

The FOSSILETTER

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March 2015

March Meeting

The March section meeting is on Tuesday, March 3rd at the Brighton Town Hall basement meeting room at 7:30 PM. We will be doing something quite different at this meeting. We will be hosting a fossil review session for Middle School Science Olympiad teams. We are expecting between 20 and 40 students there (though there may be fewer), representing perhaps 10-20 teams from all over the region.

All members are welcome—if you cannot help with the program, you will find it interesting to visit the tables and learn about fossils with which you may not be familiar. Go to our testing table after the kids are done and see if you score well.

At our March meeting, we will be helping the students to prepare for the Science Olympiad Regional Competition--which will be at John Fisher College on March 14th. Fossils is one of the categories in which competition will occur. We will set up tables at which students can view fossils (or pictures in cases where fossils or castings are not available). All members are encouraged to bring fossils to discuss with students as they move from table to table to discuss the fossils from our collections. The objective is to improve their overall knowledge on fossils and how to identify them.

On the following page is a list of the fossils that they need to know about. Please review it and see what you have and can cover with them. This will take a lot of us participating

to make it successful for the students. It would also be worthwhile to be able to show and discuss related areas, such as taxonomy, fossil preservation, cladistics, or something general. This should be a fun evening for everyone.

We are inviting the students' coaches and parents as well, so this is a very good outreach opportunity for our section. We may wind up with new members!

New York State Science Olympiad (NYSSO) is a 501(c)(3) non-profit organization dedicated to improving the quality of science education in grades 6-12, increasing male, female and minority interest in science, creating a technologically literate workforce and providing recognition for outstanding achievement in science and technology. These goals are achieved by providing opportunities for teams of students to participate in 22 regional and state Science Olympiad tournaments across New York State. NYSSO also promotes the inclusion of Science Olympiad activities in classroom curricula and provides teacher training at seminars and an annual coaches' workshop. Visit their website at:

<http://newyorkscioly.org/>

To help us with space and coverage planning, please let us know if you will be coming and how you would like to help. Please contact Fred Haynes at 585- 203-1733, or by email at:

fredmhaynes55@gmail.com

Science Olympiad 2015 Fossil List

(Note: Numbers indicate that members of that taxon rank should be identifiable to that level. For ranks not underlined, indented ranks are in the rank above it.)

KINGDOM PROTOZOA

Phylum Foraminifera (Fonllus)

- 1) Order Fusulinida (Fusulinids)
- 2) Genus *Nummulites*

KINGDOM ANIMALIA

Invertebrates:

Phylum Porifera (Sponges)

- 3) Genus *Astraeospongia*
- 4) Genus *Hydnoceras*

Phylum Brvozoa

(Growth forms: branching, massive, fenestrate)

- 5) Genus *Archimedes*
- 6) Genus *Rhoinbopora*

Phylum Hemichordata

- 7) Class Graptolithina (Graptolites)

Phylum Cnidaria

Class Anthozoa (Horn & Colonial Corals)

- 8) Genus *Favosites*
- 9) Genus *Halysites*
- 10) Genus *Heliophyllum*
- 11) Genus *Hexagonaria*
- 12) Genus *Septastraea*
- 13) Class Scyphozoa (True Jellyfish)

Phylum Arthropoda

Subphylum Crustacea

- 14) Class Malacostraca (shrimp, lobster, crabs)
- Class Maxillopoda
- 15) Infraclass Cirripedia (barnacles)

- 16) Order Eurypterida (Eurypterid)

- 17) Class Insecta (Insects)

Class Trilobita (Trilobites)

- 18) Genus *Cryptolithus*
- 19) Genus *Elrathia*
- 20) Genus *Isoletus*
- 21) Genus *Phacops*

Phylum Brachiopoda

Inarticulate:

- 22) Genus *Lingula*

Articulate:

- 23) Genus *Atrypa*
- 24) Genus *Composita*
- 25) Genus *Juresania*
- 26) Genus *Leptaena*
- 27) Genus *Mucrospirifer*
- 28) Genus *Platystrophia*
- 29) Genus *Rafinesquina*
- 30) Order Rhynchonellida

