

### *isisHawaii's e-mentoring program:*

## Bringing students into the engineering pipeline

Leslie Wilkins, Lynn Fujioka, Sheryl Hom  
Maui Economic Development Board/  
Women in Technology Project

Today, helping students sustain an interest in science, technology, engineering and math (STEM) careers requires more than just traditional career counseling and formal classroom instruction. In recent years, a key workforce development strategy called **e-mentoring** has emerged that connects aspiring students via the Internet with STEM professionals in the field.

As demonstrated with the success of nationally Web-based programs such as MentorNet, e-mentoring relationships provide a supportive, non-judgmental and convenient platform that fosters and sustains a student's educational growth and career path. Female students in particular, have responded with great success when they have communicated directly with female professionals who experienced the same challenges and opportunities.

The process is especially important in light of recent estimates that women and other under-represented minority groups must increase from under 25% today to 75% in the next 40 years, to meet future demands for scientists and engineers. (*Women in Engineering Professional Advocates Network, 2003*)

**The Women in Technology Project (WIT)** was created by the Maui Economic Development Board (MEDB) in 2000 to address the under-representation of women in the STEM fields in Hawaii. Federally funded by the U.S. Department of Labor as a workforce development project, WIT is a statewide initiative headquartered on Maui, with a strong presence on Oahu and expanding programs on Molokai, Lanai, Hawaii Island and Kauai.

Three years ago, WIT began an extraordinarily successful partnership with **isisHawaii**, a Hawaii-based non-profit organization that had already developed a successful e-mentoring prototype to help women in Hawaii connect and network online.

Using its foundation of networked STEM professionals, isisHawaii collaborated with WIT to refine its **One+One mentoring program** to assist high school girls in their professional skill development. The individual interests and skills of each young woman were matched with a corresponding professional's career and life experiences, thus customizing the online mentoring relationship.

Although the option to meet face-to-face was available, working professionals most often

preferred the email method for mentoring because they found the online process convenient in terms of time and distance, while still conducive to supportive relationships.

Currently, **isisHawaii's** e-mentoring program has grown to nine participating high schools on Oahu and Maui. A recent partnership with McKinley High School's newly launched Engineering Academy has provided opportunities for male students, as well. Mentoring partnerships created this year shared interests ranging from computer science and database programming, to all areas of engineering, biological sciences, communications and nursing.

Overall, interest fields over the past three years remained proportionately the same with a slight increase in engineering (6%). **Significantly, the One+One active mentoring partnerships have increased 400% from 2003-2006.**

For those who chose to actively participate in their online mentoring partnerships, expectations were met, if not exceeded. Students gained confidence, learned more about their STEM interests and made valuable personal connections with industry professionals. Most mentoring partners who responded to surveys have continued their e-relationships beyond the One+One Program.

Some comments from students:

"I liked that I was paired with someone (who) had so much of the same interests. I was impressed with every new fact I learned about her...because the person she described...is almost a mirror image of me."

"I liked the many opportunities available in the program such as the workshops, mentors, etc. Along with all the access to the many technology articles that were submitted."

Mentors, both men and women, found the program to be a very convenient way to "give back" to their communities. Good working relationships were established with student mentees with sometimes less than one email exchange per week. Mentors expressed interest in volunteering for school guest-speaking engagements and more offline, face-to-face activities.

"I learned the high-school student's environmental stressors and tried to "listen" to their concerns and relate these concerns with my own experiences," one mentor commented. "This gave us an opportunity to look at future goals and establish a process for these goals."

Parents found the One+One program added value to their child's education, especially in



**"Introduce a Girl to Engineering Day", co-hosted by isisHawaii and the UH Manoa Society of Women Engineers Student Section (February 2006)**

post-secondary guidance. Exposure to "real world" careers and role models, plus the ability to have their child discuss a variety of STEM issues with active professionals contributed to increased focus and direction in the child's college pathway. In some cases, confusion about college majors and course of study were resolved with mentors' guidance.

"I liked that my daughter was receiving advice from such a successful professional," one parent summed up. "I also thought it was very generous that the program paired my daughter with someone that was so similar to her in many ways."

Ultimately, the One+One program demonstrates how technology can assist students separated by time and distance, in developing strategic relationships with industry professionals. In this manner, these all-important mentors can provide the encouragement and support needed to jumpstart more students into engineering and other STEM fields, thus addressing one of the nation's most critical workforce problems.

WIT also sponsors MentorNet for all college and graduate students in the University of Hawaii system interested in participating in e-mentoring opportunities with mentors from an international roster of STEM professionals.

You can explore **isisHawaii** online at [www.isishawaii.org](http://www.isishawaii.org) and MentorNet at [www.mentornet.net](http://www.mentornet.net). If you would like to learn more about either e-mentoring program or would like to volunteer as an isisHawaii e-mentor, please call Lynn at (808) 988-1931 or send your inquiries via email to [lfujioka@isishawaii.org](mailto:lfujioka@isishawaii.org). Mahalo!



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Additions and/or corrections to the Wiliki mailing list should indicate the proper society, institution or association. Corrections to email addresses should be submitted to your society coordinator.

Laverne Higa

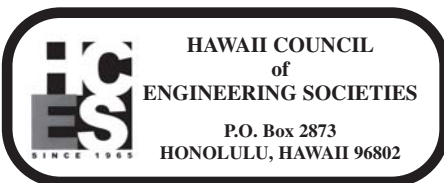
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**2006 23rd HAWAII STATE MATHCOUNTS COMPETITION**

Just like the noticeable parity with the professional football and hockey teams, there may be similar parity between public and private school MATHCOUNTS teams. This is the writer's own opinion. At the 2006 Hawaii State 23rd MATHCOUNTS Competition on March 11, Waiakea Intermediate placed third, Washington Middle fifth, Kawananakoa Middle School sixth, and Highlands intermediate seventh out of the 11 schools competing. In the written portion of the competition Dong-Gil Shin of Jarrett Middle School placed first of the 45 Mathletes competing. Of the top ten Mathletes, five were from public schools.

The first place team was Iolani School coached by Li Ann Wada and Annette Matsumoto. Team members included William Chambers, Samuel Greene, Anders Lee, and Scott Sakaida. Second place went to Punahou School coached by Evelyn Cheong with team members Alyssa Higuchi, Eric Liaw, Nicole Sato, and George Tang.

