

Nittany Mineralogical Society Bulletin

Nittany Mineralogical Society, Inc., meeting in State College, Pennsylvania
Contact information on back page

Editor (see back page):

David C. Glick

November, 2018

Visit our web site: www.nittanymineral.org

NOTE: One week earlier than usual

November 14th meeting:

Geology, scenery and natural history of New Zealand

by

Dr. Charles E. Miller, Jr.

Our November meeting will be held Wednesday the 14th in room 114 (the large auditorium) Earth & Engineering Sciences Building on the west side of the Penn State campus in State College, PA. Maps are available on our web site.

6:45 to 7:45 p.m.: Social hour, refreshments
in the lobby

7:45 to 8:00 p.m.: Announcements, questions,
answers

about 8:00 p.m.: featured program

*The event has free admission, free parking, and free refreshments, and is open to all; **parents/guardians must provide supervision of minors.** Bring your friends and share an interesting evening!*

New Zealand offers geology, scenery, and natural history that are beguiling to many. The country largely consists of North and South Island. Although separated by only 50 miles, the two islands have significantly different physical characteristics. Active volcanoes and geothermal features – geysers, fumaroles, and hot springs – are mostly found on North Island. The Southern Alps are on South Island. These mountains rise to over 12,000 feet and include many glaciers. In comparison, North Island mountains are less developed and have no glaciers. This talk discusses geologic processes that created differences between the two islands...

Please see the complete illustrated article on page 3.

DUES

Our new membership year started on November 1.

THANK YOU to all who have paid their dues. Members who have not renewed will receive a reminder.

December 12th:

Annual Holiday Dinner at Quaker Steak & Lube Restaurant

NOTE: SECOND Wednesday

Please join us!

On Wednesday, Dec. 12, 6:00 p.m., rather than our usual meeting and program, we'll have our **Holiday Dinner** at Quaker Steak & Lube Restaurant, 501 Benner Pike (across Benner Pike from the Nittany Mall), State College PA 16801 in their "Corvette Room." There is actually a real Corvette suspended from the ceiling above part of the Corvette room. The entire restaurant is decorated in automotive memorabilia making the place and our event a lot of fun

NMS will pay for appetizer plates to be shared by all those present, then attendees can order and pay for their own dinners. We'll have some door prizes also.

We will continue our past tradition where members can have a table at the dinner to sell minerals / fossils/ gems / jewelry / rock crafts. Sellers need to collect PA sales tax. NMS will charge a commission fee at 10% of the vendor's pre-tax sales. If you are interested in selling, please contact Bob Altamura (raltamura@comcast.net or 814-234-5011) as soon as possible to secure table openings.

ATTENDING THE NOVEMBER MEETING?

Donations of **a few high quality, labeled door prize specimens** are invited.

Your donated snacks will be welcomed.

Bring a friend!

Weather Cancellation Policy

In case we experience active winter weather on a meeting date, our policy is to cancel the meeting only if evening classes at Penn State have been cancelled. That cancellation is publicized in the usual radio and TV service announcements.

Penn State notes that weather-related cancellation / closing information can be found at WPSU-FM, the news site <<http://news.psu.edu/>>, and <<http://www.facebook.com/pennstate>>

- Editor

Annual Meeting and Election Results

by David Glick, NMS President

At the October 18th Annual Meeting of the Corporation, the four incumbent officers were re-elected (see page 8). We also welcome **Dale Kephart as Field Trip Chair**, an appointed Board position.

The Board truly needs **additional volunteers** to get involved with running the Society, providing **new energy and fresh thinking**. In many cases it would be useful to have newcomers spend some time on committees and attending Board meetings before stepping into elected office. **All members: please consider volunteering!**

Minerals Junior Education Day set for Saturday, March 30, 2019

Please keep the date open and plan to help the Society present our annual event for children in grades 1-8 and their parents.

Geo-Sudoku

by David Glick

This puzzle contains the letters CIKLOPRST; one row or column spells a photogenic geological site. As usual, if you've read this issue, you've seen it. Each block of 9 squares, each row, and each column must contain each of the nine letters exactly once. The solution is on page 8.

	L	P						S
		R	L		I	T		
						L		I
						S		T
			I	T	R			K
T	R		C		S			
R	C	I	S	P			T	
	S	K		I	T	C		R
L		T	R				S	

FEDERATION NEWS

Nittany Mineralogical Society, Inc., is a member of EFMLS, the Eastern Federation of Mineralogical and Lapidary Societies, and therefore an affiliate of AFMS, the American Federation of Mineralogical Societies. **The Federations and our Society strongly encourage all members to read the monthly Federation Newsletters, available on their web sites**, which are linked from our web site, www.nittanymineral.org. We present brief summaries here in order to encourage readers to see the entire newsletters. There's a lot there!