Phylum Mollusca

Class Bivalvia

- 31) Genus *Exogyra*
- 32) Genus *Gryphaea*
- 33) Genus *Pecten*
- 34) Genus *Pholadomya*

Class Cephalopoda

- 35) Genus *Baculites*
- 36) Genus *Belemnites*
- 37) Genus *Dactylioceras*
- 38) Genus *Nautilus*
- 39) Genus *Orthoceras*

For C Division add suture patterns in Subclass Ammonoidea (Ammonites): goniatitic, ceratitic, ammonitic

Class Gastropoda (snails)

- 40) Genus *Conus*
- 41) Genus *Cypraea*
- 42) Genus *Platyceras*
- 43) Genus *Turritella*
- 44) Genus *Worthenia*

Phylum Echinodermata

- 45) Class Asteroidea (starfish)

Class Blastoidea

- 46) Genus *Pentremits*
- 47) Class Crinoidea (stems, columns, calyxes)
- 48) Class Echinoidea (sea urchins, sand dollars)
- 49) Class Ophiuroidea (brittle stars)

Subphylum Vertebrata (Vertebrates)

Fish:

- 50) Superclass Agnatha (lawless Fish)

Class Placodermi (Armored Fish)

- 51) Genus *Bothriolepis*
- 52) Genus *Dunkleosteus*

Class Chondrichthyes (Cartilaginous Fish)

- 53) Superorder Salachii (Sharks, Shark Teeth)
- 54) Superorder Batoidea (Rays)
- 55) Superclass Osteichthyes (Bony Fish)

Class Sarcopterygii

56) Order Coelacanthiformes (Coelacanths)

57) Genus *Tiktaalik*

(True) Reptiles:

Class Reptilia

58) Order Ichthyosauria (Ichthyosaurs)

59) Family Mosasauridae (Mosasaurs)

60) Order Plesiosauroidea (Plesiosaurs)

Dinosaurs:

Clade Dinosauria

Order Saurischia (lizard-hipped)

61) Genus *Allosaurus*

62) Genus *Apatosaurus*

63) Genus *Coelophysis*

64) Genus *Deinonychus*

65) Genus *Plateosaurus*

66) Genus *Velociraptor*

67) Genus *Tyrannosaurus*

Order Ornithischia (bird-hipped)

68) Genus *Iguanodon*

69) Genus *Parasaurolophus*

70) Genus *Stegosaurus*

71) Genus *Triceratops*

Flying "Reptiles"

72) Order Pterosauria (Pterosaurs)

Birds

Class Aves

73) Genus *Archaeopteryx*

Mammal-like "Reptiles"

Clade Synapsida

Family Sphenacodontidae

74) Genus - *Dimetrodon*

Order Therapsida

75) Genus *Lystrosaurus*

Mammals

Class Mammalia

76) Genus *Basilosaurus*

77) Genus *Equus*

78) Genus *Hyracotherium*

Genus *Homo*

79) Species *neanderthalensis*

80) Genus *Mammuthus* (Mastodon)

81) Genus *Mammuthus* (Mammoth)

82) Genus *Smilodon*

KINGDOM CHROMISTA

83) Class Bacillariophyceae (diatoms)

KINGDOM PLANTAE

Phylum Anthophyta

84) Genus *Acer*

85) Genus *Populus*

86) Genus *Platanus*

Phylum Gillkogiophyta

87) Genus *Ginkgo*

Phylum Lycopodiophyta

88) Genus *Lepidodendron* (scale tree)

Phylum Pinophyta.

