The Explorers Club
Northern California Chapter

May 2016

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

LOCATIONS

Note venues and dates with care
In San Francisco, CA.

May 27, 2016
Grace Lutheran Church
3201 Ulloa Street at 33rd Ave
San Francisco, CA 94116

SURVIVING THE 2015 EARTHQUAKE IN NEPAL

ANN SANGUINI, PHD

The tectonic setting of the Himalayas creates great (magnitude > 8.0) earthquakes. Adding to that risk, buildings are not properly constructed to withstand shaking, which puts people in great danger. The public school buildings are especially vulnerable. From 2012 to 2015, Anne Sanguini was in Nepal six times for her research that studied whether people who had seismically retrofitted their village school could help motivate other villages to do the same. She was in Kathmandu during the 2015 Nepal earthquake.

Sanguini will discuss how, 20 years ago, GeoHazards International and a local NGO, National Society for Earthquake Technology – Nepal, introduced seismic construction skills at the community level. Anne's multidisciplinary research applied recently developed social theory, and developed an intervention (a film) designed to accelerate the rate of school building retrofit. She will show a trailer from the film. Her research included a randomized controlled trial of 761 adult community members at 16 Kathmandu valley schools in need of seismic work. The study was completed just 5 weeks before the earthquake struck. A first-hand eyewitness account of the earthquake will be given, including the fate of buildings from the 5 schools in the film,

the 16 participating in the trial, and the 300 or so that had been retrofitted prior to the earthquake.

Time permitting, Sanguini will compare and contrast recommended preparedness actions in Nepal vs. California. There will be a drawing where one lucky Explorer's Club member will win a fully stocked emergency "go-bag" backpack.

Anne Sanguini achieved two major milestones last year: She earned her PhD in Geological Sciences from Stanford, and bought a $10 National Parks lifetime senior pass. A native Minnesotan, Anne was recruited from the 3M Company in St. Paul to Silicon Valley in 1977. She spent 30 years in high tech marketing and general management, including stints at National Semiconductor, Sun Microsystems and Mentor Graphics. After retiring, she cast about looking for what was next.

Sanguini returned to school, focusing on geology. "You get to learn how the earth works" she says, "How cool is that?" She earned an MS in Geology from SJSU and then worked about a year at the USGS, including two summers doing paleoseismic work in trenches across the San Andreas Fault. Her initial studies at Stanford focused on the response of landscapes to multiple earthquakes. A multidisciplinary course changed her direction: Understanding Natural Hazards, Quantifying Risk, and Increasing Resilience in Highly Urbanized Areas.

This became the focus of her dissertation regarding the Kathmandu valley, Nepal.

Today, Sanguini works at GeoHazards International, a nonprofit working towards ending preventable death and suffering from natural disasters. The organization works with vulnerable communities in developing countries to help them to understand their risk and take actions to reduce it, before a disaster strikes. They are currently participating in a fundraising event, SVGives. Learn more and see videos about the Nepal earthquake and Indonesia tsunami preparedness activities at this website:
(https://svgives.razoo.com/us/story/GeoHazards-International)

NEW TECHNOLOGY IN EXPLORATION
A Review of a very special evening at The Autodesk Gallery

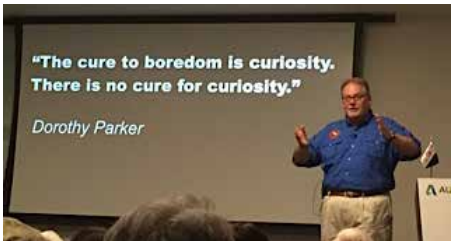
Photos by Autodesk and Keith Kvenvolden

The gathering of NorCa explorers for our special April event at Autodesk gave Chapter members a chance to see ways that the computational advances of Autodesk have contributed to the development of

new technology. After attendees had had a chance to explore the many exhibits in the Autodesk Gallery, our host, Chapter member and Autodesk 'Explorer in Residence' **Jonathan Knowles MN'15** gave an introduction in which he talked about the role of technology in exploration, in particular mentioning several of the 120+ separate software tools that have helped engineers and scientists do their job. His presentation finished with the point that software has now reached levels of sophistication such that the computer can be left to do much of the creativity required for new inventions. As an illustration, he showed a model of a dinasaur skull which had been created on a 3D printer by a computer under control of an Autodesk program.