Representing the State of Hawaii at the National MATHCOUNTS Competition on May 12 in Arlington Virginia are Edward Hon of Parker School, Dong-Gil Shin of Jarrett Middle School, Nicole Sato of Punahou School, and William Chambers of Iolani School. Their places were determined in the Countdown Round. Edward Hon was very impressive in taking first place in the Countdown Round. Although the Parker School Team was not competing, Edward Hon competed as the Hawaii Chapter Individual High Scorer. Based on her Iolani School team's first place team finish, Li Ann Wada will be the official Hawaii State Team Coach at the National Finals.

Award presenters for the 23 State Competition were Dr. Michael Chun, MATHCOUNTS Chairman and President and Headmaster, Kamehameha Schools; Clayton Fujie, Deputy Superintendent, Department of Education; Dr. Sheryl Nojima, Vice President, Hawaii Society of Professional Engineers Educational Foundation; and Bill Bonnet, Vice President, Government and Community Affairs, Hawaiian Electric Company, Inc. The Masters of Ceremonies was Ken Morikami of the Hawaii Society of Professional Engineers (HSPE) and Hawaiian Electric Company.

In his welcoming address, Dr. Chun recognized Rowena Blaisdell and Pauline Marcello, both of Kamehameha Schools Bishop Estate (KSBE) for coordinating the MATHCOUNTS

competitions. Blaisdell and Marcello have been leading the Hawaii MATHCOUNTS Steering Committee for over a decade. Dr. Chun thanked Aloha Airlines for their continual support by helping to bring over the outer island Mathletes, coaches, and coordinators.

MathCounts Steering Committee members include Dr. Michael Chun, Chairman; Rowena Blaisdell and Pauline Marcello from KSBE; from Hawaiian Electric Company (and most with HSPE), Ed Chang, Bob Isler, Queenie Komori, Ken Morikami, Barry Nakamoto, Guy Pasco, Scott Seu, and Nathan Yuen; Larry Dill, Kauai Coordinator; Ron Flegal of Leeward Community College and ASME; Kyle Ginoza, Maui Coordinator; Doug Kamiya of Community Planning, Inc.; Edmund Kellett of Special Inspections Consultants; Jean Okamura of Windward Community College; Lennie Okano, Big Island Coordinator; Jenny Thompson of DOE; and Wesley Yuu of DOE.

We thank Lou Muzzarini of the U.S. Army Corps of Engineers for moderating the competitions and recruiting fellow Corps members for proctoring and scoring. Muzzarini has been involved with Hawaii MATHCOUNTS for several years now.

We also must thank the employees of Hawaiian Electric Company for proctoring and scoring the competitions. They volunteer in numbers annually to dedicate one or two Saturday mornings to help out. We hope they continue to do so as they have become well-trained, experienced, and essential proctors and scorers.

*Please see photo on page 11*



**Test Moderator, Lou Muzzarini, USACE.**



**The Hawaii State team going the Nationals, L-R: Coach Li Ann Wada, William Chambers, Nicole Sato, Dong-Gil Shin, and Edward Hon.**

### HAWAII'S FLL TEAM S.P.I.D.E.R.S. TO COMPETE IN INTERNATIONAL COMPETITION

This past December, a FIRST LEGO League (FLL) robotics team called the S.P.I.D.E.R.S. (coached by Kevin Dang, a mechanical engineer at PHNSY) took first place in robot performance at the Hawaii FLL tournament.

The SPIDERS were selected to represent Hawaii at the World Festival at the Georgia Dome and Georgia World Congress Center in Atlanta, Georgia on April 27-29, 2006 where they will participate in a 2? day tournament with 80 teams from 30 countries. The SPIDERS are seeking individual and corporate sponsors who are interested in promoting excellence in math, science, and technology and investing in the next generation of competent employees and future community leaders!

The S.P.I.D.E.R.S. (Super Powerful Intelligent Determined Energetic Robot Scientists) is a team comprised of 8 home schooled students ages 9-13 from Palolo, Kaimuki, Manoa, Hawaii Kai, Mauna Lani, and St. Louis.

The team started working in August and met regularly, twice a week for two hours to work on programming and building skills. They learned about gears, structures, motors, sensors (rotation, touch, light), subroutines and loops.

Due to this year's FLL theme of "Ocean Odyssey", the S.P.I.D.E.R.S. narrowed their research: "How can we use technology to filter out indigenous marine life before it is brought into the ballast tank?"

While conducting research, the SPIDERS: Attended five Hanauma Bay lecture series events, Interviewed Norwegian Cruise Lines Safety Environmental Systems Manager & the ships Environmental Safety Officer, Joined the invasive algae removal team at the Hilton Hawaiian Village, Reviewed international & national environmental ocean protection guidelines, Researched the current technological solutions to the presence of invasive species in ballast water, Obtained information from local community groups concerned about invasive species in Hawaiian waters.

The S.P.I.D.E.R.S came up with two solutions:

**Filtration & Nanotechnology** - Ocean water is sucked into the ballast tanks using a pump and filtration system to remove all of the particles. Then, nanobots with sensors detect and neutralize toxins and microscopic invasive species.

**Multiple Filtration System, Hydrocyclones & Edible Glue** - Ballast water is forced through a series of filters as it enters the ship. Hydrocyclones create centrifugal action forcing the invasive species to stick to the edible glue smeared on the ballast tank interior. Only "invasive species free" water is released into the ocean.

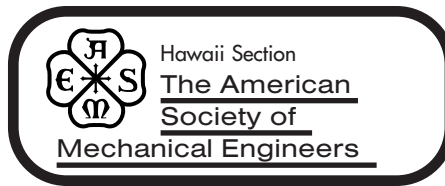
After the hard work and a lot of fun, they came away with a greater appreciation of science and technology and how they might use it to positively impact the world around them. They learned how to plan, brainstorm, collaborate, create teamwork, as well as, do research and other important technical skills.

The S.P.I.D.E.R.S. are seeking donations from corporate sponsors or private donations to help them get to Atlanta! They are also fundraising through sales from Zippy's chili tickets and Pizza Hut Literacy Cards.

Please send your donations to: S.P.I.D.E.R.S. Robotics, 4124 Kaimanahila Street, Honolulu, HI 96816, ([www.spidersrobotics.com](http://www.spidersrobotics.com)).



The S.P.I.D.E.R.S. team.



Website: [www.sections.asme.org/hawaii](http://www.sections.asme.org/hawaii)

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Dir 2 yr	James Grogan jfgrogan@worldnet.att.net	254-2547

#### NEXT ASME-HAWAII SECTION MEETING

Date: May 8, 2006  
Time: 5:30 pm to 6:30 pm  
Place: Hawaiian Electric Ward Avenue Cafeteria

Please contact Ray Liu or Kevin Dang for directions and for more information. The meeting day has been changed to the second Monday of every other month starting this March.

