



JANUS

The Newsletter
of the
North Carolina
Fossil Club
www.ncfossilclub.org
2016 Number 3

2016 Fall Calendar

September

- 18 NCFC Meeting** – NCMNS, 11 West Jones Street, Raleigh. 1:30 pm, Level A conference room. Vince Schneider, "Searching for Triassic Age Animals in Arizona and North Carolina"
- 24 Mini Fossil Fair** – Rankin Museum, 131 W. Church St., Ellerbe, NC 10:00 - 3:00. Contact: Ruffin Tucker (704) 784-1672 or fossiler77@msn.com
- 25 Greens Mill Run** - Contact Rick Trone: richard.trone@gmail.com.

October

- 7 Martin Marietta** - These are not NC Fossil Club sponsored trips. Two quarries will be open to collectors (general public) on the same day and have similar rules: No one under 18 allowed, hard hat, safety glasses, hard toed boots, and an orange safety vest are required for entrance. The quarry will provide none of these. Openings are different:
Belgrade: In no later than 7:30, out by 4:00
Onslow: In no later than 9:00, out by 4:00
Castle Hayne: Will not participate this fall. Do not contact them. Questions: Linda McCall: Indmccall02@yahoo.com. Also next page below.
- 9 Old Dock.** Limit 20, Juniors welcome. 10:00 to 4:00pm. Meet: Master Mart, 10535 New Britton Hwy E, Whiteville, NC 28472, at 9:45am. Linda McCall: Indmccall02@yahoo.com.
- 15 Picnic** - Joint NCFC and Aurora Fossil Museum picnic and celebration of National Fossil Day at the museum in Aurora, NC. Times: to be announced. Contact: Linda McCall: Indmccall02@yahoo.com
- 29 Tar River** - Contact Rick Trone: richard.trone@gmail.com.

November

- 5 Old Dock.** Limit 20, Juniors welcome. 10:00 to 4:00pm. Meet: Master Mart, 10535 New Britton Hwy E, Whiteville, NC 28472, at 9:45am. Linda McCall: Indmccall02@yahoo.com.
- 19 NCFC Fossil Fair** ☺ – Greensboro Science Center, 4301 Lawndale Dr, Greensboro, NC

Trip to Arizona, June of 2017

I plan to lead a sightseeing and collecting trip to my home turf of northern and central Arizona in June of 2017. I am working to make this a kid-friendly trip. Our goals are to see common Paleozoic marine invertebrates and Triassic petrified wood. I propose that folks arrive in Phoenix on Saturday, June 17th, 2017, and depart from Phoenix (PHX) on Sunday, June 25th. For those flying from North Carolina, Southwest Airlines has non-stop flights between Raleigh-Durham (RDU) and PHX. When I flew that route recently, they were still carrying two checked bags per passenger, free of charge. That flight offers with internet for a nominal charge. American Airlines has nonstop flights between Charlotte (CLT) and PHX.

My rationale for these late dates is as follows. If we go too early in the spring, children will still be in school, and some of the higher-elevation sites will be inaccessible because of backroad closures for snow, mud, and ice. Schedules vary among school districts in North Carolina, and many schools now meet year round. I chose these late dates because my impression is that school districts such as those in Orange, Durham, and Wake Counties will be breaking for the summer the previous week. Deserts at lower elevations (e.g., the vicinity of Holbrook, Arizona) will be hot by mid-June, and, if it is a dry spring with lots of fuel on the ground, back-country roads at the higher elevations (e.g., in the Ponderosa Pine forests) might be closed for forest-fire danger.

We will stay in motels. We will go from Phoenix, to Payson, to Holbrook, to Flagstaff, and then back to Phoenix. We will schedule this so that folks can come and go if they do not want to stay for the entire trip. We will visit such natural wonders as Petrified Forest National Park (federal) and Tonto Natural Bridge (TNB, state), plus a favorite rock shop or two. If anyone wants to see Grand Canyon National Park (GCNP), I will lead a side trip there on Friday, June 23rd. Of course, no collecting is allowed in state and federal parks, but we will see fossils at all three parks, including impressions of plants in the Holocene travertine at TNB and Permian marine invertebrates as we descend a short distance down Bright Angel Trail in GCNP.

As usual for these Western trips, I plan to scout the sites the previous week. Space is limited. If you are interested, please contact me at james.bain@duke.edu.

James R. Bain, Ph.D.