The **EFMLS Newsletter** is now being distributed electronically; a link is available on our web site www.nittanymineral.org. In the November issue, newly installed President David Nock introduces himself. Details of the 2019 EFMLS Convention in Monroe, Orange County, New York, are presented. It will be held the weekend of Friday May 31 - Monday June 3, in conjunction Orange County Mineral Society's Show on Saturday. A field trip to Sterling Hill Mine in New Jersey is planned for Monday.

The **AFMS Newsletter** is available by the same methods. The November issue was not yet available as of this writing. *-Editor*

NMS 20 Years Ago

from the lower strata of the Bulletin Editor's records

In November 1998, our meeting program was "The Truth about Agates" by Prof. Peter Heaney. T-shirts celebrating the Saltillo Mastodon dig were available. We were looking forward to the December program, "Are Birds Really Dinosaurs?" by Prof. Pat Shipman, a bus trip to the Smithsonian in February, and our fourth annual symposium in May.

NMS BOARD MEETING NOTICE:

NMS members are invited to attend Board of Directors meetings, which are generally held at 7:00 p.m. about two weeks prior to the general monthly meeting, although we do not meet every month. The next full meeting is planned for Monday, **January 7, 2019**. Members who would like to attend should contact president David Glick to verify time and place; those who would like to have their discussion item placed on the agenda should contact him at least one week in advance of the meeting.

Geology, scenery and natural history of New Zealand

Dr. Charles E. Miller, Jr.

New Zealand offers geology, scenery, and natural history that are beguiling to many. The country largely consists of North and South Island (Figure 1). Although separated by only 50 miles, the two islands have significantly different physical characteristics. Active volcanoes and geothermal features – geysers, fumaroles, and hot springs – are mostly found on North Island. The Southern Alps are on South Island. These mountains rise to over 12,000 feet and include many glaciers. In comparison, North Island mountains are less developed and have no glaciers. This talk discusses geologic processes that created differences between the two islands. Among those processes are plate tectonics. New Zealand used to be part of Gondwana (aka Gondwanaland), the Southern Hemisphere super continent consisting of Australia, Antarctica, New Zealand, Africa, India, Madagascar, and South America. You may have seen the farcical bumper sticker that pleads: “Please help reunite Gondwanaland.” To some, this conjures up an African nation that has become politically unstable and split into separate countries.

Active geology in New Zealand creates frequent earthquakes, geothermal areas, spectacular shorelines, glaciers, volcanoes, and other geologic features. It is also the home of the world-famous glowworms, the world’s rarest penguin (the yellow-eyed penguin) as well as the famous kiwi, seals, sea lions, and much more. The combination of interesting geology, scenery, and natural history appeals to so many people that tourism brings in over \$12 billion per year to the country. New Zealand geology is intriguing enough that Penn State geosciences students and faculty study there.

This article briefly discusses selected topics in the talk. Additional topics will be discussed in greater detail.



Figure 1: General map of New Zealand.

(new-zealand-travel-showcase.com)

Split Rock

In Tasman Bay of Abel Tasman National Park on South Island is Split Rock (aka Split Apple Rock; Figure 2) that is world famous. The quasi-spherically-shaped granite boulder is approximately 18 feet in diameter and is split into two nearly equal parts. The origin of Split Rock, a mystery to many, will be explained in the talk. Is Split Rock unique? When might this have occurred?

White Island

White Island (Figure 3), located in the Taupo Volcanic Zone of North Island, is New Zealand's most active volcano. Tours to the island issue gas masks, hardhats, and safety instructions. The island is replete with fumaroles, poisonous gases, sulfur deposits (Figure 4), a crater lake with a pH of -0.6, and areas of thin crust with scalding water below. Volcanic activity is monitored routinely using remote instruments on the island. From the mid 1880's through 1914, sulfur was mined there. Remnants of that past industry are reminders of a harsh life. Consider working all day in a bleak landscape of no vegetation or wildlife while poisonous gases occasionally blow by. There is no fresh water and missteps can result in severe burns or death. In 1914 sulfur mining on the island ended with the disappearance of 10 workers who were never seen again. Equally interesting is the special adventure of the tour boat two year's prior to the writer's trip to the island.



Figure 2: Split Rock in Tasman Bay; Abel Tasman National Park, NZ.

Image by the author.



Figure 3: White Island tour group near the volcano crater rim as fumaroles erupt in the background.

Image by the author.