89) Genus *Metasequoia*

90) Phylum Pteridophyta (Ferns)

91) Genus *Calamites* (Horsetail)

92) Plant leaf: Annularia

Phylum Pteridospermatophyta (Seed ferns)

93) Genus. *Glossopteris*

OTHER

Trace Fossils

Trails, Tracks, Trackways

Borings, Burrows, Tubes

Predation marks, Repair scars

Coprolites

Stromatolites

Amber/copal

Petrified wood

Sedimentary Rocks

Chert

Coquina

Diatomite

Dolomite Rock

Limestone

Chalk

Fossiliferous Limestone

Mudstone

Sandstone

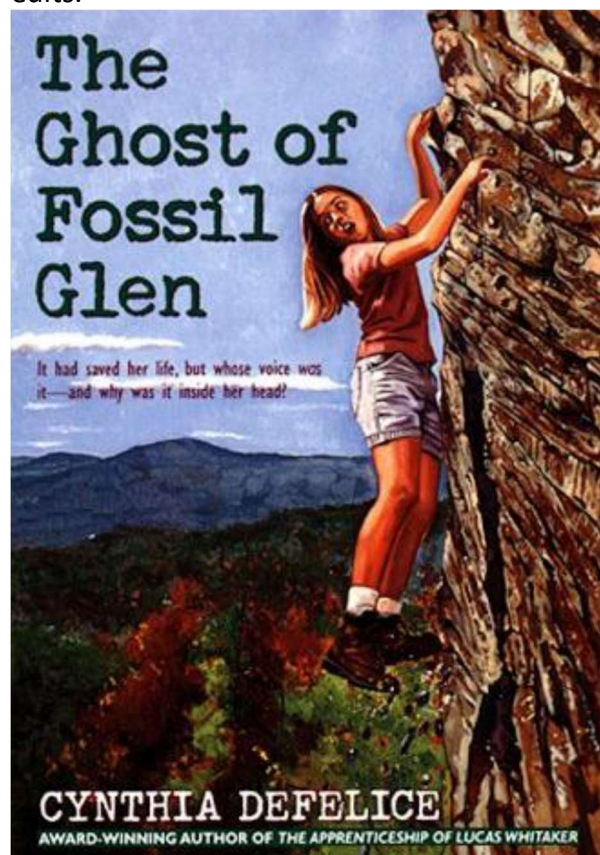
Shale

Siltstone

From the Bookshelf

The Ghost of Fossil Glen by Cynthia DeFelice
Hardcover - 176 pages April 1998, Farrar
Straus & Giroux. Paperback - 154 pages
(October 1999, Camelot

Submitted by Fred Haynes, this review first appeared in the January issue of the Wayne County Gem & Mineral News, which Fred edits.



The cold has arrived and the snow has covered our favorite collecting sites, but that does not mean that we cannot read about them. There are even novels written about some of the fossil-rich sites in western New York. In this case, a children's novel, set in the prized fossil location, Kashong Glen. About "The Ghost of Fossil Glen", and from the author's website: *"I loved reading ghost stories when I was a kid – and I still do. So I thought it might be fun to write one. I was inspired by a place right near my house in Upstate New York called Kashong Glen. It is a*

beautiful and mysterious place, perfect as the setting for a ghost story. It can be dangerous too: a stream runs through the center of it, surrounded by steep, high cliffs that contain fossils of ancient marine creatures."

In the opening scene, Allie Nichols is exploring Fossil Glen (aka. Kashong Glen) when she discovers a complete trilobite, a beauty, the prize specimen of her collection. Yep, we have all been there, haven't we? But then she is stuck on a cliff face above the falls and cannot get down. Maybe some of us have been there also? Just when things get scary, she is assisted by a ghost (I guess I have not been there yet), and the theme of the book is born. The story revisits the creek and glen on several occasions and also has a scene in the local cemetery, presumably the small cemetery along Kashong Rd. north of the creek.

For all you aspiring readers, the book seems to be available at most of the area libraries and can also be purchased inexpensively online. You don't have to be a preteen to enjoy it. Trust me!



The Upper Falls in Kashong Glen is capped by the Menteth Formation of the Moscow Formation. Fossils can be found in both the Deep Run Member behind and beneath the falls and in the Kashong Member above the falls.

Kashong Creek and its waterfalls are on private property, multiple owners in fact, if one is to access the location from either the top of the bottom. Permission to collect on the privately owned drainages into the Finger Lakes is required, and unfortunately, not always obtainable.

