUSTON, TX : **Show & Convention**, American Federation of Mineralogical Societies, South Central Federation of Mineral Societies, Inc., Houston National Gem, Jewelry, Mineral and Fossil Show, Humble Civic Center, 8233 Will Clayton Parkway, Humble,

Naming Your Fossils: Taxonomic Nomenclature

By Erich Rose

Identifying the various fossils in your collection and filling out labels for each requires certain knowledge of how the various scientific names of plants and animals are created and the rules or conventions that should be followed. By following those conventions in your labeling of fossil specimens your collection will be that much more valuable. It will also be easier for other collectors or paleontologists to read your notes and identifications and understand what lead you to your conclusions.

In addition to helping you with your labeling, knowledge of taxonomic nomenclature will help you in your research. As you will see, along with the actual scientific name of a fossil, you will also learn to recognize clues to its history and study.

Taxonomy is the science of classification. It is a system for specifically identifying living and fossil organisms. The particular set of laws and principals in use was first proposed by the Swedish naturalist Carolus Linnaeus (1701-1778) in the mid eighteenth century. The Linnaean System as it is known, is based on the idea that every creature or plant species will have a distinct name made up of two parts. This two-part name is called a "binomen."

The two parts are the generic name followed by the specific or trivial name. These names are commonly derived from Latin or Greek and are often descriptive. A familiar example to many of us is the Upper Cretaceous oyster *Exogyra ponderosa*. The species name "ponderosa" means large, and if you have collected many you know how ponderous they can get! Today the system makes it possible for biologists worldwide to speak in a precise language. We may call it a cat and the Germans may call it a katze but to biologists everywhere it is *Felis domesticus*. This binomial name for the species is also often referred to as the "scientific name."

Linnaeus built his system on the ideas of Aristotle who used a hierarchical system of ever increasing inclusiveness. Organisms are arranged into seven major categories: Kingdom, Phylum, Class, Order, Family, Genus and Species, each inclusive of a smaller group. The hierarchy goes from the most inclusive (kingdom) to the most specific (species) representing one very specific type of organism. There are other subtle divisions and combinations of orders, families and genera that you may see as well. These will be given the prefix super… for combined groups and sub… for divided ones.

You will notice that the scientific name of an organism is often *italicized* or underlined or written in ALL CAPS. This is done to stand out on the page and call attention to itself as the official scientific name for the given subject. You will also notice that the genus name (first) will be capitalized while the specific (second) name will be not. The exception is when all caps are being used. The names are also always written in Roman characters.

Example: *Texigrypea mucronata*; *Texigrypea* = generic name & *mucronata* = specific name. There are numerous forms of *Texigryphea* to be found but only one specific type that can be called *T. mucronata*.

You will also often see specific names reduced to an upper case initial for the genus followed by the specific name written out as above. This short hand is used when the genus has already been called out in the publication earlier. When you see this just read back through the paper or report and the first generic named with the matching initial will be the one referred to.

Example: A list that begins with *Texigryphea mucronata* and continues with *T. navia, T. roemeri, T. newberryi*, etc. All are *Texigryphea.*

When we label fossils we may include more or less information than just the genus and species. It is not uncommon to include, or citate, the name of the original author(s) and date (year) of first publication. In fact the full scientific name of a species should include this citation, although for reasons of space and clarity the author and date is often dropped after its first use in a paper or report. And more often just the date is dropped. This information can be very valuable when it comes time to look up the original identification or if the identification is in question. With both the name and date it is almost always possible to locate the original publication in which the species or genus was raised.

Example: *Gypidula coeymanensis* Schuchert, 1913; Charles Schuchert was the original author who described and named the species placing it in the genus *Gypidula* in a paper published first in the year 1913.

It is also not uncommon for a species to be reassigned to a new or different genus at a later time after further study. When this is the case the name of the original author will be placed in parenthesis. Look for this as you work your way back through older publications since the original, and sometimes only, illustrations or plates will be found with the original generic classification.

Example: Devonochonetes coronatus (Conrad); Conrad originally assigned the species coronatus to the genus *Chonetes*. The new genus *Chonetes* was later revised and a new genus *Devonochonetes* raised and the species *coronatus* placed within.

Sometimes you may see a notation to the original name. That will often be placed in brackets at the beginning of a systematic description.

Example: [= Chonetes coronatus (Conrad, 1878)]

When a species is assigned to a different genus the specific name must sometimes be revised to reflect the gender of the new genus. This is done because the Code of Zoological Nomenclature requires that the gender of the generic and specific names be consistent.

Example: *Belemnitella americana* (Morton) was *Belemnites americanus* Morton

Sometimes a particular genus will be subdivided into groups of species that have common qualities distinguishing them from other groups of species within the genus. Subgenera, as they are known, are often later raised to become a new genus

and the subgeneric name replaces the original generic name. The subgenus name is placed within parenthesis following the original genus name.

