

MAGS EXPLORER



Memphis Archaeological and Geological Society Youth Newsletter

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Trilobites

MIKE BALDWIN--The MiniMAGS program for May is "Trilobites and Sponges of Tennessee", presented by Idajean Jordan. If you are one of the lucky ones who have found trilobites at the Vulcan Quarry near Parsons, Tennessee or the Gray Farm near Florence, Alabama, or some other location, take a close look at your treasure. These were amazing creatures.

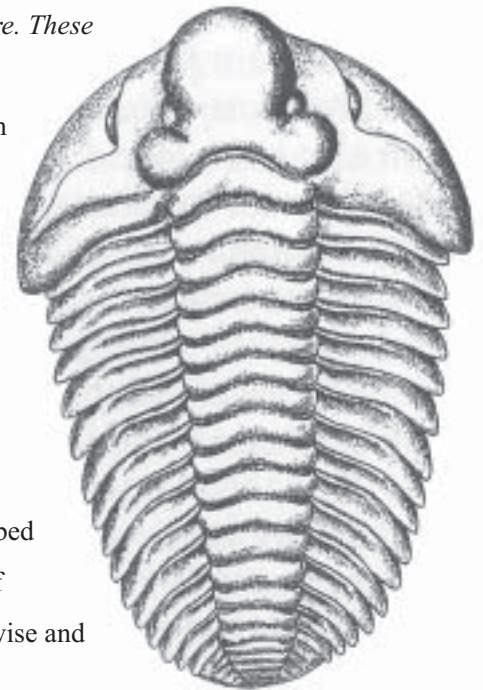
The name Arthropoda means "jointed feet," but this is an understatement. From head to whatever serves as tail, the typical arthropod is a series of segments connected by movable joints. The legs or other appendages are similarly jointed.

For more than 300 million years, Trilobites were the most plentiful and successful of the arthropods. Trilobites are of special value in Cambrian and Ordovician rocks for determining their age. Besides this, they are fascinatingly complex and beautiful animals.

We call these creatures the Trilobita, or trilobites, a name that means "three-lobed ones." It might be interpreted in terms of a three-part plan that seems to consist of head, body, and tail. But, in fact, the name actually refers to parts that run lengthwise and are separated by furrows, not joints. These grooves divide every trilobite into an axial lobe in the middle and two pleurae—one at each side of the body.

Cephalon

This structure, which is much more than a head, contains several segments



Calymene: a calymenid. Early Silurian to Devonian, Europe, North and South America, and Australia. Illustration from *The Fossil Book, A Record of Prehistoric Life* by P. Rich, T. Rich, M. Fenton, and C. Fenton. Reprinted for educational purposes under the "fair use" provision of the U.S. Copyright Act.

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MAGS Explorer is published monthly by and for the youth members of the Memphis Archaeological and Geological Society. Please send your comments and articles to Editor Mike Baldwin, 367 N. Main St., Collierville, TN 38017 or rockclub@earthlink.net. Youth can give articles, artwork, poems, puzzles, experiments, or stories to co-editors Jennifer Baldwin, Emily Randolph, Kelly Baldwin, or Abbey Randolph.

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that are fused into a single, continuous shield. Like the rest of the trilobite body, the typical cephalon shows three longitudinal lobes: the glabella and the lateral cheeks. Lines on the cheeks separating the fixed cheeks from the free ones are called the facial sutures. They mark the course of cracks in the exoskeleton along which the cheeks separated during molting to enable the old exoskeleton to be shed easily.

Eyes

The trilobite eye is the most ancient visual system. The lenses are composed of calcite. Most trilobite eyes are made up of many adjoining lenses that lie in cups, all covered with a single, clear visual area, or corneal membrane. At first the number of lenses was not large, but in some genera it increased to twelve thousand or even fifteen thousand. Others reversed this trend, reducing the number of facets to six hundred, two hundred, or as few as fourteen. In these eyes, called holochroal eyes, the lenses were all in contact with others. These kinds of eyes appeared in the Cambrian and lasted until the last trilobites became extinct.

