BAEN Centennial

With this last issue of 2014, the BAEN family wishes you a great holiday season. We truly appreciate your feedback and hearing from you; please keep doing that throughout 2015. The new year brings us the BAEN Centennial celebration with many activities as highlighted in this issue of the Newsletter. I hope you enjoy it. Happy Holidays! Congratulations to our Fall graduates!

Elena Castell, Editor
**FACULTY NEWS**

**Binayak Mohanty**, BAEN Professor and COALS Chair in Hydrologic Engineering and Sciences, was recently recognized as a 2015 TEES Senior Faculty Fellow by the Dwight Look College of Engineering. During the annual professional meeting of Tri-Societies (Agronomy Society of America — Crop Science Society of America — Soil Science Society of America) held in Long Beach CA on Nov. 2-5, He received the prestigious Don and Betty Kirkham Soil Physics Award from the Soil Science Society of America for 2014. This award was established in 1998 and recognizes a mid-career scientist who has made outstanding contributions in the areas of soil physics.

**Sandun Fernando**, BAEN Associate Professor, received the Association of Former Students (AFS) Distinguished Achievement Award for College-Level Teaching. These awards recognize, encourage, and reward the superior classroom teachers. This award is designed to distinguish those teachers who maintain high expectations of their students and who ensure academic rigor in their courses. Only three faculty in the College of Agriculture and Life Sciences can receive these awards annually.

**Saqib Mukhtar**, BAEN Professor and Associate Head for Extension, and **R. Karthikeyan**, BAEN Associate Professor, received the College of Agriculture and Life Sciences Dean’s Outstanding Achievement Award for Interdisciplinary Research for the work done by the Bacterial Source Tracking Research Team, in September, 2014. Other team members include Terry Gentry (Soil and Crops), Raghavan Srinivasan (Spatial Sciences), Roel Lopez and Kevin Wagner (Director and Assistant Director, TWRI, respectively).

**Rosana Moreira**, BAEN Professor and former Assistant Department Head, was named Assistant Provost for Graduate and Professional Studies (OGAPS) on September 1. She will help continue the OGAPS mission to provide quality support services to all Texas A&M graduate students, faculty and staff.

The USDA-NRCS through its nationally competitive Conservation and Innovation Grant (CIG) for 2014 has awarded **Sergio Capareda**, BAEN Associate Professor, a two year project entitled “Demonstration of Water Purification/Treatment/Recycling and Power Generation with Net Metering in a Commercial-Sized University Dairy Operated by the Dairy Industry”. USDA will provide total federal funding amounting to $357,472 while Texas A&M AgriLife Research, Tarleton State University and Global Restoration Inc. (GRI, Seabeck, WA) will provide a combined cost-share of $425,811 for a total project cost amounting to $783,283. The project officially started on October 1, 2014.

**Steve Searcy**, BAEN Professor and Department Head, represented Texas A&M at the Oct. 27-28 World Water Council’s (WWC) Board of Governors meeting. The World Water Council is a network of international organizations that focus on water supplies internationally, addressing efficient conservation, protection, development, planning, management and use of water in all its dimensions on an environmentally sustainable basis. Texas A&M’s application for membership was considered at that meeting, and Searcy met with the WWC president to discuss the breadth of water related activities of the BAEN department plus those of other departments and agencies. Texas A&M is the second US university to join the WWC.
EXTENSION NEWS

Dana Porter, BAEN Associate Professor and agricultural engineering specialist, and Jim Bordovsky, Texas A&M AgriLife Research irrigation engineer, were honored with the 2014 Experiment Station Section Excellence in Multistate Research Award, as part of the W-2128 project multi-state research award. Their work is helping farmers to better use microirrigation systems to sustainably irrigate their land during dry times. The Lubbock team was among 19 land-grant universities honored for their collaborative efforts during the awards program held at the Association of Public and Land-Grant Universities annual meeting in Orlando, Florida, on Nov 3. The W-2128’s efforts are supported in part through USDA-National Institute of Food and Agriculture and by the Multistate Research Fund established in 1998 by the Agricultural Research, Extension and Education Reform Act. Read more about this story at http://today.agrilife.org

Cattle and Climate Workshop Engages Extension Educators on Implications of Climate Variability