New Book by NCFC Member

George Klein has published *Skeletal Anatomy of Alligator and Comparison with Thecachampsia* under the auspices of the Calvert Marine Museum. You can download a free copy of the .pdf file here:

<http://www.calvertmarinemuseum.com/276/CMM-Publications>

Fossil Collecting at Martin Marietta

In the last month, Martin Marietta has made some major changes to its fossil collecting rules. Fossil collecting will only be allowed on the first Friday of each Quarter from now on. In speaking to the head trainer of Martin Marietta, I understand these changes were due to MSHA liability concerns (should a collector get hurt on mine property) as well as monetary concerns (the cost of escorting collectors around the quarry when they are there). There were many folks accessing the quarries at other times than just the couple of times in the spring and fall that we had official NCFC Club trips – and many of them were NOT NCFC members, though some were. So that's the way things currently stand. Access to all three quarries will be on the same day, 4 times a year, January, April, July & October.

The first Quarter Trip is October 7, 2016. The next will be January 6, 2017 and so on. Since these trips are open to ANY fossil collector (18 and over – no juniors allowed), NCFC is NOT sanctioning these dates as official club trips. If you attend, you do so as an individual, and must not sign in as a NCFC member.

NCFC members who take 24 hours of MSHA Part 46 New Miner Training might be able at some time in the future to have access to the quarries a few more times than just the quarterly dates. Part 46 New Miner training from the NC Department of Labor is free and offered fairly frequently. Only those 18 and older can take this training, so juniors will not have access to Martin Marietta quarries anymore. Those 18 and over wanting to get this training can access the Dept. of Labor website calendar and sign up for their training by calling the phone number listed. <http://www.nclabor.com/calendar.htm> . Again, it's FREE. Currently, the available dates and locations for Part 46 New Miner Training are:

September 19-21, 2016 (Yellow)	New Miner Training	8:00 a.m. – 4:30 p.m. Hanson Mine Safety Training Center 10501 Capital Blvd. Wake Forest, NC 27587 To register call 919-807-2790
September 20, 2016 (Blue)	Part 46 New Miner Training	8:00 a.m. – 4:30 p.m. NCDOT Division 11 Roadside Environ. 606 Statesville Road North Wilkesboro, NC 28659 To register, call 919-807-2790
September 21, 2016 (Blue)	First Aid/CPR Training Class	8:00 a.m. – 4:30 p.m. NCDOT Division 11 Roadside Environ. 606 Statesville Road North Wilkesboro, NC 28659 To register, call 919-807-2790
September 22, 2016 (Blue)	Part 46 Annual Refresher Training	8:00 a.m. – 4:30 p.m. NCDOT Division 11 Roadside Environ. 606 Statesville Road North Wilkesboro, NC 28659 To register, call 919-807-2790
September 22,, 2016	Annual Refresher Training	8:00 a.m. – 4:30 p.m. Hanson Mine Safety Training Center 10501 Capital Blvd. Wake Forest, NC 27587 To register call 919-807-2790
October 17-19, 2016 (Yellow)	New Miner Training	8:00 a.m. – 4:30 p.m. Hanson Mine Safety Training Center 10501 Capital Blvd. Wake Forest, NC 27587 To register call 919-807-2790
October 18, 2016 (Magenta)	Part 46 New Miner Training	8:00 a.m. – 4:30 p.m. Spout Springs Fire Department 4400 Buffalo Lake Road Cameron, NC 28326 To register, call 919-807-2790
October 19, 2016 (Magenta)	First Aid/CPR Training	8:00 a.m. – 4:30 p.m. Spout Springs Fire Department 4400 Buffalo Lake Road Cameron, NC 28326 To register, call 919-807-2790
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October 20, 2016	Annual Refresher Training	8:00 a.m. – 4:30 p.m. Hanson Mine Safety Training Center 10501 Capital Blvd. Wake Forest, NC 27587 To register call 919-807-2790
November 1, 2016 (Green)	Part 46 New Miner Training	8:00 a.m. – 4:30 p.m. Triad Regional TMC 201 S. Chimney Rock Road Greensboro, NC 27409 To register, call 919-807-2790
November 2, 2016 (Green)	First Aid/CPR Training Class	8:00 a.m. – 4:30 p.m. Triad Regional TMC 201 S. Chimney Rock Road Greensboro, NC 27409 To register, call 919-807-2790
November 3, 2016 (Green)	Part 46 Annual Refresher Training	8:00 a.m. – 4:30 p.m. Triad Regional TMC 201 S. Chimney Rock Road Greensboro, NC 27409 To register, call 919-807-2790
December 13, 2016 (Gray)	Part 46 New Miner Training	8:00 a.m. – 4:30 p.m. D.H. Griffin Companies Training Center 4706 Hilltop Road Greensboro, NC 27407 To register, call 919-807-2790
December 14, 2016 (Gray)	First Aid/CPR Training	8:00 a.m. – 4:30 p.m. D.H. Griffin Companies Training Center 4706 Hilltop Road Greensboro, NC 27407 To register, call 919-807-2790
December 15, 2016 (Gray)	Part 46 Annual Refresher Training	8:00 a.m. – 4:30 p.m. D.H. Griffin Companies Training Center 4706 Hilltop Road Greensboro, NC 27407 To register, call 919-807-2790