Thorax

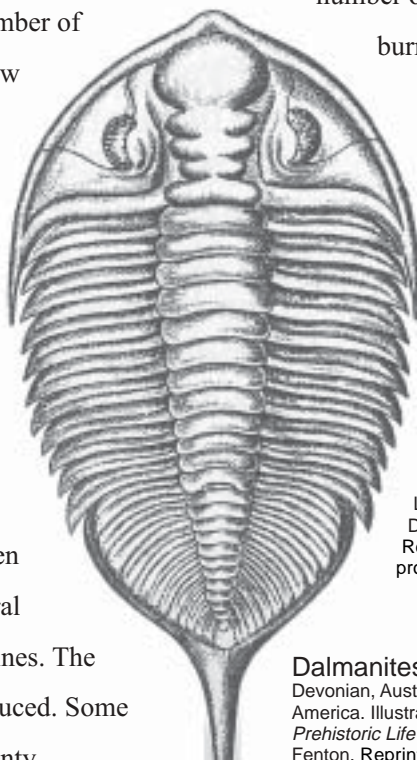
The primitive trilobite thorax contained more than forty segments, fourteen or fifteen of which bore broad and well defined pleural lobes that ended in backwardly directed spines. The number of thoracic segments was often reduced. Some species got along with only eighteen to twenty.

Antennae and Legs

Most fossil trilobites have lost their appendages, for these structures do not preserve well. A few specimens, however, retain them. During life, the antennae probably carried small sensory organs perhaps of taste and smell, as do the antennae of modern lobsters.

The jointed legs [coxae] were borne in pairs on each segment on the underside of the cephalon, thorax, and pygidium, if the last contained several segments. Each leg is divided into a lower branch [endopodite], which was used for walking, and an upper branch [exopodite], with feathery gills, which both breathed oxygen and, in some, may have served as oars for swimming.

Trilobite trails indicate that these animals moved in a number of ways, sideways and forward, and they burrowed as well.



Pygidium

This structure is made up of one or more fused segments at the back of the trilobite and in its axis houses part of the intestinal canal and the anus. The pygidium is very small.

Information for the article from: Patricia Vickers Rich, Thomas Hewitt Rich, Mildred Adams Fenton and Carroll Lane Fenton; *The Fossil Book, A Record of Prehistoric Life*; Dover Publications, Inc.; Mineola, New York; 1996. Reprinted for educational purposes under the "fair use" provision of the U.S. Copyright Act.

Dalmanites: a dalmantid. Silurian to Early Devonian, Australia, Europe, and North and South America. Illustration from *The Fossil Book, A Record of Prehistoric Life* by P. Rich, T. Rich, M. Fenton, and C. Fenton. Reprinted for educational purposes under the "fair use" provision of the U.S. Copyright Act.

Junior of the Year Criteria

Any Junior MAGS member [ages 8-18] is eligible to compete for the Southeast Federation's Junior Rockhound of the Year Award. Adult support is acceptable and encouraged. The activities listed in the application must take place between January 1, 2003 and December 31, 2003. MAGS President, W.C. McDaniel will be able to provide you with an application form.

CRITERIA FOR CONSIDERATION

On a separate sheet[s] of paper, list and identify/describe activities and the points attained for each individual activity, i.e. #2 Adult meetings attended: May 2003 [5 points], July 2003 [2 points], etc.