Glowworms

New Zealand's world-famous glowworms are one of the country's greatest attractions. They are often on tourists' bucket lists. In fact, glowworms are probably a greater draw than the features (speleothems) of the caves in which they exist. Glowworms are bioluminescent larvae (maggots) of a gnat. In Pennsylvania, the firefly is another bioluminescent insect. Glowworms form silk threads coated with mucous that trap insects, usually in caves but also in forests, artificial tunnels, and along stream banks. In the total darkness of a cave, thousands of these larvae put on a spectacular light show. Who would think that maggots could be that interesting and that people would travel thousands of miles to see them?

Alpine Fault

Transform faults mark the boundary between adjacent plates of Earth's crust, where motion is predominantly horizontal (strike-slip). One of the best known is the San Andreas Fault in California, located between the North American and Pacific plates. New Zealand's counterpart to the San Andreas is the Alpine Fault, separating the Australian and Pacific plates. Both are right-lateral, strike-slip faults. Like the San Andreas, surface exposures of the Alpine Fault are few. At Gaunt Creek on the South Island,



Figure 4: Sulfur deposits on White Island.

Image by the author.

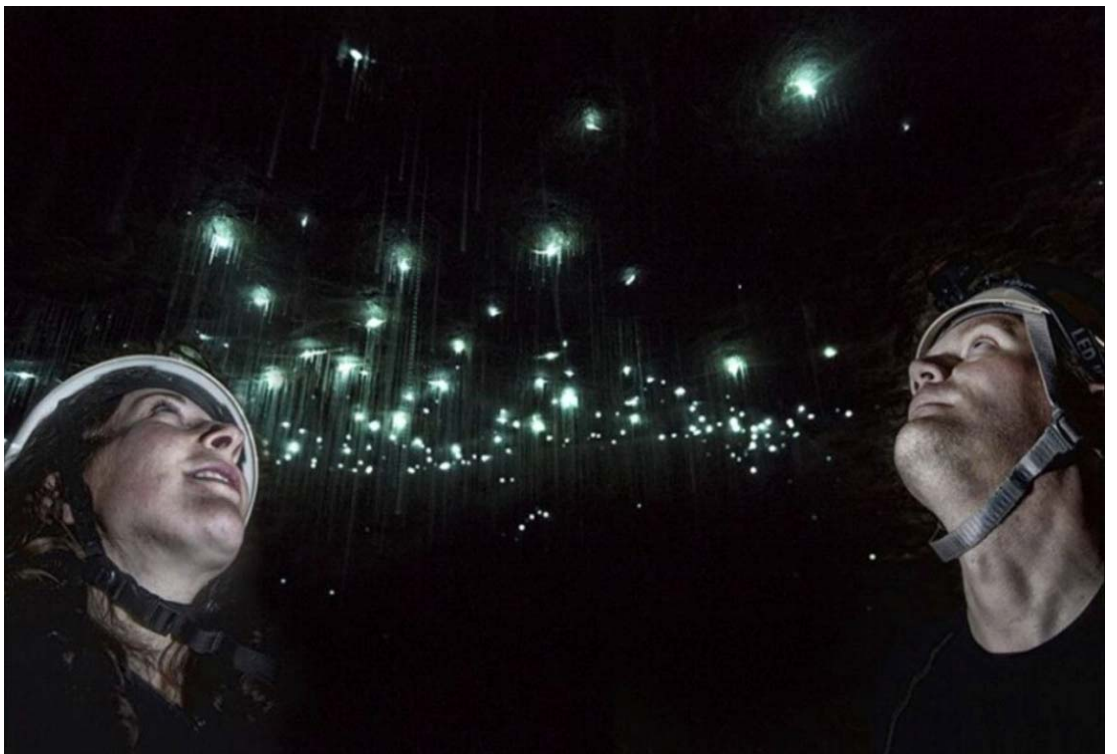


Figure 5: Glowworms: Underworld Adventure.

Used with permission.

one can see the fault, both tectonic plates, and fault-related features. The Gaunt Creek site is a foci of geological research, including from Penn State.

Moeraki Boulders

Along the southeastern coast of South Island is a beach where spherical and sub-spherical boulders up to 7' in diameter occur in profusion (Figure 6). These are known as Moeraki Boulders. Although commonly called septarian nodules, they are concretions. The former is a misnomer. This obfuscation and origin of the boulders are part of the talk.



Figure 6: Moeraki Boulders, NZ.

Image by the author.

Petrified Forest at Curio Bay, NZ

At Curio Bay, on the southeastern coast of South Island, is an extensive Jurassic (~ 170 million years ago) petrified forest. Preserved tree trunks and fallen logs, some 100+ feet in length, are exposed on a tidal flat. The fossil trees are gymnosperms (plants with seeds unprotected with fruit), a floral group that includes conifers, cycads, and ginkgo. Exposed are fossils of pine trees and tree ferns. The tidal flat is stratigraphically the lowest known of 10 fossil forests there.

palaeontology and oceanography. Additional fossil-tree horizons may exist in the subtidal part (below wave base) of



Figure 7: Petrified log at Curio Bay, NZ. Image by the author.