Classes in yellow are all three days together and you just need to sign up for that one class. The classes marked in the same color (like blue, magenta green or grey) are three 8 hour classes that when taken together equal the 24 hour requirement – so you have to sign up for all three. Todd and I just did it that way in a class in Greensboro. Note: If you are reading the paper version, you will not be able to see this color coding. I have indicated the color in the first box of each class.

This is all still just a shot in the dark, but if you are interested in the chance to get back into the quarries, you should probably go take the 24 hour Part 46 New Miner Training. One of the days is CPR and basic First Aid, and that can't hurt anyone!

The Club is still in discussion with Martin Marietta and we may get more access; watch the website for updates.

Linda McCall

President's Note

Summer is on the way out and cooler collecting weather is on the way.

Our calendar is a bit scant on collecting this fall, due to the policy changes at Martin Marietta, but we still have some wonderful fossil related outreach opportunities and are looking into some possible out-of-state trips to beef up the collecting. There is the National Fossil Day celebration in Aurora on October 15th, and our own Fossil Fair (and annual election meeting) in Greensboro on November 19th. As always there are outreach opportunities and I encourage everyone to get out there and volunteer and try to do at least a little outreach this year.

You don't have to be an expert, in fact, you don't have to know anything at all – just have a passion for fossils and off you go. Hope to see you in the field or at an event! Happy Hunting,

Linda

FOSSIL Project Webinar Series

In partnership with the Paleontological Society and with technical support from iDigBio, the FOSSIL Project is thrilled to be hosting a four-part webinar series throughout Fall 2016. All are welcome to attend these free webinars. Just connect at <http://idigbio.adobeconnect.com/fossil-webinars/>. Connect time will begin at 6:45pm ET, allowing for 15 minutes to address any technical problems. If you are unfamiliar with AdobeConnect online conferencing software, don't worry! All you need is an internet connection and the webinar link above. There is no sign-up or installation. (Unless you wish to use a mobile device – then you will have to download the AdobeConnect app for either Android or iPhone/iPad.) And here is a helpful “quick start guide” for connecting! The first of these ran on August 31, so this announcement is too late. Sorry! Later webinars are on September 29 (Dr. Bruce MacFadden), October 19 (Dava Butler), and November 30 (Rachel Narducci). All run an hour.

ELECTION OF OFFICERS

By-Laws and Rules of Procedure direct the general membership of the North Carolina Fossil Club to elect officers following the Annual Meeting which this year will be November 19 at Greensboro Science Center. To be elected are a President and a Vice-President to serve a one-year term and four (4) of the eight (8) members of the Board of Directors to serve two-year terms. Other officers are appointed by the President with the advice and consent of the Board of Directors.

In addition to the following slate, nominating petitions signed by not fewer than five (5) shall be invited and submitted to the Nominating Committee no later than 30 days prior to the Annual Meeting. (Rules of Procedure, Section 6.d.). All nominees must agree to run and, if elected, must agree to serve. See By-Laws and Rules of Procedure for Expectations and responsibilities. Those elected take office on the day of the vote.

President: Linda McCall
Vice-President: James Bain

Elect four (4) of the following 2017 – 2018
Board of Directors (in alphabetical order):

Mary Boulton Charlie Causey
Terry Denny George Klein
Julie Neiderkorn Eric Sadorf

You may see a list of the entire current Board on the next-to-last page here.