#### The ANDREW KEITH RESIDENTIAL PHOTOVOLTAIC HOUSE TOUR

Mr. Andrew Keith of Kahaluu has invited us to his home to tour his photovoltaic system (PV). His system was HECO's first Net Metering customer (net metering allows customers to "sell back" electricity to the power utility). It is Hawaii's second-largest residential PV system. On an annual basis, the system makes greater than 100% of household electricity. Storage batteries provide a generous supply of stand-alone power during grid outages. December 2005 marked 10 years of system operation.

The tour is limited to 6 persons at a time. The first tour on April 22, 2006 filled up quickly. The second tour on April 29, 2006 (Saturday) and starting at 10:00 a.m. still has openings. Please contact Ed Chang at 543-4227 or via e-mail, [edmund.chang@heco.com](mailto:edmund.chang@heco.com), if you would like more information and/or attend. Visit ASME-HI's

website at [www.sections.asme.org/hawaii/current.html](http://www.sections.asme.org/hawaii/current.html) for photos.

#### ASME-HI OUTSTANDING PROJECT AWARD

Last call for nominations for the ASME-HI Annual Outstanding Project Competition. The nomination deadline is April 30, 2006. If you know of any unusual or outstanding mechanical engineering-type project or design that have been completed within the past five years, please contact Ed Chang at 543-4227. The nomination process is very simple, easy, and fast. Visit our section web site for more information and a copy of the nomination form.

#### OPEN ENROLLMENT FOR OCTOBER 2006 P.E. EXAM CANDIDATES

The ASME Hawaii section will be providing a P.E. exam refresher course for all candidates who qualify for the October 2006 exam. All candidates should have obtained qualifying experience under a licensed registered engineer with the State of Hawaii prior to the examination deadline date.

Volunteer instructors from the University of Hawaii, who are also licensed mechanical engineers in the State of Hawaii, will teach the course. The cost of the course is \$200.00 and the location and times will be determined. For more information, please call Raymond Liu at 497-1395 or visit the [www.sections.asme.org/hawaii](http://www.sections.asme.org/hawaii).

#### ANNUAL PEARL HARBOR BOAT TOUR BY STANFORD YUEN

Past-Chairman Stanford Yuen invites members and their families and friends to his annual Pearl Harbor Boat Tour. This tour is courtesy of the Navy Region Hawaii and the U.S. Navy. The tour is on May 25, 2006 from 4:00 to 5:30 p.m. Departure is at the pier at the Arizona Museum. This is an educational boat tour around Ford Island and Pearl Harbor, highlighting major features, e.g. December 7 attack; Ford Island; shipyard; Supply; Submarine Base; and more.

Visit ASME Hawaii's website ([www.sections.asme.org/hawaii](http://www.sections.asme.org/hawaii)) for more information. Contact Ed Chang at 543-4227 if you would like more information or make reservations

(continued on page 11)



**2005-2006 ASCE Hawaii Section Executive Committee**

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Past Pres Keith Niya email: <a href="mailto:kniya@atahawaii.com">kniya@atahawaii.com</a>	533-3646	526-1267

**APRIL DINNER MEETING**

Program: **Student Chapter Presentation**  
The University of Hawaii Student Chapter will present the highlights of their past year, including their concrete canoe project and other activities for the regional conference.

Date: **Thursday, April 20, 2006**

Location: Treetops at Paradise Park, Manoa Valley

Time: 5:30 p.m. - Social Time  
6:30 p.m. - Dinner  
7:30 p.m. - Program  
9:00 p.m. - Adjourn

Menu: Multi-entree buffet

Cost: \$22.00 for Hawaii Section members  
\$25.00 for non-section members and guests  
\$11.00 for University of Hawaii at Manoa Student Chapter members

Please make checks payable to ASCE-Hawaii Section and mail to Mike Hunnemann, ASCE Treasurer, c/o KAI Hawaii, 31 N. Pauahi Street, 2nd Floor, Honolulu, Hawaii, 96813, postmarked by Monday, April 17, 2006. Reservations for the dinner meeting to Mike Hunnemann by Monday, April 17, 2006, by phone at 791-3980, fax at 533-2686 or email at [mhunnemann@kaihawaii.com](mailto:mhunnemann@kaihawaii.com).

**EXECUTIVE COMMITTEE MEETING**

April 6, 2006

**ASCE HAWAII SECTION STUDENT SCHOLARSHIPS**

Please help us increase our scholarship endowment so that we can recognize those deserving students. We continue to accept tax deductible donations with the goal of increasing the annual scholarships. Make your check payable to 'ASCE Hawaii Section' and mail to ASCE Scholarship Committee, P.O. Box 917, Honolulu, HI 96808. If you have any questions, please contact Keith Niya at 533-3646, or [kniya@atahawaii.com](mailto:kniya@atahawaii.com).

**ASCE JOB LISTINGS**

The following employers have openings they would like to fill:

- Austin Tsutsumi & Associates, Inc. (Civil Engineer - Honolulu and Wailuku, Land Surveyor - Honolulu)
- Bills Engineering Inc. (CADD Technician)
- Brown and Caldwell (Civil or Mechanical Engineer - Honolulu, Project Manager - Maui)
- Community Planning & Engineering, Inc. (Civil Design Project Engineers/Managers)
- Engineering Solutions, Inc. (Civil/Sanitary Engineers)
- Fewell Geotechnical Engineering (Geotechnical Engineer - Honolulu)

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- Fukunaga & Associates (Civil and Civil/Environmental Engineers - Honolulu)
  - GeoEngineers, Inc. (Senior Engineer)
  - Jacobs Engineering Group Inc. (Civil Engineers and more)
  - Towill, Shigeoka & Associates, Inc. (Licensed Professional Land Surveyor, Computer/Draftsperson (CAD), experienced Party Chiefs and Rodpersons for Oahu and Kona)
  - Warren S. Unemori Engineering (Project Engineer and Civil Engineer - Wailuku)
  - Zapata Engineering (Geotechnical Engineer)
- For more information on these job listings, please visit the ASCE Hawaii Section website at <http://www.ascehawaii.org/jobs/jobs.html>.