A tidal-flat setting limits fossil-tree studies to times of low water. Referring to tide schedules is necessary. Such studies, therefore, combine aspects of both

the tidal flat. However, with rising ocean levels, it is unlikely that stratigraphically lower forests will become easily accessible in the near future.

Studies of this fossil forest assist in understanding the paleoecology of the area in the mid-Jurassic. At that time, proto-New Zealand was part of the southern supercontinent Gondwana with a paleolatitude of approximately 80° S. This was 10 degrees from the Jurassic South Pole. This talk discusses how: the Curio Bay fossil forest is unique, it has provided information about the Jurassic in New Zealand, and such studies assist in reassembling landmasses moved due to plate tectonics.

Scenic Cave Stream

High in the mountains of South Island is Scenic Cave Stream (aka Broken River Cave). This high-altitude cave has a length of 1949 feet and impressive openings. It is accessible as a walk-through cave, although dangerous during high flows and at times of cold water. The walk-in entrance (Figure 8) is the stream exit. In other words, it is recommended to walk through the cave in an upstream direction. Present-day Cave Stream is a natural re-routing of a former abandoned channel. Evidence of this will be shown in the talk. The connection between this cave and elvers will also be discussed. Do you know what an elver is?



Figure 8: The walk-in entrance (stream exit) of Scenic Cave Stream, NZ. Image by the author.

Some Upcoming Shows and Meetings

Our web site <http://www.nittanymineral.org> has links to more complete lists and details on mineral shows and meetings around the country. See www.mineralevents.com for more.

Nov. 10, 2018: Lancaster County Fossil and Mineral Club Annual Show. Trinity Church of Christ, 450 W Main St., Mountville PA 17554. 8:30 - 4:30, Sat. only. See <https://www.facebook.com/LancasterFossilandMineralClub/>

March 23-24, 2019: 50th Annual Gem and Mineral Show sponsored by the Che-Hanna Rock & Mineral Club. Wysox Vol. Fire Co Social Hall, 111 Lake Rd; Wysox, PA 18854. Sat. 9-5, Sun. 10-4 <http://chehannarocks.com/show.html>

March 23-24, 2019: AFMS and Midwest Federation Convention, Cedar Rapids, Iowa.

March 30-31, 2019: Philadelphia Mineral Treasures and Fossil Fair, by Philadelphia Mineralogical Society and Delaware Valley Paleontological Society. Lulu Temple, 5140 Butler Pike, Plymouth Meeting PA 19462. Sat. 10-5, Sun. 10-4. <http://www.phillyrocks.org/mineral-show/>

June 1-2, 2019: EFMLS Convention and Orange County Mineral Club Show, Monroe, New York. (EFMLS meeting Friday evening May 31)

Geo-Sudoku Solution

I	L	P	T	O	C	R	K	S
O	K	R	L	S	I	T	P	C
C	T	S	K	R	P	L	O	I
K	I	C	P	L	O	S	R	T
S	P	L	I	T	R	O	C	K
T	R	O	C	K	S	P	I	L
R	C	I	S	P	L	K	T	O
P	S	K	O	I	T	C	L	R
L	O	T	R	C	K	I	S	P

Visit us at www.nittanymineral.org

INVITE A FRIEND TO JOIN THE SOCIETY

The Nittany Mineralogical Society prides itself on having among the finest line-up of speakers of any earth sciences club in the nation. Everyone is welcome at our meetings. If you'd like to be part of our Society, dues are \$20 (regular member), \$7 (student rate), \$15 (seniors), \$30 (family of two or more members, names listed). Those joining in March or later may request pro-rated dues. Your dues are used for programs and speakers, refreshments, educational activities, Bulletins, and mailing expenses. Please fill out a membership form (available at www.nittanymineral.org), make checks payable to "Nittany Mineralogical Society, Inc." and send them in as directed, or bring your dues to the next meeting.

We want to welcome you!

CONTACT INFORMATION

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The **Bulletin Editor** will welcome your submissions of articles, photos, drawings, cartoons, etc., on minerals, fossils, collecting, lapidary, and club activity topics of interest to the members. Please contact:

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Newsletter submissions are appreciated by the first Wednesday of the month. Photographs or graphics are encouraged, but please do not embed them in word processor files; send them as separate graphics files (TIF, or good to highest quality JPEG files, about 1050 pixels wide, are preferred). Please provide captions and name of photographer or artist.