Submitted by the Nominating Committee:

Todd Power, Charles Causey, Joy Herrington

Early Examples of Paleoart

Richard Chandler

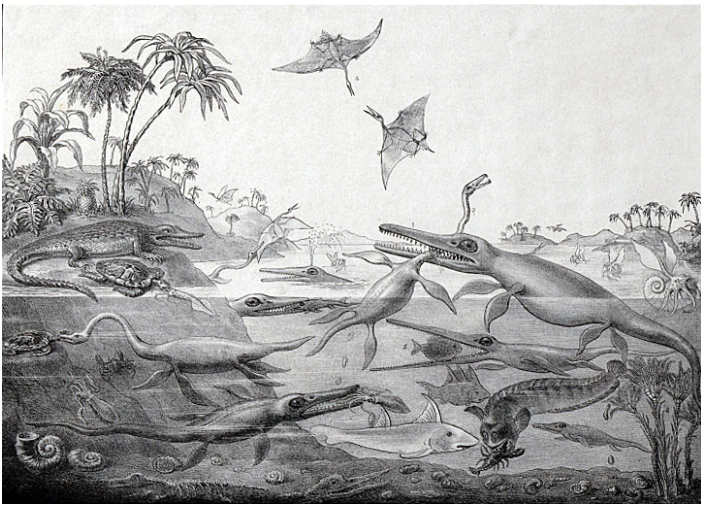
If we want a suggestion as to what some extinct critter might have looked like, all we need do is “Google” it and we can take our choice from dozens, if not hundreds of representations. However, it was not until the early part of the 19th Century that scientists began offering concrete representations of extinct animals; not surprisingly, most of these were of “prehistoric monsters”.

“Duria Antiquior, a more ancient Dorset” (1830), by Henry de la Beche, was based primarily on fossil discoveries by Mary Anning at Lyme Regis. It is a very dynamic scene from the Jurassic, “Nature, red in tooth and claw”. Note that de la Beche used the so-called “aquarium view” for the lower part of the painting, depicting what was happening underwater. One of Mary Anning’s observations, that the so-called “bezoar stones”, found in the abdominal regions of ichthyosaurs often contained recognizable bones and scales of other animals, led William Buckland (1829) to the realization these were fossilized feces. Hence the poop in the painting.

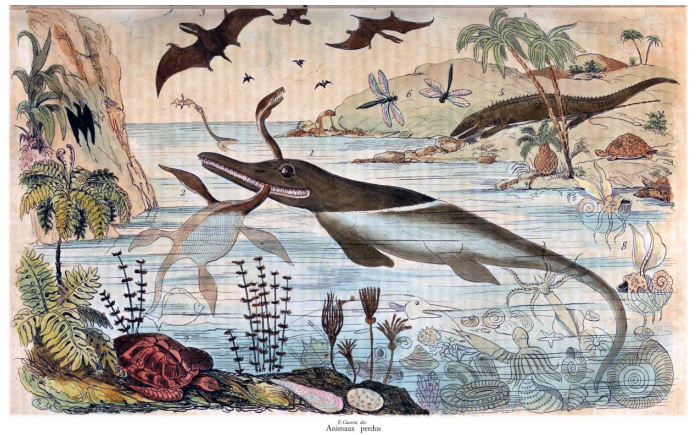
“Duria Antiquior” was an immensely popular work and has been called the most important piece of paleoart ever. De la Beche had artist George Scharf (next page) produce lithographic prints which were sold to benefit Anning, who was having financial difficulties, due to hard economic times in Britain and the inherent uncertainty of making momentous fossil finds.

Other artists have made their own versions: Guérin-Ménéville included it in his encyclopaedic *Dictionnaire Pittoresque*. Robert Farren painted a PG-rated version (blood but no poop) and Richard Bizley, collaborating with paleontologist David Ward, created a version (~2013) reflecting contemporary knowledge. A striking op-art version by Sam Brewster and a 3-dimensional sculpture directed by Darrell Wakeham complete our sample.





George Scharf's lithographic print to benefit Mary Anning



E. Guérin-Ménéville: *Dictionnaire Pittoresque* (1833)



Richard Bizley (~2013)



Robert Farren (~1850)