He was followed by **Eric Stackpole SN'05**, co-founder of OpenROV, who began his talk by referring to exploration of the ocean by robots. OpenROV makes programmable submersible robots which are programmed to dive independently and send pictures back to the surface computer. Stackpole showed several pictures of deep sea life never seen before. He began funding OpenROV by pitching the robot concept on Kick Starter. The response was hugely positive and Stackpole now expects to sell 10,000 kits in the coming year. He described his activities as promoting 'Citizen Scientists'. The importance of using the AutoDesk programs for OpenROV was clear.

The third presentation was by **Jason Dunn,** founder of Made In Space, who spoke about the advantages of manufacturing things in space. He started training in the NASA test bed which is a large airliner flying in parabolic arcs to simulate working in a gravity free environment. Dunn moved on to develop the current program in the International Space Station (ISS) where a 3D printer system connected to a laptop computer was able to manufacture a much needed tool, under instructions developed on the ground and transmitted to the station. Dunn made the point that current software with a 3D printer



has been shown to be able to manufacture specific things in space on short notice using the appropriate software received from the ground crew. He referred to that as 'inner manufacture' and described the creation of simple objects, advancing, as was the case with the ISS example, to more sophisticated things like a tool. He then extrapolated from that idea to suggest doing manufacture ('building out') outside the ISS. Outside the limits of the walls of the ISS, such manufacturing could be used to extend the size of the ISS, all without requiring additional rocketry to bring needed parts from earth. Autodesk software now exists to do such jobs.

AJ

SOLAR IMPULSE 2 ARRIVES AT MOFFETT FIELD

A crowd of several hundred watched and waited as Solar Impulse 2 (SI2) cruised the area, waiting for the wind to die down to permit a safe landing at Moffett Field Saturday night. A large viewing space had been set aside on the tarmac for the excited watchers, all shepherded by young ladies with french accents and wearing the dark blue uniform of Solar Impulse. For several hours SI2 had showed off by circling over the Golden Gate and its bridge, all displayed in real time on the project website. As the evening progressed, SI2 finally headed south just off the coast to turn east over Stanford, and circle the field before finally settling gently on to the runway at 11:45pm to the applause of the rapt watchers. The Explorers Club NorCa Chapter was represented by **Anders and Kathy Jepsen** and **Tom Dolan** at its arrival, by **Keith Kvenvolden** at its next day open house and by **Lee Langan** at its departure for Phoenix a few days later. AJ

A Glimpse of the FUTURE by Keith Kvenvolden FE'80

Solar Impulse 2 (SI2) completed the ninth leg of its historic journey to circumnavigate the globe, using only solar power, by landing at Moffett Field in Mountain View, California, a little before midnight on Saturday, April 22, 2016. About fourteen hours later I visited the aircraft, and there I glimpsed the Future. SI2, carefully ensconced in its own huge fabric hanger, was available for viewing. There I met the two pilots, **Bertrand Piccard** and **Andre Borschberg**, who are inspiring and alternately guiding SI2 on its historic flight around our world. These men are the new heroes of space-flight explorers and leaders in the same mold as the Wright Brothers, John Glenn, and Neil Armstrong. When Solar Impulse finally reaches Abu Dhabi, where its journey began last year, it will have convincingly demonstrated that harnessing solar power for flight will be a key technological advancement for the future of humankind on earth.

Photo by Keith Kvenvolden's camera

IN THE FOOTSTEPS OF XU XIAKE

Explorers Club Flag Expedition #60
Lawrence Glacy, M.A., J.D., FN'09

Editor's Note: Lawrence Glacy FN'09 is a member of the San Diego Chapter who has visited the Northern California Chapter a number of times. He has spent much of the last 30+ years travelling in China, perfecting his Chinese and documenting much of his experience. Presently he is still busy translating the documents that describe Xu Xiake's work.This note was developed in support of his Explorers Club Flag expedition.