David Smith, Texas A&M AgriLife Extension Service program specialist, and Saqib Mukhtar, BAEN Professor, recently hosted the Cattle & Climate Workshop, at Oklahoma State University in collaboration with OSU Extension as part of 5-year USDA NIFA grant ‘National Facilitation of Extension Programming in Climate Change Mitigation and Adaptation for Animal Agriculture’ (referred to as the Animal Agriculture & Climate Change project). The purpose of the event was to engage Extension educators on the issue of climate variability and its implications for cattle production in the Southwest US. More than 80 extension agents, specialists, and administrators from 12 states gathered on November 6 in Stillwater to hear from Gary McManus, Oklahoma Climatologist, and other experts from OSU, Kansas State University, and Texas A&M University and learn how climate change may impact beef cattle producers, as well as management strategies producers can take to minimize risk. Participants also learned about other ongoing agriculture/climate related efforts including an overview of USDA Climate Hubs from Jeanne Schneider, Director for the USDA Climate Hub in El Reno, Oklahoma. The workshop concluded with lively facilitated discussion on the role of Extension in communicating contentious issues such as climate change. Since 2011, Smith and Mukhtar have written several Extension fact sheets focusing on greenhouse gas emissions and animal agriculture, developed an on-line course on Basic Climate Science available at http://campus.extension.org, and in cooperation with the national project team, developed a comprehensive 12-hour online course Animal Agriculture in a Changing Climate. Educational resources and course registration are available on the project web site http://animalagclimatechange.org.

David Smith, (AGEN’93) has 17 years of service with Texas A&M AgriLife Extension beginning in 1994 where he worked for Guy Fipps, BAEN Professor and Extension Agricultural Engineer, and the Landscape Irrigation Program. Since then, he has worked on various Extension efforts including wastewater treatment, water conservation, the Texas AgrAbility Project, and agriculture safety and health. Outside of Extension, Smith operated a landscape irrigation auditing business throughout Texas, and worked three years as directional driller for Scientific Drilling, Inc. in west Texas, New Mexico, and Colorado. Smith is currently in the Water Degree Program and expects to earn a Master of Water Management degree in Spring’15. Smith and his wife Jamie have two children, Jacy age 15 and Jacob age 9.
International Projects in Senior Capstone Courses by Gary Riskowski

All undergraduate seniors in the BAEN department take two capstone courses their last year. Both the AGSM and BAEN students participate in projects in these courses that allow them to learn to apply what they learned in college to real world problems. These courses push the students to assimilate several topics and classes that they took, and to remember what they took. These courses also teach professionalism, teamwork, and communication skills where they do a lot of writing in professional style. Now, an international learning experience is being added to these courses to further expand their horizons.

This year, there is one project in BAEN 479/480 (BAEN Design I and II) on water treatment in collaboration with the University of Quinca in Ecuador, which is described elsewhere in this newsletter. There are two projects in the AGSM 439/440 capstone courses that are cooperative with the University of Guanajuato in Mexico. Both of the AGSM projects are related to horticulture/crops—one is developing a mechanism for pruning avocado trees and the other is to develop a hygienic way of removing mead from the maguey plant. Students from the University of Guanajuato have already traveled to College Station and presented the problems to the students in AGSM 439 (Management of Agricultural System I) this Fall. There are plans for the Texas A&M teams to travel to Mexico in May so they can present their projects to University of Guanajuato faculty and industry representatives in the area.

We are interested in getting more international projects for these capstone courses to provide our students more enhanced experiences because there is more need for international experiences for our students. We are hoping to continue to enhance our capstone courses so all students have an opportunity for enhanced international experiences. Please contact Gary Riskowski (riskowski@tamu.edu) or Rabi Mohtar (mohtar@tamu.edu) if you have any suggestions.

Research Experience for Undergraduates (REU) by Stormy Kretzschmar

Following the University emphasis on high impact learning experiences, the Biological and Agricultural Engineering department has developed and provided special grants to several faculty-student teams who wish to pursue a designated research project. This past academic year the department provided 9 of these grants to students across the department. This fall semester the department has already provided 5 such grants and with several more months to go in the academic year the department is hopeful to provide many more. The aim of the grant is to encourage students to engage in research much earlier in their undergraduate career to help develop of more advanced skills and obtain a sense of what an advanced degree might entail. Ultimately, it provides another pathway for the student to interact with faculty and staff outside of the classroom and develop job related skills.

Below are just a few of things our students are working on right now!

Bioseparation lab has become a “magnet” for BAEN students interested in bioprocess engineering. Zivko Nikolov’s Bioseparations Lab conducts cutting-edge research that utilizes green microalgae as bioreactors for producing a variety of products from biofuels to high-value therapeutic proteins. Past and current REU students in the Bioseparations Lab who worked with transgenic algae for the development of therapeutic protein products and biofuels byproducts include Francesca Moss, Logan Kostroun, Chelsea Dixon, Susana Cabrera, and Alejandra Cobos.
Susana Cabrera, a BAEN Junior who is working with Dr. Zivko Nikolov, writes...