Fossil News - Fossil “Fishapod”

Hints at Rear Leg Evolution

Shubin, N. H., Daeschler, E. B., & Jenkins, F. A. (2014). Pelvic girdle and fin of *Tiktaalik roseae*. *Proceedings of the National Academy of Sciences*, 111(3), 893-899.

Following article by Laura Komor, from <https://evolution-institute.org/this-view-of-life/>

For the past 375 million years, the Canadian Arctic has been hiding long sought-after clues that hold prized information about how the ability to walk on land evolved. A study headed by University of Chicago biologist Neil Shubin and published in *Proceedings of the National Academy of Sciences* describes these ancient relics – fossils belonging to the “fishapod” *Tiktaalik roseae*.

100 million years before the first dinosaurs, *Tiktaalik roseae* was living in shallow water habitats – and most paleontologists would characterize this creature as a fish – but it had a number of transitional features that puts it somewhere along the evolutionary line between fish and tetrapod – thus the name “fishapod.”

Tiktaalik looked like a crocodile with fins and a more streamlined body. According to the 10 currently uncovered *Tiktaalik* fossils, it grew anywhere from 3 feet long up to 9 feet long. In its heyday 12 million years before the first 4-legged land-walkers, *Tiktaalik* sported the beginnings of the four limbs common to tetrapods today.

According to research from 2004, in which the first *Tiktaalik* fossils were described, this creature used its front limbs to crawl out of water, and only adapted to have rear walking legs when fully on land. But Shubin’s new study uses new fossils to show that *Tiktaalik* actually evolved all four limbs while still living in shallow waters – meaning that rear-limb locomotion actually originated in fish.

The research team compared front and rear appendages of *Tiktaalik* and found that they were about equal in relative strength and complexity. *Tiktaalik* had a pelvic bone that appeared to be an intermediate between what is typically seen in fish and the jointed pelvis characteristic of tetrapods.

Not only that, but Shubin and colleagues found *Tiktaalik* had a number of other transitional features. The fishapod breathed with early lungs – not quite the lungs of tetrapods but more advanced than gills. It also had a mobile neck, shoulders, elbows, and wrists.

Tiktaalik roseae has struck again, and paleontologists hope this mysterious creature will continue to make us rethink and challenge persisting views about the evolution of terrestrial life.



Tiktaalik is a monospecific genus of extinct sarcopterygian from the late Devonian period, about 360 Mya, with many features akin to those of tetrapods. *Tiktaalik* may be representative of the evolutionary transition from fish to amphibians.



CALENDER OF EVENTS

March

Tuesday March 3, FOSSIL MEETING 7:30 PM Brighton Town Hall Downstairs Meeting Room 2300 Elmwood Ave. Science Olympiad Coaching. Visitors welcome.

April

Tuesday April 7, FOSSIL MEETING 7:30 PM Brighton Town Hall Downstairs Meeting Room 2300 Elmwood Ave. Program TBD. Visitors welcome.

Visitors are welcome to all Fossil Section meetings! Refreshments served. For more information and the latest updates check the RAS Website (www.RASNY.org). You can also contact Dan Krisher at DLKFossil@gmail.com or John Handley at jhandley@rochester.rr.com for further information.

ROCHESTER ACADEMY OF SCIENCE FOSSIL SECTION

Monthly meetings are held the first Tuesday of each month from October-- May at 7:30 pm at the Brighton Town Hall, Community Meeting Room, 2300 Elmwood Avenue, Rochester, NY unless otherwise listed.

OFFICERS

President: Dan Krisher

Vice President/Program Chair: Joanne Rinehart Ford

Secretary: *Open*

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Director (three-year-term): Stan Spec

Director (two-year-term): Michael Grenier

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The FossilLetter is published during each meeting month of the year. Please send submissions to Michael Grenier preferably via e-mail at mgrenier@frontiernet.net or by U.S. Postal Service mail to 692 Maple Drive, Webster, NY 14580 (585) 671-8738. Deadline date for submissions to the FossilLetter is the 15th of the month.

For scheduling changes and the latest updates please check the RAS Website (www.rasny.org) and click on the Fossil Section link. Last minute updates can also be found on the *General Announcements* page of the Academy Website.



Why Tiktaalik roseae went extinct.