The journey of China's first explorer who traveled for 37 years in China and through Yunnan, Province during the Ming Dynasty.

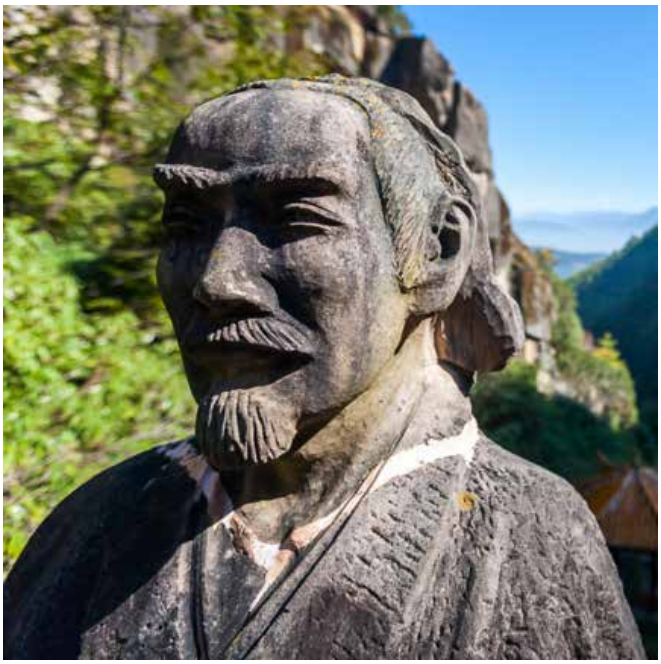


Photo by Lawrence Glacy

Xu Xiake was born in 1586 in Jingnan, China, located on the east coast near where the Yangzi River enters the South China Sea. He was born into the wealthy landed class and had a classical education preparing him for the Civil Service exam and eventually for a life at the Imperial Court. It was a time when the Ming Dynasty was attempting to document the geographical landscape of China and had sent out, to Counties, Towns and Villages, the order to document the local geography of the land. As these records came in it became clear to Xu Xiake that there were many errors in their geographic details and he decided to 'go on the road' to correct them. In this effort he walked around China for 37 years as a keen observer of the mountains, rivers, caves and many other geographical features, documenting them in his diaries. The last five years of his travels took place in Yunnan Province and produced the most information contained in 404,000 characters describing his observations. He died one year after he returned home to Jingnan at the age of 54 in the year 1641.

Xu's diaries are the principle source of our knowledge about his travels and observations, yet many diaries have gone missing, some of his travels contain gaps in the record of the trip, and for his last journey home he had stopped writing. Shortly after his death, with the succession of the Qing Dynasty, his diaries were destroyed by fire. Therefore, in many instances we are limited to reasonable inferences and sometimes speculation on the routes he took and the observations he made. Our expeditions along some parts of his travels are an attempt to correct the historical record regarding his observations and discoveries.

Many of the areas of Yunnan Province that Xu travelled to were at the time under the control of local minority peoples. These areas were at the margin of the Empire and at the time many of the local rulers had great admiration for the stature that Xu Xiake represented with the empire. He was therefore able to travel through many of these minority areas and learn and record much about the culture of these groups. In part the consent or lack of consent he received to travel within these areas presented valuable information on the extent of his journey.

During his journey through Yunnan, Xu walked to the summit of many mountains, identified the source area of many rivers, corrected the historical record regarding others and visited much of the Cave or Karst landscape where this author argues he identified a unique ecology at the cave entrance. In addition, his observations were geological and botanical, as well as cultural.

Near the end of his journey in Yunnan he became ill and no further diaries were written during his return home in a sedan chair. However, reasonable inferences are drawn on the route he followed which will take us to one of his last most desired destinations in Sichuan Province at O'mei mountain.