**MEMBERSHIP DRIVE**

ASCE counts on our members to help us grow every year by actively participating in the Member-Get-A-Member Drive. All you have to do to be eligible to win is refer a colleague, and you will be entered into quarterly drawings. Prizes range from iPods, to gift cards, to cash. This is a great time to help out your colleagues while also helping ASCE find new members. Take a minute to think about the people in your professional life who could benefit from membership. Visit [www.ASCEDrive.org](http://www.ASCEDrive.org) to refer them and you could be a winner in the next drawing! Please contact our membership chair, Lori Nishida, at 533-3646 or [lnishida@atahawaii.com](mailto:lnishida@atahawaii.com) for further information.

**SIGN-UP FOR THE ASCE HAWAII SECTION'S WEBMAIL LIST**

If you would like to receive e-mail notices of upcoming meetings or activities please sign-up for the ASCE Hawaii Section's webmail list at <http://www.ascehawaii.org/emailform.html>. You may also help the ASCE Hawaii Section reduce operating costs by receiving your monthly issue of the Wiliki via e-mail, please contact Joanna Seto at 586-4329 or [jseto@ascehawaii.org](mailto:jseto@ascehawaii.org).

**Next YMF General Meetings**

The next two YMF general meetings are scheduled for Tuesday, April 4, 6:00 p.m., at Ryan's Grill at Ward center, 591-9132, and Tuesday, May 2, 6:00 p.m., at Gordon Biersch Brewery Restaurant at Aloha Tower, 599-4877. If you are interested in attending to find out what the YMF is all about and how much fun we have, please call Florence Ching at 227-4704.

**MATHCOUNTS**

By Aaron Kam, Hawaii Section  
YMF Community Service Co-Chair

On Saturday, February 11th, The Hawaii Section YMF volunteered to assist the annual MATHCOUNTS Competition at Kamehameha Schools. The event involved volunteers correcting tests and tallying scores for the various math competitions. A total of 15 ASCE volunteers helped with the highly successful event. Thanks for everyone for coming out.

**Mad About Science Festival**

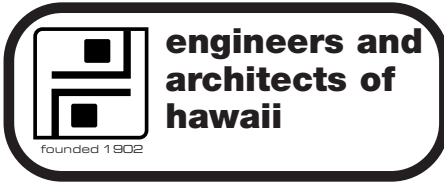
By Florence Ching, Hawaii Section  
YMF President

On March 11, 2006, eleven volunteers from the Hawaii Section YMF volunteered at the Bishop Museum's 2nd Annual Mad About Science Festival. This one-day event was open to the public and encourages children to discover the facts and mysteries of science through fun and interactive activities and programs. Outside the Science Adventure Center, volunteers assisted children with hands-on craft activities such as make your own volcano, crab/turtle head visor, and insect ring. Inside the Center, volunteers monitored immersive and interactive exhibits, which focus upon such areas as volcanology, oceanography, and biodiversity. Key exhibits include a 26-foot high "erupting" volcano, deep-sea remote operated vehicles, and live insect habitats. Later, volunteers relaxed by eating lunch on the Great Lawn and were able to view the other exhibits at the Bishop Museum. This event was made possible through support from the American Association for the Advancement of Science. Thanks to all the Hawaii Section YMF volunteers for participating!

**See ASCE History on page 10**



**Volunteering at the Bishop Museum Mad about Science Festival.**



po box 4353, honolulu, hawaii 96813

An association for Hawaii's Engineers and Architects  
WEB Address <http://community.hei.com/eah>

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Past Pres	Bob Morrissey	521-4711

#### April Meeting Schedule

**April 7:** TBA

**April 14:** No Meeting Good Friday

**April 21:** TBA

**April 28:** TBA

Meetings held every Friday (except Holidays) at YWCA room 205 on Richards Street downtown. Meetings start at NOON and end promptly at 1:00 pm. Parking at Alii Place off Alakea Street for \$1.50 per hour.

Buffet Lunch: Members-\$8.00, Guests-\$9.00, BYO lunches welcome. If not having the Buffet Lunch a donation is requested: Members \$1, Guests \$2; to help cover room rental costs.

Program schedule may be adjusted. Call Secretary Sam Gillie at 543-4739 (543-4804 FAX) to confirm speaker. Anyone wanting a weekly email meeting notice please send your email address to Sam Gillie at [sgillie@hei.com](mailto:sgillie@hei.com).

Meeting Notes for February & March, 2006

The sound recording of EAH presentations are posted to the EAH's WEB site.

#### Meeting Notes for January 27th, 2006

Speaker: Burton White, Theatre Manager for the Hawaii Theatre Subject: "Preserving Yesterday...Performing Today...Preparing for Tomorrow"

Burton gave an excellent and detailed presentation on the History of the Theater starting from the foundation to the dome in the ceiling. Commissioned by Consolidated Amusements in the early 1920's it opened in 1922. The Theater was design by the Architectural firm of Emory and Webb. Marshall Webb was the designer and Walter Emory handled the technical aspects. Burton explained how the balcony was designed with a double cantilever to provide better views. The theater is very intimate as the back seating is only 100 feet from the stage plaster wall.

#### Meeting Notes for February 3rd, 2006

Travis Hylton on Engineers: How can you tell whether the engineer you're talking to is an introvert or an extrovert? ...Ans: The extrovert is looking at your shoes.

Speaker: Paul M. Sullivan Esq. Honolulu attorney; Subject: "The Akaka Bill - An Overview"

Paul Sullivan started his talk when Capt. Cook discovered Hawaii and moved forward through the 18th, 19th and 20th centuries, providing detailed explanations on the background and development of the Hawaiian Kingdoms and Hawaiian Governments. He

noted that various Hawaiian Kings were amazingly progressive in their thinking and actions to reforming their Kingdom's. Paul outlined the Akaka Bill's various articles and its framework to establish a Hawaiian Government. One of Paul's biggest objections to the Akaka Bill is the undefined or open ended negotiation phase, which would determine the roles, responsibilities and authority of a Hawaiian Government. A revised Akaka Bill provides some additional definition in this area, but it is still largely open-ended.

