Rochester Academy of Science

BULLETIN

"An organization of people in the Natural Sciences"

November, 2011 - Vol. 65, #9

PRESIDENT'S MESSAGE

By the time you receive this Bulletin the two biggest events conducted by the Academy and the Mineral Section will have occurred. The annual Gem and Mineral Show co-hosted by the Mineral Section with the Lapidary Society at the county fairground always draws large crowds from the public eager to admire or buy earth materials for jewelry or study. The RAS Fall Paper Session, hosted by Monroe Community College on October 29, featured the Larry King Memorial Lecture, which this year was given by Dr. Beata Csatho of the University at Buffalo. Students, professors, RAS members, and other scientifically curious people participated in this event. I hope you were able to attend both of these programs. We'll share some photos and highlights from these events in the next issue.

Last January I visited Tasmania for the second time. I thought you might be interested in knowing more about this place since its natural history is unique and the island seems to be off the usual tourist route. A synopsis of the Tasmanian geologic story follows. In a future article I'll introduce some of the wildlife.

TASMANIA: THE GEOLOGIC STORY

Tasmania is an island state southeast of the Australian mainland. The island exhibits diverse landscapes: coastlines with headlands and sandy beaches, caves and sinkholes, mountains, river gorges, and lakes. All this in an area equivalent to West Virginia! The landscapes are merely the most recent rendering of the Tasmanian surface that has been changing over a billion years of geologic activity. Sea floor spreading, mountain building, glaciations, erosion and deposition have all played their part in creating the island we see today.

In the Mesozoic Era, a supercontinent we call Pangaea broke up into two large continental masses, Gondwana and Laurasia. The southern portion, Gondwana, which included what would become Australia, South America, Africa, India, and Antarctica, continued separating in the Jurassic Period (about 184 MYA). Australia and Antarctica would remain as one landmass for a long time, hanging out in the high latitudes of the southern hemisphere. These last remaining blocks of Gondwana would make a final separation as the sea floor spreading between them revved up during the Eocene epoch of the Paleogene Period (40 MYA), sending Australia northward.

The oldest rocks on Tasmania date to the Precambrian Era (1.3 BYA). These ancient rocks, quartzite, schist, and others, are metamorphic and support the steep terrain of the central and southwest regions. The rocks reflect past sedimentary environments dramatically transformed by periods of uplift, mountain building, and erosion that eventually brought the metamorphosed rocks to the surface. The rugged region is protected by several large National Parks and access is acquired via bush walking, boats or light aircraft.

Tasmania is noted for its large area of dolerite bedrock. As Gondwana was splitting up during the Jurassic Period, magma intruded into older bedrock in the upper part of the Earth's crust and solidified as a dark igneous rock with small crystals. Dolerite dominates the landscape and is prominent in the mountains and cliffs of central and southeastern Tasmania, well exemplified in Cradle Mt-Lake St. Clair National Park. Here we find the highest mountain in Tasmania, Mt Ossa (over 5,000 feet). Only serious hikers will reach Mt Ossa, but those seeking a short walk can experience a grand view of Cradle Mt.

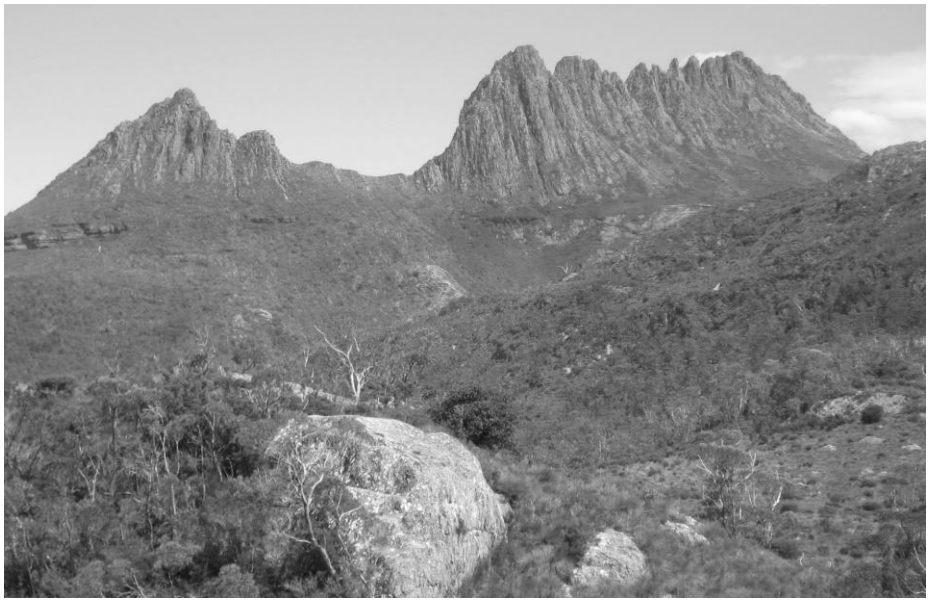
Mountain building in the Devonian

produced granitic rocks that surface primarily in the northeast. The granite's pink feldspar lends a reddish appearance to the mountains and its weathered grains of quartz create sparkling beaches.