SOLAR FLIGHT AT NIGHT

The sight of a solar-powered airplane either landing or taking off in the late or early hours of the day is not a usual event, and both events look about the same: a wide array of bright lights moving across the sky at about 25 miles an hour. This picture, taken by Lee Langan when the SI2 left Moffett Field for Phoenix at 5 am looked about the same as it did when it landed at Moffett a few days earlier at 11:50 pm.

CHAPTER EXPLORERS IN THE FIELD

The Northern California Chapter (NorCa) of The Explorers Club certainly has its share of explorers as active, participating members. As these words are being written, NorCa Chapter Member **Dan Ackerman AN'14** and his team are camped at their main base camp halfway up Mount Everest, commencing their final assault on the summit. Their progress can be monitored at http://www.absoluteverest.com/

In the meantime, two other NorCa Chapter member teams are just returned from their expeditions:

* **Harry Hicks MN'87 and Dede Whiteside MN'--** are back from their investigative expedition to Egypt; and
* **Bob Schmieder FN'86** has returned from his 14-man expedition to Heard Island in the Antarctic.

June's newsletter will have reports on both the Egypt and Heard Island expeditions. And I'm sure that any or all of these explorers would be delighted to respond to expressions of interest from individuals at our regular meetings. This is what makes our Chapter so great. AJ

HONOR ROLL OF PAID UP DUES FOR 2016

Members

Jim Alexander
Jamres Allen
Julia Amaral
Susan Anderson
Reginald Barrett
George Belcher
Bonnie Bibas
Rick Blake
Peter Bogardus
Kendra Bolt
Joan Boothe
Keith Chase
Doug Cheeseman
Ted Cheeseman
Sandra Cook
Alan Cooper
Thomas Cromwell
Don Dana
Peggy Day
Mike Diggles
Thomas Dolan
Louise Downe
Thomas Durbin
Donald Dvorak
Elaine Dvorak
Scott Ellis
Sue Estey
Robert Eustace
Art Ford
Susan Fox
Paul Freitas
Lawrence Glacy
Ron Glantz
Arjun Gupta
Tom Hall
Peter Hemming
Michael Herz
William Heydorn
Don Heyneman
Robert Higgins
Jim Hurson
Von Hurson
Alan Hutchison
Anders Jepsen
Steven King
Ronald Klein
Suzanne Klotz
Bill Kruse
Keith Kvenvolden
William Lidicker
Pierre de St.J. MacBeth
Marco Meniketti
Teresa O'Kane
Peter Overmire
James Prigoff
Edward Ross
Sandra Ross
Rick Saber
Bob Schmeider
Sara Shoemaker Lind
Steve Smith
William Straka
Susan Taylor
Richard Tenaza
Ed Von der Porten
Don Walsh
James Weil
Gordon Wiltsie
Sherry Wren

Sirdars

Linda Alexander
Caryn Anderson
Marion Blumberg
Barry Boothe
Karoli Clever
Sandra Cook
Wendy Crowder
Joy Durighello
Dafne Engstrom
Mats Engstrom
Eric Follestad
Anna Freitas
Louise Geraci
Gina Glantz
Jerry Griffith
Louise Heyneman
David Hirzel
Nancy Isaac
Kathy Jepsen
Kathy Judd
Margot Komarmy
Ellen Lapham
Iyana Christine Leveque
Tim Loew
Liz McLoughlin
Bonny O'Keefe
Ingrid Peterson
Laura Phelps
Aldeana Saber
John Schlagheck
Kay Schmieder
Scott Soper
Robert Van Austen
Judy Van Austen
Andrew Wegst
Mark Weiman
Thomas Yohannan
Robin Ziegler

FROM THE CHAIR

Joan Boothe MN'07

As I write this, I'm sitting in my kitchen and thinking about where I might have been this very moment – flying to Vladivostok to begin a trip on the Trans-Siberian railroad all the way to Moscow. No, not an Explorers Club sort of exploration expedition, but I was going to be riding the rails on a regular Russian train rather than the glossy tourist version, with multiple overnight stops en route. Sadly, my travel companion (no, not Barry!) developed a serious medical condition at the last minute. So . . . the trip is off. I take this as a warning to all of us. Wherever we are going or whatever we are planning, make sure that your health is up to it. And if at all possible, don't put off the expeditions or other activities you want to undertake. Later might be too late!