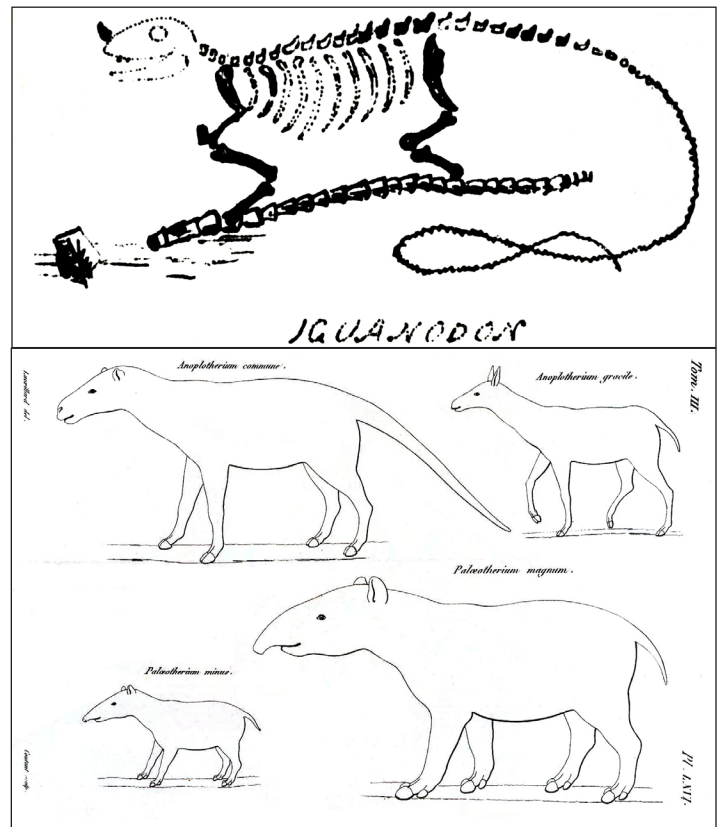
Sam Brewster for Eastern Biological (2016)



Darrell Wakeham directed local and tourist families to create this papier-mâché version in 2010 for the Lyme Regis Museum. It is now in the St. Michael's School there.

In his “Reptiles restored, from the remains of which are to be found in a fossil state in Tilgate Forest, Sussex” (1833), George Scharf stole a leaf from de la Beche and produced his own Jurassic scene. Unfortunately, he based his *Iguanodon* on a faulty first skeletal reconstruction (right) by Gideon Mantell. Because of a perceived similarity between teeth from an iguana and those of his discovery, Mantell, following a suggestion by George Conybeare, had used the name *Iguanodon* = “iguana tooth” and based his reconstruction on the skeleton of the lizard. He mistakenly included a long, filamentous tail and transposed the dinosaur’s thumb spike to its snout. Scharf also included in “Reptiles restored” (from front to back) two turtles, a crocodile, a short-necked plesiosaur, a *Hylaeosaurus*, an animal too vague to be identified, a pair of wading birds, a *Megalosaurus*, and a long-necked plesiosaur.

These two paintings, “*Duria antiquior*” and “*Reptiles restored*”, were not the first reconstructions of extinct animals. Georges Cuvier in *Recherches sur les ossemens fossiles de quadrupèdes* (1822), Tome 3, had provided outline drawings (by artist C.L. Laurillard) of *Anoplotherium* and *Palaeotherium* (right). Note that *Palaeotherium* was reconstructed as tapir-like. After research showed its nasal skeletal structure would probably not have supported a snout, some later reconstructions were more horse-like.





Benjamin Waterhouse Hawkins was commissioned to produce several concrete sculptures to be exhibited in the park surrounding the Crystal Palace in South London. The colored drawing above was a study he made in 1852 with the scientific assistance of Sir Richard Owen. It depicted a pair of nasty looking *Megalosaurus* below a cliff which has four *Ptyrodactyls* perched at the top. A pair of *Iguanodons* and a *Hylaeosaurus* (with the spiked back) are in the foreground.

In all, 15 genera of extinct animals (not all dinosaurs) graced the park. Public reaction to the animals was enthusiastic and Hawkins marketed a set of scaled down models “for educational use” at the princely price of £30 (about \$3000 today!). To launch the opening of the park, Hawkins held a dinner on New Year’s Eve, 1853, inside the mould of one of the *Iguanodons*.