#### Meeting Notes for February 10th, 2006

Speaker: LCDR Mason Ward OIC ASDS Platoon

Subject: "SEAL Delivery Vehicle Team 1"

LCDR Ward and Lt. Alex Baerg presented an unclassified briefing on the new Seal Delivery Vehicle which is being deployed at two Navy stations, one at Pearl Harbor and another on the East Coast. LCDR Ward and Lt. Alex Baerg are Navy Pilots of the new vehicle. Other Seal delivery vehicles are unpressurized or wet, which means the Seals are exposed to the ocean environment when they are deployed. The new vehicle has pressured compartments for the pilots, the Seals and the mechanical equipment. The vehicle is designed to fit in a C-17 aircraft for deployment anywhere in the world. Because of the vehicles weight, the C-17 must be refueled immediately after take-off. The vehicle is piggybacked on a submarine for transported near their objective. There is a connecting dry hatch through which the Seals can transfer between the Seal Delivery Vehicle and the submarine. The Seals can then disconnect the vehicle from the submarine and transport the Seals to their target area. The

Seals can exit the vehicle underwater through a "Moonpool", so the Seals can proceed undetected to their objective. The Vehicle has been refitted with newer lithium batteries which eliminates the problem of hydrogen discharge. The batteries operating range was not available, but LCDR Ward indicated one would need to find a bathroom before the batteries ran out of juice.

#### Meeting Notes for February 24th, 2006

Speaker: Dr. C. S. Papacostas, UH Professor of Civil Engineering

Subject: "Early Vignettes of the Engineering Association"

Dr. Papacostas has been researching the early history of engineering in Hawaii. In his research through the old un-indexed articles of Hawaii's early newspapers he keeps finding references to the Engineering Association of Hawaii (EAH). Dr. Papacostas's talk covered the very early years of EAH 1902 to about 1930. During that time EAH

formed a number of committees to issued recommendations on Honolulu's water system, roadway, tax assessments, and electrical code.

#### Meeting Notes for March 3rd, 2006

Speaker: Virginia Carabelli - Artist


Subject: "Straw-Bale Home Construction"

Virginia provided a detailed talk on her experiences building her Straw-bale home in New Mexico. The 1,400 square-foot home near Santa Fe, was designed by local architect, Ken Figuerado. The Carabelli house cost \$60 a square-foot, which included radiant floor heating, three fireplaces, and other custom features. She said initially the straw-bales were specified as insulation material and the structure of the house was post and beam. As the building department became more familiar with the construction, they were able to use the straw-bales as load bearing elements in the homes. More information can be found at this WEB site: <http://www.balewatch.com/technique.html>



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## COLLEGE OF ENGINEERING EXPO

Rockets were launched, columns withstood heavy loads, boats toppled over, towers collapsed, and that was just the beginning of what went on at the College of Engineering on Friday, February 17, 2006. The College of Engineering hosted its annual High School Engineering Expo that day, and 425 high school students, along with their teachers, counselors, and other chaperones, from 18 schools around the State participated in the event.

The event consisted of six engineering-related games, an activity center, and break-out informational sessions.

The six engineering-related games were sponsored by the following College of Engineering student clubs: American Society of Civil Engineers, American Society of Mechanical Engineers, Chi Epsilon Honor Society, Eta Kappa Nu Honor Society, Institute of Electrical and Electronics Engineers, Society of Automotive Engineers, and Society of Women Engineers. The games consisted of the **Bottle Rocket Competition**, which challenged students to design a bottle rocket that would remain in the air for the longest time possible; the **I See, You Create Impromptu Game**, which tested the students' abilities to work as a team and communicate effectively; the **Light It Up! Impromptu Game**, which involved building a circuit with LED's of various colors, resistors, wires, and other material; the **Model Paper Column Competition**, which required students to design, build, and test a small paper column that was judged on workmanship and efficiency; the **Rubber Band Racers Competition**, which challenged students to design and build a racer with an internally powered rubber band that would run a straight 15-foot track in the fastest time; and the **Water Drop Impromptu Game**, which tested the students' abilities to work as a team and build a parachute type device that would help retain the greatest amount of water in a cup.

The City and County of Honolulu Department of Environmental Services organized the activity center, which consisted of two activities: Topple-A-Tug and Straw Tower. The Topple-A-Tug activity challenged students to build a foil boat that would remain afloat with the heaviest load, while the Straw Tower asked students to build a tower made out of straws that would hold the greatest weight. All students were welcomed to take part in the activity center.

Break-out informational sessions were also available for all students and teachers to join in and learn more about various engineering research occurring at the College of Engineering and about the engineering career paths available. The following labs and industry professionals dedicated their time and effort to host a Break-out informational session: Structural Engineering Lab, Wireless Communications & Antenna Range Lab, Autonomous Systems Lab, "Engineering as a Profession" - American Council of Engineering Companies of Hawaii (Andy Chan, Lianna Chang, and Scott Inatsuka), Small-Satellite Lab, Hydraulics Lab, Robotic Surgery Lab,



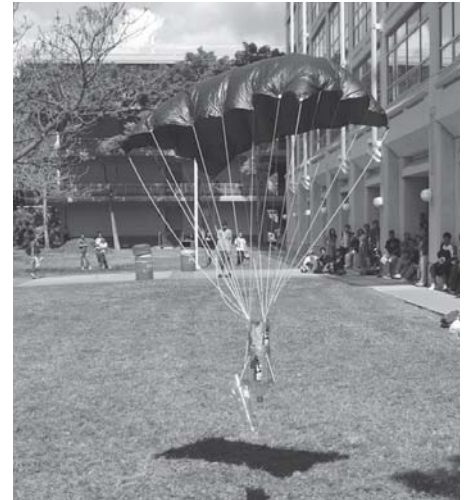
**Students participate in the Topple a Tug activity.**

Archimedes Project, and Partners In Development.

Trophies were awarded to the top three teams in each of the games.

**Bottle Rocket Competition** - 1st Place: McKinley High School - MEA 6, 2nd Place: Kaimuki High School - Deep Impact, 3rd Place: Kaimuki High School - RAK NET / **I See, You Create Competition** - 1st Place: Campbell High School - The Honus, 2nd Place: Moanalua High School - MoHS #1, 3rd Place: Campbell High School - 706 Sabers / **Light It Up! Competition** - 1st Place: Farrington High School - Ray's Dragon, 2nd Place: McKinley High School - MEA-9, 3rd Place: McKinley High School - MEA-3 / **Model Paper Column Competition** - 1st Place: Kauai High School - Squee, 2nd Place: Farrington High School - Gov 4, 3rd Place: Farrington High School - N,J,R,C / **Rubber Band Racers Competition** - 1st Place: ASSETS High School - ASSETS H.S., 2nd Place: Kauai High School - Power House, 3rd Place: Moanalua High School - Rat Racer / **Water Drop Competition** - 1st Place: ASSETS High School - ASSETS H.S., 2nd Place: Hawaii Homeschool Botniks - HHA Botniks, 3rd Place: Moanalua High School - MoHS #2.

