

# The Explorers Club

## Northern California Chapter

March 2015

In color at our web site: <http://www.explorersnorca.org>

### LOCATIONS

Note venues and dates with care.

In San Francisco, CA,  
our next meeting is 6:30 pm  
March 27, a FRIDAY,  
at Pomery Center  
207 Skyline, San Francisco

## THE FIRST HALF BILLION YEARS OF EARTH HISTORY THE REAL DARK AGES

**Dr. T Mark Harrison**

Origin myths are common to all human societies, so much so as to conclude that our need to explain how we got here is hard-wired. The rise of the scientific method provided a basis to evaluate these narratives, such as biblical creation, which found them wanting. How ironic then, that when faced with the absence of a rock record covering the first half billion years of Earth history (4.5-4.0 billion years; Ga), the scientific community should create their own origin myth of a prolonged arid, lifeless, and molten surface during an eon known as the Hadean (or "hellish time).

The discovery of tiny zircons from Western Australia as old as nearly 4.4 Ga dramatically changed this dynamic by permitting observations into the earliest moments of Earth history. Investigations of these ancient zircons have been interpreted to indicate that continental crust had formed by 4.5 Ga, a mature sedimentary cycle was operating in the presence of a liquid water ocean by ~4.3 Ga, active recycling was occurring between crust and mantle, and granites were forming in what appears to be a plate tectonic setting. If this sounds rather familiar, it is because all these processes are known to be operating on the planet today.

Dr. Harrison led groups in both Australia and the U.S. that dated nearly 200,000 zircon grains to isolate the few thousand Hadean-age grains from which observations of the earliest Earth have been drawn. This is not only a scientific journey, but a sociological one as well. In

addition to describing how we have been able to elucidate the nature of Hadean Earth, Prof. Harrison will explore what compelled the scientific community to develop its own origin myth – of a hellish beginning – in the absence of any direct evidence.

Dr. T. Mark Harrison is a Distinguished Professor of Geochemistry in the Department of Earth, Planetary and Space Sciences, University of California, Los Angeles. A native of Vancouver, he received his B.Sc. (Hons.) from the University of British Columbia, in 1977 and Ph.D. from the Australian National University in 1981. After a postdoctoral fellowship at the Carnegie Institution of Washington (where he adopted his beloved but hapless Redskins) he spent 8 years at the State University of New York at Albany. In 1989, he moved to UCLA where he served as Chair of the Department of Earth and Space Sciences from 1997 to 2000. He was then appointed University Professor and Director of the Research School of Earth Sciences at the Australian National University from 2001 to 2006. He returned to UCLA in 2006 to take up Directorship of the Institute of Geophysics and Planetary Physics.



### WANT TO GO ON AN EXPEDITION?

A unique opportunity to join an Expedition to Ulithi Atoll, Federated States of Micronesia this summer: Explorers Club FN Nicole Crane and her science team, along with Rick Saber, N. Cal EC Chapter Chair, invite you to join our Expedition this summer to work with outer island communities on reef conservation and management. Learn more about the research at [onepeopleonereef.ucsc.edu](http://onepeopleonereef.ucsc.edu) We have two overlapping expeditions: a program for youth (high school/college) June 8-21, see <http://www.blueecology.org/volunteer.asp?pageID=52> for more details. A separate program for volunteers to help with the work will be June 16-28. Learn more at <http://www.oceansociety.org/trip/research/ulithi-reef> Feel free to e-mail Nicole Crane, Expedition Leader for more information:

[nicrane@cabrillo.edu](mailto:nicrane@cabrillo.edu) We can only take a limited number of people, so inquire soon!

## PERSPECTIVES ON DECADES OF OCEAN RESEARCH AND RAISING A FAMILY 'UNDERWATER' Nicole CRANE FN95 AND Dr. GIACOMO BERNARDI

The speakers got to know each other while working on a project that required living together for 10 days in a sea lab under about 40 feet of water. This requirement of the project was to be able to work for extended periods of time at a depth of water that would otherwise demand regular visits to the surface to decompress. The family struggles while on their expeditions were those of any family out camping in the forest, only more so: Amalia stung by a jelly fish that the local women knew how to treat with an herbal and kelp paste; Alexio stepped on an ugly fish and had an infected foot; Amalia stung by a centipede; Amalia carried off by a baboon.... Well, quite a bit more so.

An Ocean in Peril: The talk spoke about the acidification of the sea water that is occurring in the ocean today. Coral reefs are sensitive to sea water's ph. The impact of the dumping of plastic trash, not just the bags but all the finer pieces of plastic debris, contribute to the acidification of the ocean. This permits the growth of algae which sicken the coral reefs. One way to reverse this process is to re-stock the reef with the kinds of fish that feed on the algae. Along with the planting of young coral, this helps the rejuvenation of the reef. The high levels of CO<sub>2</sub>, up to 400 ppm, in the atmosphere from fossil fuel combustion also contributes to ocean acidification. This causes fish to lose their sense of smell, which is used to locate their own kind, recognize their particular habitat, and detect predators.