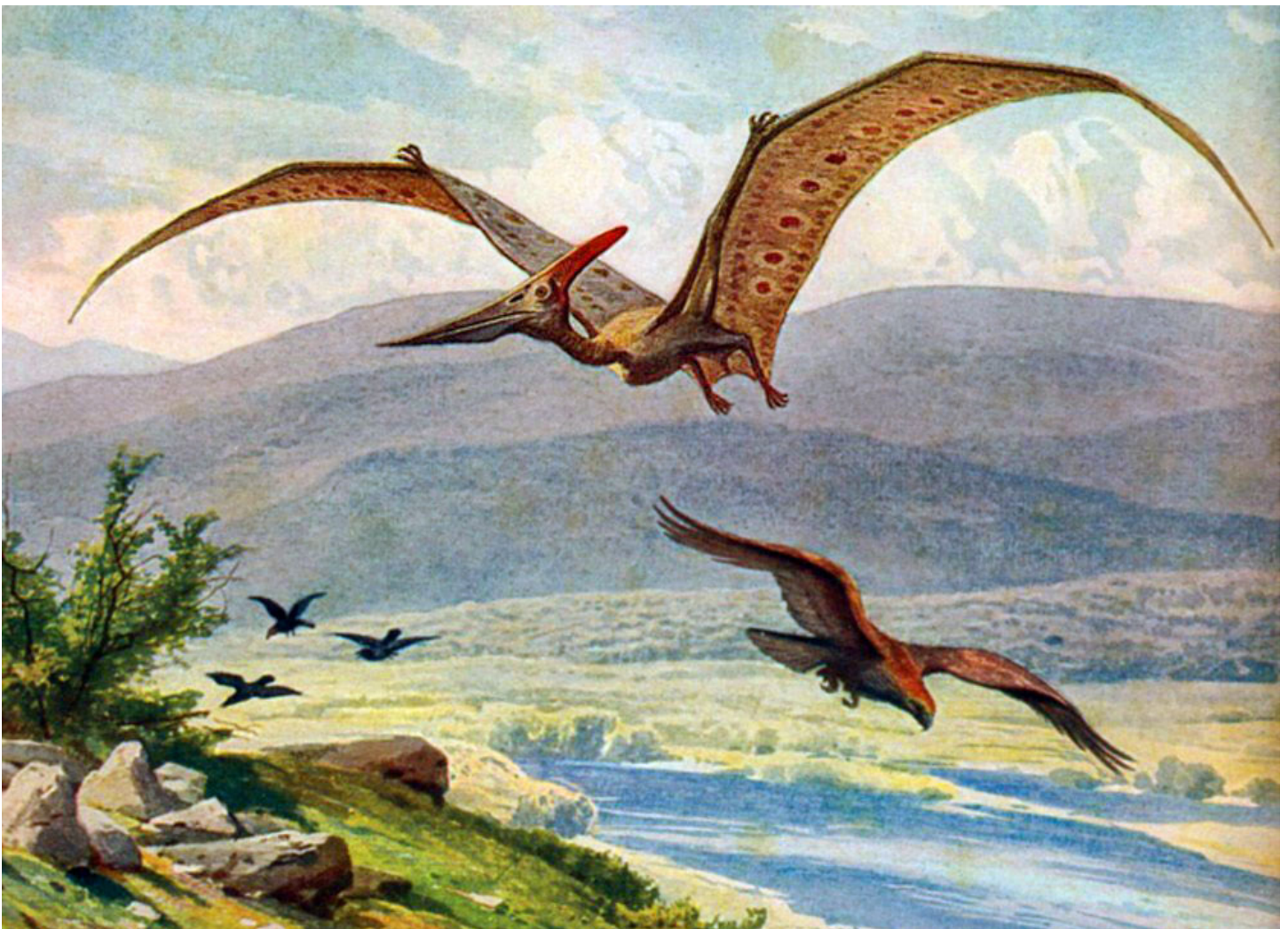
The sculptures gradually fell into disrepair but were restored in 2002. Photos of two can be seen to the right: *Megalosaurus* top and *Iguanodon* below. Compare Hawkins’ restoration with Scharf’s. Of course, Hawkins had the benefit of 20 more years of Mantell’s discovery and research. By then he had dropped the whip-like tail but apparently still considered the thumb spike as a nasal ornament.

The reconstructions by de la Beche, Scharf, and Hawkins appear naive, almost child-like, by today’s standards. But you must remember that these three, especially de la Beche, went “with bold entreaty whither no man had gone before”. Less than 60 years after Hawkins pachydermatous dinosaurs, Heinrich Harder (next page and back cover) and others were picturing extinct animals with ease and conviction.



Heinrich Harder (1858-1935) was a landscape painter and art professor at the Prussian Academy of Arts in Berlin. After he and Wilhelm Bölsche produced a series of articles for *Die Gartenlaube* (a weekly magazine widely read in the German speaking world), they were commissioned by the Kakao Compagnie Theodore Reichardt, GmbH (Theodor Reichardt Cocoa Company, Inc.), to produce two sets of trading cards (60 in all) entitled *Thiere der Urwelt* (*Animals of the Prehistoric World*). In all, four sets were issued by Reichardt: Series I and II were done by artist F. John and Series 1a and III by Harder.