Thank you to all the teachers, counselors, and students from the participating high schools...all the industry support...and all the students, faculty, and staff at the College of Engineering! Without the help of these dedicated people this event could not have occurred. To view more highlights from the Expo, please visit: [www.eng.hawaii.edu/events/expo](http://www.eng.hawaii.edu/events/expo). If you are interested in assisting with next year's High School Expo or any of our other College of Engineering events, please contact Ms. Laura Shimabukuro, Student Services Coordinator for the College of Engineering. Email: [laura@eng.hawaii.edu](mailto:laura@eng.hawaii.edu), Phone: (808) 956-2287.



**One of the rockets returns to earth in the Bottle Rocket Competition.**



**Students start their racer in the Rubber Band Racers Competition.**



**Farrington High Schools Ray's Dragon team with their first place trophy for the Light It Up! Competition.**

# ENGINEERS WEEK 2006 EXHIBIT AT THE KAHALA MALL, FEBRUARY 18 TO 25



*Hawaii Space Grant Bernoulli Principle Demonstration.*



*Human Powered Energy Source by Camille Watts/Le Jardin Academy.*



*McKinley High School Robotics Demonstrations.*



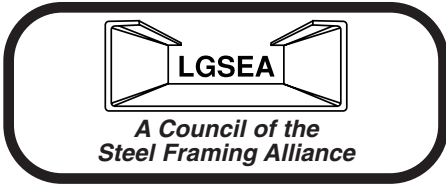
*Hands-on Activities for Keikis.*



*ASCE Student Chapter Concrete Canoe.*



*Hawaii Space Grant Presenters; Art and Rene Kimura, Roger Kwok and Dale Olive.*



**HAWAII CHAPTER**

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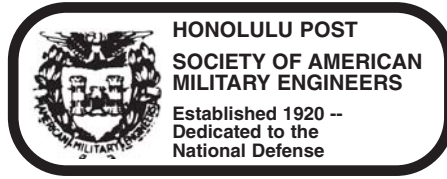
**LGSEA elects new 2006 BOARD**

Last February 10, 2006, the Light Gauge Steel Engineers Association (LGSEA)- Hawaii Chapter had its 10th Installation Banquet at Oahu Country Club with Timothy Waite as the new chapter president. Outgoing president Jeffrey Hanyu of Allison-Ide Structural Engineers thanked the attendees as well as his outgoing directors (Howard Lau, Glen Isidro, Darin Okuda, Brent Uechi, Jim Walfish & Mike Kasamoto) for supporting him during his term. Don Allen, P.E. director for engineering of Steel Framing Alliance and national secretariat of the LGSEA was the special guest who installed the new directors.

Director Howard Lau presented the LGSEA-Hawaii Chapter donation to Mr. Greg Chiu for the Dr. Chiu Scholarship grant. After the installation, Glen Furuya of LeadershipWorks made an outstanding presentation on the huge potentials of island leaders.

**LGSEA on adhesive technology seminar**

LGSEA with the Hawaii Pacific Steel Framing Alliance had a joint HSA/LGSEA membership meeting held at Sam Choy's BLC. The guest speaker was Al Toback of Loctite - a part of Henkel Corporation who spoke about the 'adhesives technology for cold-formed steel construction.' This presentation offered a unique forum to learn the latest technologies available for designing and assembling components with adhesives. Recent innovations in adhesive technologies, aside from helping cut product costs and improve product quality, offer a wealth of design flexibility and new methods to consider. About 42 guests attended the meeting.



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**SCHOLARSHIP GOLF TOURNAMENT & PACIFIC INDUSTRY FORUM**

The Honolulu Post of the Society of American Military Engineers is combining its annual Scholarship Golf Tournament with the PACIFIC Industry Forum during May 2006.

Kicking off the two-day event is the Golf Tournament on 16 May at Marine Corps Base Hawaii. The '05 Golf tournament raised more than \$16,000 to support the Post's annual scholarship program which provides funding to local students pursuing their education in engineering, mathematics, and the sciences. The Post hopes to raise \$20,000 this year. Interested golfers and potential sponsors should contact Mr. Dana Voight, *Dana.Voight.ctr@hickam.af.mil*, for more information.

On 17 May at the Hale Koa Hotel in Waikiki,

SAME will host a one-day event to bring Sustaining Members together with PACOM, Services, and contracting agencies in a briefing and round table forum to present the strategic view of the theater (unclass), provide access to the contracting agencies, and allow for interactive discussion and promotion opportunities for sustaining member capabilities. Interested participants and attendees should contact CAPT David L Fleisch, *David.Fleisch@navy.mil*, for more information.

Additional information regarding these events will be posted on the Post website as it becomes available. <http://posts.SAME.org/Honolulu>.



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**ACI Concrete Field Technician Program – Grade 1 Certification**

*Sponsored by the Cement and Concrete Products Industry of Hawaii*

*The ACI Certification Program for Concrete Field Testing Technician - Grade I is for the purpose of certifying concrete technicians who have demonstrated the knowledge and ability to properly perform the seven (7) basic field ASTM tests on freshly mixed concrete.*

**Session I Classroom Training and Practice Session: Classroom training - Tuesday, May 9, and Thursday, May 11, 2006** from 3:30 pm to 5:30 pm at CCPI office, 2153 N. King Street, Suite 327, Honolulu, Hawaii. Performance practice session week of May 15, from 10:00 am to 1 pm at Ameron Hawaii - Sand Island, 2344 Pahounui Drive, Honolulu, HI.

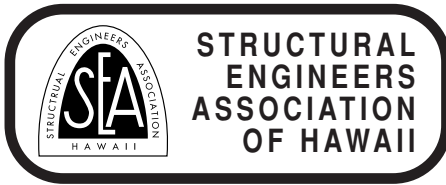
**Session II Examination only: Saturday, May 20, 2006**, from 7:00 am to 1:00 pm (specific times to be announced). Location will be Ameron Hawaii, Sand Island.

**Session I:** Registration is \$150 per person and includes Classroom Training and Practice Session, ACI Technician Workbook and Manual. **Session II:** Examinations only. Full Exam (written/performance) \$200. Re-take for written exam only \$100. Re-take for performance only \$125. Class size is limited to 12 people. All fees must be received prior to the session date you are attending, no exceptions. Registration deadline is May 2, 2006.

**For additional information or to register, call CCPI at 848-7100 or email to [wkawano@ccpihawaii.org](mailto:wkawano@ccpihawaii.org)**







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#### HIGHLIGHTS OF BOD MEETING

March 8, 2006

##### Committee Reports:

2006 SEAHO Convention Committee: 48 people have already signed up to attend the 2006 SEAHO Convention in Japan. The maximum number of people that can attend is approximately 80.