The sensitivity of the relationship between the food chain and the eco system with respect to marine life was also considered. For instance, along the Aleutian island chain, the Aleutian sea otter loves to eat sea urchins. The sea urchins eat the kelp. So, a balanced eco system is one that has the sea otters eating the sea urchins, resulting in a kelp bed that is doing well. But, the whales of that area have been decimated, so the killer whales, which used to live off the whale population, have had to turn to a food source down the food chain, the sea otter population. Apparently 150,000 sea otters have disappeared from the area as the result of the foraging of the killer whales. This has given the sea urchin a chance to proliferate, resulting in the disappearance of the kelp.

The establishment of marine sanctuaries was discussed. One of their projects involved the study of fish nurseries around the island of Moorea. The objective was to identify the fish reproductive process so as to have a basis for establishing marine reserves. This takes painstakingly detailed work to establish the relationship between parent fish and their eggs and offspring, important knowledge that is used as part of the reasoning for choosing remote areas suitable for a marine reserve. Another thought, however, is that while setting up such reserves in uninhabited areas is desirable, the fact that there are no humans there makes for difficulties in maintaining and studying the area. A happy compromise seems to be the atoll of Ulithi. The people of Ulithi live a traditional life style which is in equilibrium with the ecosystem. About 50,000 fish have been caught there, measured, studied and catalogued and the results stored in a data base This is the biggest such data base in existence.

The talk was an interesting mix of parental issues and good eco-science. The speakers were articulate and a delight to listen to, with detailed knowledge and great pictures, and a sense of humor that kept everyone engrossed. How did the kids feel about their life on expeditions? In many ways it was tough, that they were tired of going to places that didn't have lots of other people. Apparently the visits to tropical island paradises didn't quite meet all of the social needs of the younger set. AJ

### PHOTO OF THE MONTH

Got a favorite picture from exploration? Submit it to the Newsletter editor along with about 200 words describing what it is and how you came to take it. This photo was taken by Steve Smith on his project with Oceanearth.

### KOSRAE ATOLL MICRONESIA

Mid-tide looking north across the reef flat on Kosrae, the eastern most State of the Federated States of Micronesia Lat 5.3N, Long 163.0 E. The wave break marks the edge of fringing reef system that surrounds the island. At high tide, this area will be completely submerged. Kosrae is home to one of most extensive mangrove forests in the Pacific region, seen here along with a Pacific Reef-Egret (*Egretta sacra*). Visit [www.oceanearth.org](http://www.oceanearth.org) for information on our project there.



Nicole Crane, Giacomo Bernardi, Rick Saber. photo by Von Hurson



**EDITOR'S NOTE:** The Newsletter has gone digital with distribution via the internet and website. Want a hard copy? Contact the Editor or Steve Smith to submit your email address if not already receiving notices OR for a b&w print. Pass the word..

**From the Chair:** A full House! ECAD was sold out by mid-February. About sixty of us from our Chapter are making the Trek to NYC, and with adjoining tables we should be seen as quite a presence from the West Coast. We start the evening off with the cocktail party on the carrier USS Intrepid before heading over to the Museum of Natural History for the big dinner and award ceremony. We'll also be provided with a behind the scenes tour of the Castle led by Becky Nichols and a personal visit to **President Nichols'** office. Details will be sent to all those ECAD'ers participating, from NorCA in the largest gathering of Explorers on the planet.

I'm proud of the fact that by acclimation vote of a quorum at our January meeting, we approved purchase of a wing tile exactly like the one carried by Solar Impulse #1 in 2011 on its "Across America Tour". We acquired solar tile #7744 in support of Solar Impulse #2 which plans a round the world voyage starting in Dubai. Liftoff is imminent. Panel 7744 is located on the leading edge, starboard wing adjacent to the cockpit where Bertrand Piccard and André Borschberg will be jointly conning this epic venture powered solely by the sun.

Dr. T. Mark Harrison returns this month. His topic, "The First Half Billion Years of Earth History", is alternately titled The Real Dark Ages. Through many requests from Chapter Members, we are proud to bring Dr. Harrison back up from Southern CA to share one more of his many topics from the field. His ability to articulately explain

challenging concepts, coupled with his wry sense of humor, will insure another stellar sell-out evening. It is hoped he can confine a discussion containing a half billion years into a one hour presentation.

Also, during our March meeting you will be presented a slate of elected officers to consider for the vote on Chair positions at April's meeting.