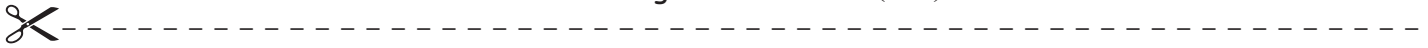
The illustration below by Harder appeared in Gustav Ritter's 1912 book, *Die Wunder der Urwelt*. The depiction of *Pteranodon longiceps* is strikingly accurate by standards today (compare right). Of course, we don't know how (or even if) the wings were ornamented, and the eagle-like bird is a 30,000,000 year (at least) anachronism.



NORTH CAROLINA FOSSIL CLUB, INC.

(Founded 1977)

PRESIDENT	Linda McCall	(512) 422-2322	Colfax, NC
VICE PRESIDENT	James Bain	(919) 479-2320	Bahama, NC
IMMEDIATE PAST PRESIDENT	Rick Bennett	(919) 609-9205	Raleigh, NC
	Jonathan Fain	(919) 518-1591	Raleigh, NC
TREASURER	David Sanderson	(919) 469-2812	Cary, NC
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MEMBERSHIP CHAIRPERSON	Mike Bruff	(984) 212-6232	Clayton, NC
EDITOR, JANUS	Richard Chandler	(919) 851-2153	Raleigh, NC
BOARD	Mary Boulton (2016)	(704) 541-9397	Charlotte, NC
	Charlie Causey (2016)	(336) 685-4118	Liberty, NC
	George Klein (2016)	(919) 542-6784	Chapel Hill, NC
	Trish Kohler (2017)	(919) 383-6328	Durham, NC
	Todd Power (2017)	(336) 288-7306	Greensboro, NC
	Libby Smalley (2016)	(910) 520-3677	Wilmington, NC
	Ruffin Tucker (2017)	(704) 784-1672	Concord, NC
	Diane Willis (2017)	(919) 967-1008	Chapel Hill, NC
GENERAL CONTACT	NCFossilClub@gmail.com	(984) 212-6232	



2016 MEMBERSHIP APPLICATION - NORTH CAROLINA FOSSIL CLUB

NAME(s) _____

ADDRESS _____

CITY, STATE, ZIP _____

PHONE(S) (INCLUDE AREA CODE) _____

E-MAIL ADDRESS _____

SELECT ONE TYPE OF MEMBERSHIP	<input type="checkbox"/> INDIVIDUAL (NEW)	\$20.00
(ENCLOSE CHECK OR MONEY ORDER	<input type="checkbox"/> INDIVIDUAL (RENEWAL)	\$15.00
FOR THE INDICATED AMOUNT.)	<input type="checkbox"/> HOUSEHOLD (NEW)	\$25.00
	<input type="checkbox"/> HOUSEHOLD (RENEWAL)	\$20.00

Children of NCFC members who are dependent minors and living at home may accompany parents on any trip *EXCEPT* PCS—Lee Creek or where otherwise noted.

Memberships are effective from January through December of the year (or portion of the year) of the date of application. For example, persons joining in August will need to renew their membership 5 months later in January.

The Fossil Club's newsletter, *JANUS*, is mailed out four times a year and is available online for members. Please let us know how you'd like to continue receiving *JANUS*. If you choose to download it from the website, you will receive an email when a new one is published.

☐ I will download *Janus* from website (www.NCFossilClub.org) ☐ please continue to send a paper copy via US Mail

NCFC Liability Statement

The Undersigned hereby acknowledges his/her understanding that fossil collecting is an inherently dangerous activity which can result in serious bodily injury or death, and/or property damage and hereby confirms his/her voluntary assumption of the risk of such injury, death or damage.

The Undersigned, in return for the privilege of attending field trips Related to the collection of and/or study of fossils, or any other event or activity conducted or hosted by the North Carolina Fossil Club (NCFC), hereinafter collectively and individually referred to as "NCFC Events", hereby releases the NCFC, NCFC Board members and officers, NCFC Event leaders or organizers and hosts, landowners and mine or quarry operators from any and all liability claims resulting from injury to or death of the undersigned or his/her minor children or damage to his/her property resulting from any cause whatsoever related to participation in NCFC Events.

The Undersigned agrees to comply with any and all rules and restrictions which may be communicated to the undersigned by the NCFC Event leader and/or landowner and mine or quarry operator and acknowledges that failure to comply will result in immediate expulsion from the premises.

The Undersigned acknowledges that this release covers all NCFC Events and will remain in effect at all times unless or until it is revoked by written notice to the current President of the NCFC and receipt of such revocation is acknowledged.