On a positive front, during the past year, NorCa chapter members have successfully sponsored quite a few new Explorers Club members. In several cases, these were people that chapter members identified as good candidates and then encouraged them to apply, along with providing help in crafting a strong application and providing sponsors. If you know of people you think should join our ranks, please talk to them about the Explorers Club. I also encourage you to let friends know about our Sirdar program. We have a great core group of chapter Members and Sirdars, but we are certainly strengthened by new, interested folk.

May will be our last regular meeting for this chapter year. I do hope that many of you will be with us to put a cap on what I hope you have felt to be a fun and successful NorCa year. But in fact we are not quite over. Our Annual Picnic is coming up on Saturday, June 18. Be on the lookout for the announcement with details that will be coming your way at the end of May.

That's all for now. If I don't see you at the May meeting or the Picnic, I look forward to seeing you when our regular calendar resumes in September. In the meantime, have a wonderful summer.

Joan

FLYING WITH THE SUN

This is a story about a Round-The-World flight to demonstrate the power of solar energy.

Early in 2013, our Chapter was tasked by President **Alan Nichols**, FN'84 to help launch Solar Impulse 1 (SI1) on its inaugural flight across America. Thirty of us met in April that year at NASA's Moffett Field for a personal tour and briefing by (Explorers Club Member) pilots **Bertrand Piccard, FI'00** and **Andre Borschberg, FI'13**. Their experimental solar-only powered plane left days later with six stops ending in NY. SI1 had just over 11,000 solar tiles arrayed across

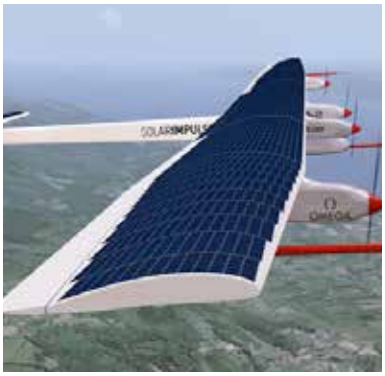
wings the size of a modern 747 and which stored power in lithium batteries connected to four 10 HP electric engines. It weighed about the same as an SUV.

The Solar Impulse project is in support of world-wide awareness of the potential for renewable energy. Bertrand Piccard has stated, "I believe individuals who successfully demonstrate the energy potential of clean technologies such as solar power, wind power and biofuels, will define the future". Andre and Bertrand, with their team of around 100 and the press and

TV media, have helped galvanize interest in solar power and stimulated further thinking in support of alternative energy sources .

The current project, to fly around the world under solar power, began even before the initial flight, designing a larger aircraft, SI2, and raising support. With a crew of one pilot per leg, each often exceeding 24 hours airborne, the planning has been meticulous as weather windows are critical. Limits for both takeoff and landing are 10 kts max wind, 5 kts crosswind. Though the improved SI2 can technically fly day and night endlessly, man has his limits. Sleep is taken in 20 minute cat naps. Storing the sun's power from over 17,000 solar cells atop the wings during daylight hours, the lithium batteries then power the engines at night, dropping to 20-30% of charge before commencing regeneration at sunrise. Altitude ranges from 4000' to 28,000', depending on winds and turbulence. Slow climbs and drift-downs also conserve energy. Speed is roughly 24-50 kts in still air.

Solar Impulse 2 lifted off from Dubai in March of 2015 and has covered nine legs of its voyage around the world. SI2 has set records for solo flight endurance as



well as extended time aloft on its five day Japan to Hawaii leg with Andre Borschberg at the controls. Picard took the next 2.5 day leg from Hawaii to California. It left for Phoenix after a 5-day stopover at Moffett.

We of the Northern CA Chapter have had a small but proud presence on both planes. We sponsored tiles on both aircraft thus supporting this historic achievement.

Rick Saber MN'01.
Photos by Rick Saber and Solar Impulse.