Further out we'll hear from Dr. David Ainley on "The Last Ocean", details of which will be presented in our next newsletter.

The May meeting is shaping up to be a singular premier event. It will occur on a special one-off night, Thursday 21 May. We will travel behind the scenes at the Academy of Sciences in San Francisco, as well as enjoy other surprises. This event will usher in our new Chairperson. May's meeting will, therefore, be a bit more formal and upscale.

We have had many new well-qualified applicants for membership join our Chapter. With increasing member participation and rising interest in our activities and events, it is assumed we might be headed in the right direction. However, we are *always* open to your suggestions, critiques and compliments. Please participate in this progress to reap the rewards we share as fellow Explorers. The birds are chirping a joyous Welcome to Spring! Get out in the field....live to Explore!

Rick Saber MN'01

Photo by Von Hurson

## EXPLORERS ON THE MOVE

(If you have news of a Chapter member's impending expeditionary activity, please send the information to the editor.)

**Bob Schmieder FN82** is in Asia working on details of the Heard Island Expedition. He should be back early in March.

**Suzanne Klotz MN12** is expected to be back from the Himalayas of northern India early in March.

**Nicole Crane FN97** is heading back to Micronesia this summer and is looking for team members. Check out the notice on page 1.

## UP DATE YOUR CONTACT INFO

Those of you with email will be contacted both to update your contact information and to encourage you to get current on your annual Chapter dues. Please respond to this contact as your data will be the basis for both the roster and website.. If you don't get email, now is a good time to pay your dues and make sure your snail mail address is correct. AJ



## FAREWELL TO HARRY AND DEDE

It is with some sadness that we bid a fond farewell to Harry Hicks and Dede Whiteside who are heading north to their new home on Whitby Island. They promise to pay us a visit once in a while. Good luck to you both, dear friends.

Diana Pickworth FN'01, Harry Hicks MN'87 and Dede Whiteside MN'12

## Chapter Officers for the coming term 2015-17

The nominating committee consisting of Lee Langan FN'99, Captain Robert Schmieder FE'66 and Dr. Steven Smith FN'96. are still working on a proposed slate of candidates for the roles of Chapter Chair and Vice-Chapter Chair. If you are interested in being considered, please contact the Committee Members. Nominees will be announced at our March Meeting. AJ .

**From the Board:** As we approach the Election of new Directors, we are all also faced with making a decision about a new set of Bylaws, prepared by a committee led by our Honorary Chair, Dr. Don Walsh.. The majority of the Board is in support. A vocal minority of members (and a few Directors) are in opposition, and this has created a hubbub of dueling emails. This is unfortunate and reminds us all of the consternation that occurred when Alan first took the reins. The same individuals have raised this as an issue. Alas, vote your will. We will all know the outcome soon. -- Lee Langan FN'99

## March 2015



Chair: Rick Saber  
415 457-0345  
eagle@rsaber.com  
Vice Chair: Joan Boothe  
415 346-5934  
hoodooskr@aol.com  
Treasurer: Stephen E. Smith  
925 934-1051  
ecnca@oceaneearth.org  
Secretary: Von Hurson  
Webmaster: Mike Diggles  
Newsletter: Anders Jepsen  
ajviking@aol.com  
925-322-8893

### **Northern California Calendar of Events**

(Venues are identified as soon as known.)

#### **Our Next Event Upcoming Events (2015)**

March 21 . . . . . ECAD  
American Museum of Natural History New York  
March 27 . . . . . Dr. T. Mark Harrison  
Earth's Geochronology. . . . . Pomeroy  
April 24 . . . . . Dr. David Ainley  
Last Ocean (& NorCA election) . . . . Pomeroy  
May 21 (Thursday) . . . . . Meg Lowman  
Underground Tour, CA Academy of Science  
June 13 . . . . . Chapter Picnic  
. . . . . Angel Island  
September . . . . . TBA  
October . . . . . Lowell Thomas Meeting

#### **Earlier Chapter Events (2014)**

April 25, 2014 . . . . . Dr. T. Mark Harrison  
Mountain Building . . . . . City Forest Lodge  
April 26, 2014 . . . . . FIELD TRIP  
Geyser's Field trip . . . . . Richard Blake  
May 23 . . . . . Dr. Meg Lowman  
Forest Canopies . . . . . City Forest Lodge  
June 8 . . . . . Summer Gathering  
Gene & Sybil Boudreau's home, Sebastapol  
June 20 . . . . . FIELD TRIP  
USS Hornet . . . . . Oakland  
September 26 . . . . . M.E.A McNeill  
Apiary Science . . . . . City Forest Lodge  
October 11 . . . . . Lowell Thomas Award Dinner  
. . . . . Bowers Museum, Santa Ana, CA  
October 24 . . . . . Dylan Burge  
Botany Field Trip . . . . . Golden Gate Park  
November 21 . . . . . Tony Liang  
An exploration into cancer. . . . . City Forest Lodge  
December 10, . . . . . Holiday Party  
February 27 . . . . . Nicole Crane & Giacomo Bernardi  
Romance & Discovery Under the Sea. . Pomeroy