1. Must be a current, paid Junior member of a club in the Southeast Federation [5 points] _____ pts
2. Must attend at least one adult meeting [5 points] _____ pts
Attendance at additional adult meetings [2 points each] _____ pts
3. Attendance at Junior meetings/workshops [5 points each] _____ pts
4. Attendance at a Gem and Mineral Club Show other than your own. Show must be recognized by an organized Club or one of the major federations. [Obtain and save show ticket/program--5 pts each] _____ pts
NOTE: Attendance at primarily rock, gem, mineral, fossil, or earth science museum, National Park, or other exhibit related to our hobby will be considered a "show". Enter points above--5 points each.
5. Participation in a Gem and Mineral Club sponsored [or Dixie Mineral Council sponsored] field trip, including Junior Club filed trips. [15 points per trip] _____ pts
6. Participation in a family field trip or field trip with a group other than those listed above. [10 points per trip] _____ pts
7. In keeping with the "each one teach one" program, a Junior club member can earn 10 points per occasion for sharing our hobby with others by teaching them a defined skill [example: Gem tree making at your club show] _____ pts
8. In the spirit of sharing our hobby and encouraging growth of the clubs in our Federation, a Junior may earn 5 points for sponsoring a new Junior or adult member and an additional 5 points for attending a meeting to introduce them. _____ pts
9. Publication of a well-researched educational article on some phase of our hobby or the earth sciences in your club bulletin. Accuracy of information and references required [50 points each] _____ pts
NOTE: Articles accepted by the Editor but not yet published by December 2003 can be counted for this year or next year, but for one year only.
10. Publication of a report in your club bulletin on a Junior Club meeting, workshop or field trip [10 points each] _____ pts
11. A Junior Club member winning a regional or national award for articles published in a club bulletin and submitted for competition will receive 5 points for each such recognition _____ pts
You may receive additional points based on where the article places [1st=25 pts; 2nd=15pts; 3rd=10 pts; 4th=5 pts] _____ pts
NOTE: You may receive points for publication of an article one year and receive points for the same article for recognition the next year.

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Junior of the Year Criteria


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| <p>12. Juniors sharing our hobby at schools or in other groups by making a presentation may receive 10 points for each presentation if a written report is obtained at the time from the adult in charge. _____ pts</p> <p>13. Juniors recognized in school, regional or state Science Fairs for exhibits related to our hobby will receive 10 points per recognition. _____ pts</p> <p>14. Juniors having non-competitive exhibits in your club show [20 points per exhibit] _____ pts</p> <p>15. Juniors having competitive exhibits in club show [50 points per exhibit] _____ pts</p> <p>16. Juniors receiving awards for their entries in the club show will receive additional points as follows: Best of Show=25 pts; 1st Place=10 pts; 2nd Place=5 pts; Other Award=5 pts _____ pts</p> | <p>17. Juniors receiving awards in non-competitive for Junior Special Events categories will receive points as follows: Best in Show=10 pts; 1st Place=5 pts; 2nd Place=5 pts; Other=3 pts. _____ pts</p> <p>18. Juniors working at the annual club show will receive 10 points for each 2 hour verified work period. _____ pts</p> <p style="text-align: right;">TOTAL POINTS _____ pts</p> <p>For a possible tie breaker, describe any other hobby related information regarding publications, activities, or recognitions achieved this past year that might help us evaluate your enthusiasm for winning this JOY Award.</p> <p>Keep a record of all the things that you do relating to our hobby, get your copy of the Junior of the Year application from W.C. McDaniel, and get your application turned in on time. <i>YOU CAN DO IT! GO FOR IT!</i></p> |
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Notes from the meeting

1. What is the name of the June Specimen-of-the-Month? _____
2. Cut out the specimen card below, fold it in the middle, and put it with your mineral specimen.
3. Write down a few things you know about trilobites. _____
4. June MAGS Field Trip will be June 28-29 to Mt. Ida, Arkansas to collect quartz crystals. Sign up tonight!
5. This is your newsletter. Put your name on it, and take it home with you.

Your Name _____

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| <p>Name: Fortification Agate SiO₂ Hardness: 7 Streak: white Crystals: trigonal-trapezohedral Fracture: conchoidal Color: brown, violet, gray, yellow location: Memphis, Tennessee</p> | <p>Fortification Agate</p> <p>Specimen of the Month</p> <p>June, 2003</p>  |
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