“The fact that humans have the potential to “grow” fuels, materials and therapeutic agents in biological systems fascinates me. I recognize the revolutionary nature of this idea as well as the improvements necessary to incorporate it to current manufacturing methods. The ongoing microalgae research in Dr. Zivko Nikolov’s Bioseparations Laboratory caught my eye even before I enrolled at Texas A&M. In fact, it helped me decide on a major as I filled my college application. Now, as an undergraduate member of the Bioseparations Lab, I have been exposed to the involved task of designing bioprocesses for the launch of algae as a biomanufacturing platform.

I started as a trainee in the Bioseparations Lab in the spring semester of 2014. In the summer of 2014 I was granted the opportunity to conduct an independent research project in the lab by the USRG Program sponsored by the Dwight Look College of Engineering. The project focused on growing and processing of transgenic microalgae to isolate and purify recombinant malaria vaccine antigen.

The USRG program was a great opportunity to “get a glance” of graduate school as well as to learn how to think critically and solve problems independently. I am currently working towards the Engineering Therapeutics Manufacturing Certificate, offered through the BAEN department and the National Center for Therapeutics Manufacturing, which provides specialized training in the areas of biotechnology and bioprocess engineering. My goal is to gain the necessary skills to enter the thriving biotechnology industry and contribute to solving some of the key challenges of our time.”

Dr. Carmen Gomes, BAEN Assistant Professor, writes...

BAEN undergraduate students are increasingly showing interest in participating in research experiences with faculty in the department. Among participating students, I have Courtney Toler and John Abduhamad who are carrying out projects related to nanoparticle synthesis containing natural antimicrobials. Courtney worked over this summer on polymeric nanoparticle synthesis to assist on protein separation and John will be working on engineering biomimetic nanobrushes for pathogen sensing using biopolymers and. This picture shows the Nanoscale Food Engineering group at 2014 IFT meeting (New Orleans, LA, July 2014).
SDL Citadel Global, LLC (Dallas, TX) licensed the gasification technology developed at BAEN and fueled by municipal solid waste (MSW). This company recently built a commercial 1 MW unit that is being demonstrated at the Texas A&M AgriLife Research Center in Dallas, Texas. A photo of this commercial unit is shown here with Dr. Capareda and SDL CEO, Jay Darr.

Zivko Nikolov, BAEN Professor and Associate Department Head, gave a plenary lecture entitled “Impact of Plant and Algal Biotechnology on Food, Energy and Healthcare Sectors: A Bioprocessing Perspective” at the 2nd International Congress on Food Technology, Quality and Safety, which was held in Novi Sad, Serbia from October 28 - 30, 2014.

Cotton Research and Promotion Program Hall of Fame

In October this year, Cotton Incorporated announced the formation of a Cotton Research and Promotion Program Hall of Fame, which will annually recognize U.S. cotton industry leaders that have made significant contributions to the Program or to the cotton industry in general.

The 2014 honorees of the Cotton Research and Promotion Program Hall of Fame were chosen from nominations made by Certified Producer and Importer Organizations and voted upon by the Chairman’s Committee of the Cotton Incorporated Board. Among the five inaugural honorees is Professor Lambert Wilkes (1926-2013) who, along with his team at Texas A&M, is responsible for the engineering of the cotton module builder, which dramatically increased the efficiency of cotton collection and storage. In 2000, the state of Texas acknowledged the module builder as one of the four most significant economic achievements of the 1970s. In 2002, the American Society of Agricultural and Biological Engineers named this invention a historical landmark of agricultural engineering, “one of the top three inventions in mechanized cotton production.” Professor Wilkes was a BAEN Professor from 1948 until 1975. Check this link for more information: http://deltafarmpress.com/cotton/cottons-hall-fame-five-inaugural-members?eid=forwa

STAFF NEWS

One of our Academic Advisors, Stormy King, married a graduate (John Karl Kretzschmar, AGSM ’07) from the BS AGSM program. By the way, his dad, Gilbert “Sonny” Kretzschmar (AGEN) also graduated out of the department in 1963. Students and faculty, take note: Stormy now goes by Ms. Stormy Kretzschmar. Congratulations!
FORMER STUDENT NEWS

José Manuel Cabrera Sixto ’90 was recognized with the 2014 Outstanding Alumni Award by the College of Agriculture and Life Sciences. In 2011, Dr. Cabrera was named president of the University of Guanajuato, overseeing its five campuses. Check this link for a video and more information on Cabrera Sixto’s successful career in agricultural engineering.

http://aglifesciences.tamu.edu/blog/2014/11/19/president-of-the-university-of-guanajuato-named-outstanding-alumni/