Northern California Chapter
Established 1973

Chair: Joan Boothe MN'07
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hoodooskr@aol.com
Vice Chair: Stephen E. Smith FN'96
925-934-1051
ecnca@oceanearth.org
NorCalExplorers@gmail.com
Secretary: Von Hurson MN'10
Trekking@sonic.net
Webmaster: Mike Diggles FN'92
Newsletter: Anders Jepsen FN'03
ajviking@aol.com
925-322-8893

Chapter Calendar of Events
(Venues are identified as soon as known.)

Upcoming Events (2016)
2016
May 27 . . . . . Ann Sanquini
Surviving the 2015 Earthquake in Nepal GLChurch
June 18, 2016 . . Chapter Picnic at Crissy Field

Earlier Chapter 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 Sciences
June 13 . . . . . .Chapter Picnic
. . . . . Angel Island
September 25 . . . . . .Tom Dolan
Studying Tornados . .Covenant Presbyterian Ch
October 23. . . . . David Imus
Art of Cartography . Covenant Presbyterian Ch
November 7-8 . . . . . .Lowell Thomas Meeting
November 20.. . . . . .Arjun Gupta
Third Pole IInitiative. Covenant Presbyterian Ch
December 13. . . . . HolidayParty
. . . . . .Home of Joan Boothe
2016
January 22 . . . . . Ted Cheeseman
Modern Ocean Exploration . Grace Lutheran Ch
February 26 . . . . . Rosemarie Twinam
Game Counting in Africa . . Grace lutheran Ch
March 11-13. . . . . ECAD New York
March 25 . . . . . Daniel Lin
Navigation on Polynesian Voyages Grace Luth Ch
April 21 (Thursday). . . . . .Autodesk
Technology in exploration. Gallery, 1 Market, SF

Send address changes and corrections by email to Steve Smith
ecnca@oceanearth.org

OTHER EVENTS, EXPEDITIONS, etc.

May 6-28, 2016; Dan Ackerman AN'14 and his expedition to climb Mount Everest sets off from Kathmandu. Follow his progress at http://www.absoluteverest.com/

May 23-25, 2016: Noted Explorer Mandip Singh Soin visits Bay Area and is available to talk about exploration ideas for India. Check out his description at https://explorers.org/about/mandip_singh_soin

June 18, 2016: Annual expedition to Crissy Field.

OPPORTUNITIES TO PARTICIPATE

* Join the Chapter AV team to help with video and audio equipment set-up at Chapter meetings. A little training session and you're ready to help out.

* The Chapter needs a Treasurer. This is a great way to be involved with the Chapter, get to know the members and participate in planning our future.

If you are interested, please contact Joan Boothe at hoodooskr@aol.com

PHOTO AND STORY OF THE MONTH

Got a favorite picture from your explorations? How about an interesting personal story? Please submit them to the Newsletter editor (ajviking@aol.com) so the rest of the club can enjoy them - picture, story or both..

CHAPTER MEETING Friday, May 27, 2016

Grace Lutheran Church
3201 Ulloa Street, at 33rd Ave., San Francisco, 94116

Date Friday, 27 May, 2016
Place: Grace Lutheran Church
3201 Ulloa Street, at 33rd Ave
San Francisco, CA 94116
Time: 6:30 - reception
7:15 - dinner ---8:00 - program
Meal Options (reserve your choice)
Tri tip of beef, stuffed chicken breast, or eggplant parmesan
NOTE: veggie request must be in by prior Sunday
Cost: $49 in advancel, $60 after 24 May; Students: $35.
(2016 dues: Members $25, Sirdars $50)
Please mail reservations, meal choice, checks & dues to Joan Boothe
email: hoodooskr@aol.com Call 415-346-5934 or
mail to 2435 Divisadero Street, San Francisco, CA 94115

We have an established PayPal account.
With an account, you can sign up and remit your meal costs, dues, etc to the NorCA Chapter by transferring money to: explorersnorca@gmail.com
There is a PAYPAL BUTTON on our website (www.explorersnorca.org); easy to use!