General Membership Meetings/Technical Seminars/Events:

- The Charles Thornton Dinner was held on March 8, 2006 at the Japanese Cultural Center. Proceeds from the dinner will go to the "Arthur Chiu Endowed Scholarship".
- Technical Seminar ATC-45 is scheduled for April 26, 2006 from 8:00 am to 12:30 pm at the Neal Blaisdell Center, Hawaii Room. The ATC-45 will be put on by the State Civil Defense.
- ATC-20 is scheduled for June 20, 2006 in Honolulu. FEMA will provide the instruction material. The time and location is to be determined. A seminar in Hilo on June 21, 2006 is pending.
- General Membership Meeting will be on April 6, 2006 at the Pagoda Hotel. A CRSI presentation will be the feature of the meeting. The topics discussed may include software, constructability and design, anchorage, splices, or placement of reinforcing.

Golf: The first golf outing is scheduled for Friday, May 26, 2006 at Pearl Country Club. Ten tee times have been reserved. The next golf outing will be on Friday, November 24, 2006.

##### New Business:

Emeritus Professor Arthur N.L. Chiu Memorial Endowment: This fund is not part of the recently established "Arthur Chiu Endowed Scholarship in Civil Engineering". A second fund was established about twelve years ago called the "Emeritus Arthur N.L. Chiu Endowment". The fund has been renamed the "Emeritus Arthur N.L. Chiu Memorial

Endowment". The funds of the "Emeritus Arthur N.L. Chiu Memorial Endowment" will be overseen by a committee of four persons: A full-time Civil Engineering faculty member who will convene the committee (the faculty member to be designated by the Civil Engineering Department Chairman), the President or designated Member representative of the Structural Engineers Association of Hawaii (SEAHO), the President of designated Member representative of the Hawaii Section, American Society of Civil Engineers (ASCE), and Katherine Chiu (wife of Arthur N.L. Chiu). The funds will be used for (in decreasing priority): scholarships for Hawaii graduate students in Structural Engineering; workshops/seminars by professional engineers, preferably in conjunction with annual conventions of the Structural Engineers Association of Hawaii or the Hawaii Section, American Society of Civil Engineers; Grants to invite distinguished visiting lecturers/professors.

Public Outreach: SEAHO would like to establish public outreach seminars and events. The purpose of this would be to educate the public and promote the SEAHO association and profession. Subject matters for seminars that may interest the public would be items relating to hurricanes, such as structural strengthening and retrofitting for hurricanes. (Hurricane season begins June 1.)

Young Member Committee: The Young Member Committee will be involved with the following events:

- Engineering Week Display at Kahala Mall: HCES organizes a display and SEAHO would like to have an exhibit for Engineering Week, which occurs in February.
- BIA Home and Remodeling Show: State civil defense usually contacts SEAHO to help man the booth at the BIA Home and Remodeling Show. The Young Member Committee could help with organizing and obtaining manpower for the upcoming show, probably in June or July.
- Social Gatherings: The Young Member Committee will be organizing social gatherings, dinners, and site visits to various construction sites.

##### Old Business:

SEAHO Representative for 2006 Hawaiian Cement Concrete Achievement Award: Bennett Fung and Dean Doi will represent SEAHO as jurors to serve on the review and selection panel for the 2006 Concrete Achievement Award given bi-annually by Hawaiian Cement.



[www.eng.hawaii.edu/~hspe](http://www.eng.hawaii.edu/~hspe)

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Next Deadline for

**Wiliki**

is April 15th



**STRUCTURAL SYSTEMS, INC.**

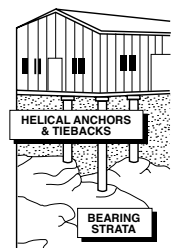
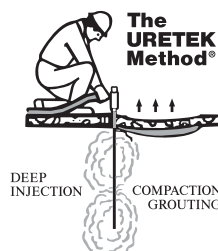
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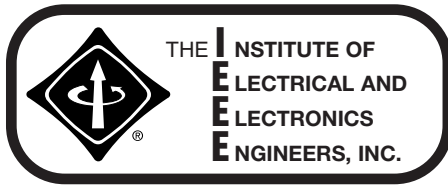
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Student representative, Co-Chair, U. Hawaii Manoa  
 Student Chapter:

Kyle Tanabe [ktanabe@willki.eng.hawaii.edu](mailto:ktanabe@willki.eng.hawaii.edu)

Faculty representative, U. of Hawaii Manoa Student  
 Chapter Advisor:

Tej Dobre [tej@willki.eng.hawaii.edu](mailto:tej@willki.eng.hawaii.edu)

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Lianne Iwanaga-Ohashi [lianne.iwanaga@hawaii-intel.com](mailto:lianne.iwanaga@hawaii-intel.com)

Steven Sumida [s.sumida@ieee.org](mailto:s.sumida@ieee.org)

Tellers Committee Chair:  
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 Co-Chair, U. Hawaii Manoa Student Chapter:

Kyle Tanabe [ktanabe@willki.eng.hawaii.edu](mailto:ktanabe@willki.eng.hawaii.edu)

Faculty representative, U. of Hawaii Manoa Student  
 Chapter Advisor:

Tej Dobre [tej@willki.eng.hawaii.edu](mailto:tej@willki.eng.hawaii.edu)

Nominating Committee:  
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Lianne Iwanaga-Ohashi  
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Steven Sumida [s.sumida@ieee.org](mailto:s.sumida@ieee.org)

Tellers Committee Chair:  
 Allen Agena [a.agena@ieee.org](mailto:a.agena@ieee.org)

### Introduction to Image Processing Workshop

UH at Manoa, College of Engineering

Saturday, April 22, 9:30-11:30am

Summary:

#### 1. Image Processing

1.1. Image Processing is a Signal processing in 2D: image formats; compressions and image manipulations; video processing;

1.2. Common operations: Filtering; Segmentation, Threshold Selection; Pattern Recognition;

2. Introduction to Human Visual System (HVS) and Subjective perception of Color and Patterns

2.1. Basics of Color Science: Capture and Display of images

2.2. Metamers and perception of color: Representation of color and Color transforms

2.3. Edges and Edge Detection in Imaging: HVS relies on edges

Workshop leader: Viara Van Raad, Ph.D

Image Processing Scientist @ STI Medical Systems TM

733 Bishop St, Makai Tower, Suite 3100, Honolulu, HI 96813

Please RSVP by April 14 to Al Toda, [aet@ieee.org](mailto:aet@ieee.org)

## KNOW YOUR ASCE HISTORY

by C.S. Papacostas

### "SLICKENS" BENDER'S ARRIVAL

In July 2003 I described the progressive 1880 "study abroad program" that King Kalakaua initiated for young Hawaiians. Supporting this program in the face of opposition, the Pacific Commercial Advertiser (PCA) argued on September 2, 1882 that the recipients of the King's scholarships "will return to these Islands and exercise the knowledge they have attained for the benefit of their country." Examples included the fact that "our harbors and Islands want surveying - roads projected and opened, and qualified inspectors (who require technical knowledge of engineering) to look to the safety of our public railroads and other works."