Example: *Felis (Panthera) pardus*; *Felis* = genus, *Panthera* = subgenus; *pardus* = specific name.

Another commonly seen convention, especially in older publications, is the placing of genera in quotes. This is used when it is known that a generic name is most likely not appropriate but a new one has yet to be described or raised. These are often used as catch-alls for similar species that have yet to be thoroughly studied and described or were originally all lumped together and have yet to be sorted out.

Example: *"Spirifer" mucronatus*; Spirifer was a commonly used name for many Paleozoic brachiopods that all had outwardly similar features. Later the subgeneric name *Mucrospirifer* was inserted *("Spirifer" (Mucrospirifer) mucronatus*) and eventually the subgenus was raised to full status as a genus (*Mucrospirifer mucronatus*) dropping Spirifer entirely

Another term seen is that of subspecies or variety. These names are given to localized variations or races within species that appear distinct but may not in fact represent truly separate species.

Example: *Platystrophia ponderosa* var. *aubernensis* or *Platystrophia ponderosa aubenensis* var.; aubernensis is a much rounder version of P. ponderosa that occurs in the Mt Auburn formation of the Cincinnati region.

When a specimen can be placed into a known genus with certainty but the species is not determined the name is shortened. This may often be the case with fossils you have collected. You may label many of your fossils this way before you build up the needed knowledge or library to make identifications to the species level. The genus is then given and the word species is abbreviated.

Example: *Gypidula* sp.; note that the abbreviation for species is not italicized since it is not part of a true scientific name.

Whenever identification is uncertain a question mark is used.

Example: Gypidula? or ?Gypidula

Sometimes the specimen appears to be very close to a known species but The identification is still tentative. In this case the name is qualified as with an abbreviation of the Latin word confer.

Example: *Gypidula* sp. cf. *coeymanensis*

If a fossil appears to be a new species but has yet to be named the author will note what species it appears to have the closest affinities to. The Latin word affinis is used.

Example: *Gypidula* sp. aff. *coeymanensis*

In your research you may encounter descriptions of new species. When described for the first time a scientific name will be noted as such. The Latin for new: novus is used.

Example: *Gypidula coeymanensis* sp. nov.

Homonyms and Synonyms

Sometimes a previously used name is inadvertently given to another organism (homonym.) When this happens the rules of nomenclature dictate that the original use of the name is valid and that all subsequent, or junior, homonyms be suppressed.

Since every species is to have only one name it is also very important that any other names (synonyms) given to the same organism be suppressed. Since it is almost impossible for this not to happen the rule is that the original, or oldest, name be retained and all subsequent, or junior, synonyms be discarded. A detailed description of a fossil species or genus will often include a list of the various names used in chronological order with the authors and dates included. These lists can be very useful in researching and finding earlier references to a particular species as it's generic assignment may have been revised over time.

Currently scientists try to adhere to a set of rules regarding the naming of species. These rules are spelled out in the International Code of Zoological Nomenclature. The current (Fourth) Edition was adopted in 2001. It is published by International Trust for Zoological Nomenclature. The trust includes a commission, which reviews and arbitrates whenever a name requires.

Remember that because of the open-ended nature of the scientific process names may continue to change. So don't be surprised when you open a new publication or field guide and see a new name for an old fossil. A good portion of the work being done in paleontology involves the reevaluation of previously described and assigned genera and

species. Better fossils and new understandings about how various groups of organisms are genetically related will lead to many more revisions to the tree of life.

For this reason it is highly suggested and very useful to notate where and how you based your identifications. This will allow you or others to retrace the steps by which you came to your conclusions. When better information becomes available it will be that much easier to make revisions.

Knowing how paleontologists and other biologists communicate can only enhance your understanding and appreciation of the study of fossils and earth history. As you read more and encounter more detailed forms of taxonomic description you will want toe prepared. I hope the preceding discussion of some of the more commonly encountered forms of nomenclature will help you further understand and appreciate the fossils you have collected.

References

The Earth Through Time by H. L. Levin, 1996

Invertebrate Fossils by R. C. Moore, et al., 1952

The International Code of Zoological Nomenclature is available from the International Trust for Zoological Nomenclature and can be found online at: http://www.iczn.org/iczn/index.jsp

The purpose of the **Paleontological Society of Austin** is the scientific education of the public, the study and preservation of fossils and the fossil record and assistance to individual, groups and institutions interested in various aspects of paleontology.

Meetings of the **Paleontological Society of Austin** are held the third Tuesday of each month, 7:00 p.m. at the Austin Gem and Mineral Society building, 6719 Burnet lane, Austin, TX. The public is cordially invited to attend.

Annual Dues: $15/individual, $20/family and $10/associate (non-voting, receiving newsletter)

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South Central Federation of Mineral Societies & **American Federation of Mineralogical Societies**

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DATED MATERIAL – MEETING NOTICE

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