Send address changes and  
corrections by email to Steve at  
[ecnca@oceaneearth.org](mailto:ecnca@oceaneearth.org)

**Upcoming Expeditions:** We have been advised of several upcoming expeditions which we believe Chapter Members and/or Sirdars may be interested in. Each of these expeditions has at least a place or two available as of the date of this newsletter. Because of space limitations, we can only provide brief descriptions here, but if you would like more information, please contact the listed expedition organizer or Rick Saber ([ricksaber1@gmail.com](mailto:ricksaber1@gmail.com)) or Joan Boothe ([hoodooskr@aol.com](mailto:hoodooskr@aol.com)).

**May 2015** — Raivavae Research Program, led by Explorers Club Board member Capt. Lynn Danaher. Raivavae is an island in Polynesia with a population of under 1,000. One of 5 of the Austral Islands, it is lush, unspoiled and stunningly picturesque. It is located just south of the Tropic of Capricorn at 23°52' S latitude and 147°40' W longitude. Participants will be involved in helping to collect data, visiting the communities, and learning about the unique management and conservation efforts in the region. This program will be through the Oceanic Society in partnership with our One People One Reef project. Information about this program can be found at <http://www.oceanicsociety.org/trip/research/ulithi-reef>. An Explorers Club Flag has been applied for.

**June 15-28, 2015** — Ulithi Micronesia Reef Conservation volunteer participant program led by Nicole Crane. Participants will be involved in helping to collect data, visiting the communities, and learning about the unique management and conservation efforts in the region. This program will be through the Oceanic Society in partnership with our One People One Reef project. Information about this program can be found at <http://www.oceanicsociety.org/trip/research/ulithi-reef>. An Explorers Club Flag has been applied for.

**August 2015** — Travel down the Nelson River in Canada to York Factory with the Fara Heim Expedition to search for the lost warships of the 1697 Battle of Hudson Bay. For information, please call (262-960-2959) or email David Collette ([david@faraheim.com](mailto:david@faraheim.com)). For more information re Fara Heim, go to [www.faraheim.com](http://www.faraheim.com)

**November 10, 2015 - December 22, 2015** ----Dr. Bob Schmieder reports from Australia that the agent for the Heard Island expedition has extended an offer to others who might be interested in sailing along on the ship that will take the expedition team to Heard Island, remain there to service it, and bring it back home. While not living on the island, day trips to visit the various scientific teams or to check out the local wildlife would be offered. All meals would be eaten on board or bag lunches provided for the individuals for the day trips. If you are interested, contact Bob Schmieder via email at [schmieder@cordell.org](mailto:schmieder@cordell.org).

DIRECTIONS TO THE POMEROY CENTER: Proceed to 19th Avenue and Sloat. Go west on Sloat to Skyline/Rte 35; LT south to Herbst Road. Rt turn to Pomeroy center. Park only in lit area.

## March 27, 2015 The First Half Billion Years of Earth History

### March 27, San Francisco @ Pomeroy Center

**Date** FRIDAY, March 27, 2015  
**Place:** Pomeroy Center  
207 Skyline Blvd  
San Francisco, CA 94132  
(415) 655-4100  
**Time:** 6:30 - reception  
7:15 - dinner — 8:00 - program  
**Cost:** \$49 in advance; \$60 after 24 February  
Students: \$35. (2015 dues: members, \$25; Sirdars, \$50)  
Please mail reservation information, checks & dues to Steve Smith,  
email [ecnca@oceaneearth.org](mailto:ecnca@oceaneearth.org), call (925) 934-1051, or  
mail to 402 Via Royal, Walnut Creek, CA 94597

**Reserve** \_\_\_\_\_ spaces  
**Name:** \_\_\_\_\_  
Address (if changed): \_\_\_\_\_  
Companion: \_\_\_\_\_  
Meal choice\*: \_\_\_\_\_

### **We have an established PayPal account.**

For those of you who have an account, you can sign up and remit dinner costs to the NorCA Chapter by transferring money to: [explorersnorca@gmail.com](mailto:explorersnorca@gmail.com)  
There is a PAYPAL BUTTON on our website ([www.explorersnorca.org](http://www.explorersnorca.org)); easy to use!  
(There is a slight extra fee of \$2 for this service.)

\*March Meal Options (select your choice)  
beef tri-tip or salmon or veggie (eggplant parmesan)