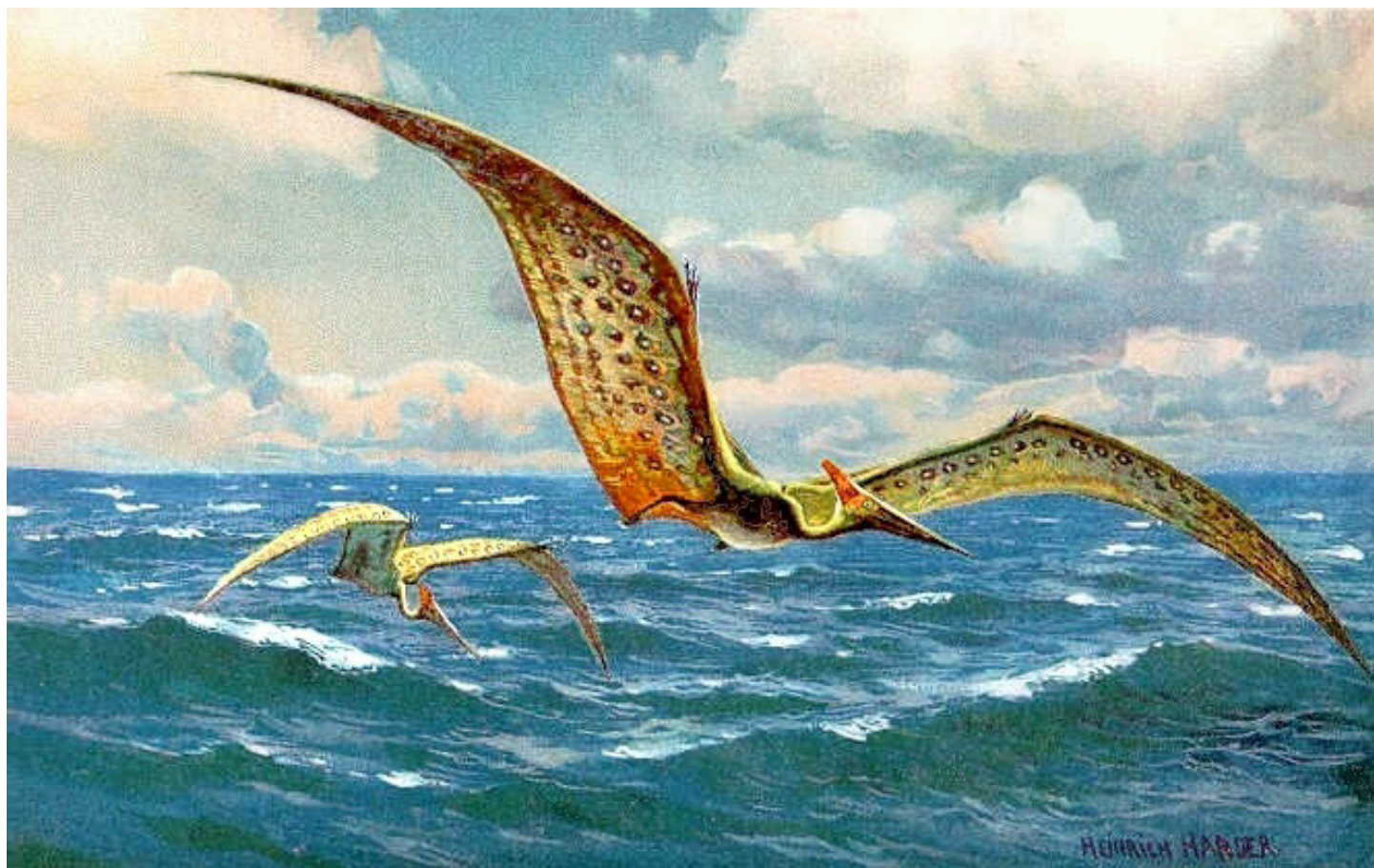
The Undersigned further attests to his/her intent to be legally bound by affixing his /her signature to this release.

Name _____ Signature _____ Date _____

Name _____ Signature _____ Date _____

MAIL TO: NORTH CAROLINA FOSSIL CLUB, P.O. Box 25276, RALEIGH, NC 27611-5276

North Carolina Fossil Club
P.O. Box 25276
Raleigh, NC 27611-5276



Pteranodon longiceps by Heinrich Harder in *Tiere der Urwelt* (1916) - see inside, page 4 & following, for more paleoart.