Sedimentary strata of limestone, dolostone, tillite, conglomerate, coal, sandstone and shale are present on the island and date from times of deposition by marine and fresh water in the Paleozoic and Cenozoic eras. The limestone bedrock in the Mole Creek Karst National Park area is riddled with sinkholes and features large caverns with handsome features. Tasmania is not known as a fossil collector's paradise but a variety of fossils are found. *Glossopteris,* an extinct order of seed fern that lived on Gondwana, is likely one of the more prized finds.

Economic minerals are concentrated in western and northwestern Tasmania; often associated with plate tectonic activities that occurred during the Precambrian Era and Cambrian Period. Certain minerals are mined and processed in Tasmania to extract precious and base metals such as gold, silver, zinc, lead, copper, nickel, iron, and tin. Other economic rock materials such as coal and carbonate rocks are also mined. Of the latter, limestone and dolostone are used for construction purposes.

Mineral enthusiasts appreciate the noteworthy minerals in Tasmania that are unusual or rare. Unusual examples include crocoite (lead chromate), stichtite (carbonate of chromium and magnesium), and heazlewoodite, a low sulfur nickel-sulfide mineral formed in a metamorphic environment. Among the rarities is Tasmanite, a hydrocarbon found in a Permian oil shale from northern Tasmania. It contains *Tasmanites* microfossils, tiny algal cysts. The shale was mined intermittently in the early 1900s.



Cradle Mt of northeastern central Tasmania is part of a World Heritage Area

Weathering granite creates quartz sand beaches along the northeast coast

During the Pleistocene the action of glaciers left their mark on the present terrain. An ice cap covered the high central region and valley glaciers flowed in the ranges to the west. The magnificent scenery around Cradle Mountain is an example. Once the Ice Ages ended, the sea level rose dramatically forming the wide Bass Strait between Tasmania and the rest of Australia. Since then, running water and coastal wave action continue to transform the geography of the island.

-Jutta Siefert Dudley

EVENTS for November, 2011

(For updates to events, check the Academy web site, http://www.rasny.org, or appropriate Section web site.)

NOVEMBER EVENTS

Tuesday 1 FOSSIL MEETING

7:30 PM at the Brighton Town Hall. John Spina, member of the Fossil Section, will present "The Past, Present & Future of Fossil Collecting for the Casual, Serious and Professional Collector"

Friday 4 ASTRONOMY GENERAL MEETING

7:30 PM at RIT, Building 1, Room 2000. The main speaker for the evening will be Manoj Puravankara with a talk titled "Stellar Evolution."

Saturday 5 ANNUAL TELESCOPE BUYING SEMINAR

10:00 AM to 3:00 PM in the Strasenburgh Planetarium Lobby. Members of the Astronomy Section will be on hand to answer your questions about the different types of telescopes available and help you decide which one is right for you.

Wednesday 16 RAS BOARD OF DIRECTORS MEETING

7 PM at the Brighton town hall, upstairs conference room.

Thursday 17 ANTHROPOLOGY MEETING at Memorial Art Gallery M&T Bank Ballroom. We will join the Archaeological Institute of America, Rochester Society for their lecture "Paupers, and Peasants, and Princes and Kings: Society in Late Bronze Age Mycenaean Greece", by Assistant Professor Dimitri Nakassis, University of Toronto. For more information contact Karen Wolf at 670-9709.

Friday 18 STAR PARTY

8:00 PM to 10:00 PM at Mendon Ponds Park, Hopkins Point Road.

Monday 21 MINERAL MEETING

7:30 PM to 9:30 PM at Brighton Town Hall, Downstairs Meeting Room, 2300 Elmwood Ave., Rochester, NY 14618. Dr. Asish Basu, from the University of Rochester, will talk about "Meteorites: Rocks from Space." There will be door prizes. Visitors are welcome. For more info, please contact Stephen Busschaert, at sbusschaert@msn.com or 585-288-5683, or go to www.rasny.org/mineral for updates.

DECEMBER EVENTS

Saturday 3 MINERAL SECTION HOLIDAY DINNER MEETING

6:00 PM at St. Louis Church, 65 S. Main St., Pittsford, NY 14534. Bill Pinch will speak - topic TBA. Meat, drinks & place settings provided. Members please bring a covered dish to pass. Families are welcome to attend with children. This is our last club event of the year & Rochester Lapidary Society members are invited. To volunteer to assist with set up & tear down, and other important tasks, please e-mail Nancy McCann at mineralpres@rasny.org or call 585-395-1713.

ADVISORY FOR LIFE SCIENCES SECTION

There will be no meetings other than Herbarium workshops in either November or December. Meetings will resume in January with an open house, dish-to-pass dinner. Please think about ideas about meeting topics and Field Trips you would like to have in 2012. Discussions will take place at this Open House, date to be announced in the December Bulletin/Web site.

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ABOUT THE **ACADEMY** - The Rochester Academy Of Science, Inc. is an organization that has been promoting interest in the natural sciences since 1881, with special focus on the western New York state region. Membership is open to anyone with an interest in science. Dues are minimal for the Academy and are listed in the membership application. Each Section also sets dues to cover Section-related publications and mailings.

For applications and/or more information contact Jutta Dudley, 140 Railroad Mills Road, Pittsford, NY 14534; by telephone 385-2368; or by e-mail <JuttaSD@aol.com>.

The ***Academy*** Internet web page is **http://www.rasny.org**

The ***Astronomy Section*** Information phone number is (585) 987-5330. The ***Astronomy Section*** Internet web page is **http://rochesterastronomy.org**

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