The PCA then brought up the fact that "long ago a civil engineer of ability pointed out a place in Nuuanu Valley where a reservoir of large area could be secured by the construction of a comparatively small and inexpensive dam." This is the earliest reference I've come across to a Hawaii government dam, an antecedent, I suppose, to the Dam at Reservoir No. 4 in Nu'uuanu Valley.

As I explained in February 2006, the publicly-owned water supply system of the Honolulu District consisted of a surface water gravity system employing masonry reservoirs in Makiki and Nu'uuanu.

Artesian wells constituted an emerging alternate source that had its advocates during the early 1880s. Many touted this source as being capable of providing pure water that did not need boiling or filtering. Its major drawbacks were a lack of knowledge regarding its extent and the fact that the available wells attested to a pressure head of about 42 feet above sea level. Supply of areas located at higher elevations would require expensive pumping.

Judge McCully was one of a group of land owners who pooled their resources to bring "Mr. Peirce, a well borer" from California to drill for artesian water on their properties in Honolulu proper, the first of these being bored in 1880 at the property of Mr. Augustus Marques "a gentleman not long resident in the kingdom, who had built his house on the dry flat land at the mouth of Manoa Valley." This was the "pioneer well" I described in October 1996.

Interestingly, the Judge's account, titled "Artesian Wells" and written for Thrum's "Hawaiian Almanac and Annual" for 1882, begins by asserting that "the weight of scientific opinion was that [artesian water] could not be obtained, as the Islands were supposed to be constituted geologically...permitting the

escape of subterranean water into the bed of the ocean at a lower depth." Most of the wells he described were private. Nevertheless, he did mention "the well in progress at the Government Reservoir, Makiki Valley," and "the King's well."

A survey reported by the PCA on January 14, 1882 describes all borings in the district and refers to the "Government well at Makiki" and another planned "near Aliiolani Hale." In summary, the PCA said "a dozen wells have now been opened, the majority of which are flowing night and day, but as yet no difference in the flow from the earliest of them has been noticed." This observation led to the erroneous conclusion, held by quite a few people, that "regarded as a water supply, for the population it can serve, it may be called inexhaustible."

Incidentally, only one of the wells surveyed by the PCA was reported to be capped; the other non-freely flowing holes were dug at elevations higher than 42 feet above mean sea level and consequently had water standing in the well's pipe.

Two contemporary developments related to water were the construction of several cisterns at major street intersection in Honolulu to supply water for fire fighting, and a growing awareness to address the question of sanitation and the need for a sewage system.

Despite the growth of the gravity and artesian water supply systems, and in view of a growing population, water shortages became a constant theme that frequently necessitated the imposition of usage restrictions. The following 1882 newspaper announcement signed by D. Freeth, Superintendent of Water Works, and Simon K. Kaai, Minister of Interior, graphically illustrate this point: "Water! Water! IRRIGATION AFTER THIS DATE, JUNE 23d, is limited to Four Hours (4) per Day From 6 to 8 in the Morning and from 4 to 6 in the Evening... Persons found irrigating except during specified hours will have their privileges suspended without notice."

The next step in the story that eventually led to the Dam at Nu'uuanu Reservoir No. 4 was made known by the PCA of February 16, 1884: "A valuable series of maps and plans have ... been prepared, and an Engineer of high reputation and of large practical experience in hydraulics was sent for and has arrived in Honolulu, being a passenger by the Mariposa. This gentleman is Major A. S. Bender, whose report on what is known in California as the 'Slickens' question, is reported to be the most able that has been produced on that agitating subject... Major Bender is to take [the] question of water supply in hand."

By the way, "slickens" refers to fine materials produced in hydraulic mining operations; in the above context, it refers to an environmental controversy that culminated in a January 1884 decision by Judge Lorenzo B. Sawyer restricting hydraulic mining in California.

Do you know of a civil engineering accomplishment or event that your fellow ASCE members might find interesting? Please send a brief description to C.S. Papacostas (fax 956-5014, email [csp@willki.eng.hawaii.edu](mailto:csp@willki.eng.hawaii.edu)). Previous articles in the series may be found at the Section's web site. Just point your browser to <http://www.ascehawaii.org>.



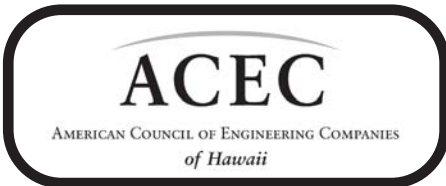
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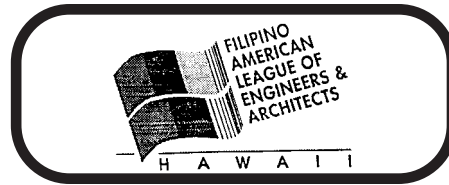
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(required by May 11, 2006).

**REQUEST FOR DONATIONS FOR THE MINI BAJA PROJECT**

The UHM ASME Student Section Mini Baja Team requests the support and donations from the engineering community for expenses to design, build, and compete in the 2006 Mini Baja West competition, May 11-13, 2006, in Portland, Oregon.

Because of the high cost to participate in this annual student competition, the students seek your help in funding. They expect expenses to reach as high as \$30,000 for materials and travel. Donations are tax deductible. Checks are made out to "UH Foundation/Engineering" (specify "for UH Mini Baja Project" on your check) and mailed c/o Dr. Bruce Liebert, Department of Mechanical Engineering, University of Hawaii at Manoa, 2540 Dole Street, Holmes Hall #302, Honolulu, HI 96822. Your support will be greatly appreciated.

**OTHER TOURS PLANNED**

Navatek Tour - ASME is planning a tour of Navatek on a Saturday in late April. Please contact the Ray Liu or Kevin Dang if you are interested or would like more information.



Scorers, L-R: Debbie Higashi, Stephanie Gonsalves, Darren Walls, and Violet Francis.

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