PASSINGS

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<td>12/5/2013</td>
<td>Houston, TX</td>
<td>AGEN</td>
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<tr>
<td>Mr. Douglas E. Holcomb '75</td>
<td>12/1/2014</td>
<td>San Marcos, TX</td>
<td>AGEN</td>
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<tr>
<td>Hank Wiederhold ’76</td>
<td>5/5/2013</td>
<td>Nacogdoches, TX</td>
<td>AGEN</td>
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Hank Wiederhold Fightin' Texas Aggie Class of 1976 Memorial Scholarship a link to past generosity

Hank Wiederhold knew first-hand that a generous act can yield life-long rewards. Many years ago, Wiederhold was looking for a way to transfer from Blinn College to Texas A&M University, and he met a young banker who decided to co-sign on his student loan. This stranger’s act of generosity allowed the student to fulfill his dream of becoming an agricultural engineer. Wiederhold’s career with the USDA—Natural Resources Conservation Service (NRCS) resulted in countless benefits for Texans, and his love of family and all things Aggie left a legacy of a life well lived.

Wiederhold’s wife, Angela, together with Hank’s friends and colleagues, have endowed a scholarship in Hank’s name. The scholarship is available to Blinn transfer students in the Department of Biological and Agricultural Engineering with an emphasis of water conservation and wetland habitat creation. Students from Dallas, Travis, Montgomery, Nacogdoches, and Lee counties are to be considered first. “My husband always shared everything, including his time, expertise, and financial rewards,” Angela says. Shortly after graduating with a bachelor’s in agricultural engineering in 1976, Wiederhold began working for NRCS. He retired in December 2013. Unfortunately, Hank died suddenly in May and is missed by many. [http://www.legacy.com/obituaries/dailysentinel/obituary.aspx?pid=170982829]. “Family, integrity, excellence, a love of all things Texas A&M, and an unparalleled ability to work with people — such is the legacy of Hank Wiederhold,” writes John Mueller, state conservation engineer at NRCS.

Texans have benefited from Hank’s work in numerous ways. He led hundreds of wetland restoration projects. After Hurricane Rita, he was recognized by both the city of Port Arthur and NRCS for his exceptional work as lead NRCS engineer on watershed protection. The same year, the Texas Section of the American Society of Agricultural and Biological Engineers presented Hank with its highest achievement award, naming him “2006 Engineer of the Year.” In 2009, Hank became the first State Wetland Engineer for Texas NRCS, according to his obituary.

Hank’s passion for helping people was obvious in his work implementing the NRCS disaster recovery program, the Emergency Watershed Protection Program,” writes Trey Bethke, district conservationist at NRCS and one of Hank’s co-workers. “In East Texas virtually every NRCS-designed headwall for protecting public roadways installed under the EWP program has Hank’s imprint on it.... Most impressive was Hank’s commitment to the citizens and communities of southeastern Texas after Hurricane Rita in 2005.”

Hank’s passion for helping people extended to his family—which includes two sons and two adopted sons—and to his many friends and total strangers. Hank was the “life of the party” and had a great sense of humor, Angela says. He loved tailgating and cheering on the Texas A&M Aggies, and he cooked up his famous barbeque at Aggie football games. Hank and Angela often hosted as many as 100 people at their barbecues. Everyone was welcome, Angela says.

Texas A&M gave Hank “the opportunity to have a wonderful education and provide well for our family and for a lot of people,” Angela says. “We just want to give back in a meaningful way that will honor Hank’s values of learning, loving, and sharing.”

We are pleased to have the Hank Wiederhold scholarship to provide financial aid to Aggies. While this scholarship has met the minimum for endowment, it is important that we continue to grow all our scholarships, as college costs continue to increase. Please consider growing this or other scholarship funds with your donations. Go to [http://baen.tamu.edu/giving-opportunities/](http://baen.tamu.edu/giving-opportunities/) or contact me to identify the specific fund you would like to support. Steve Searcy, 979-845-3940
STUDENT NEWS


Talal Al Shikaily, a graduate student working with Alex Thomasson, BAEN Professor, came in 3rd place as a 2014 Edmund Optics Educational Award prize winner (www.edmundoptics.com/award). Winners were recognized for their contributions to advance optical innovation.

LETTERS FROM FORMER STUDENTS

October 15, 2014

Good Evening Dr. Moreira,

I would be very surprised if you remember, but I was one of your students in the Fall of 1990 in the AGEN Grain Drying and Conditioning class. I believe it was your first semester teaching at TAMU and you had just come from Michigan State if I’m not mistaken. I recognized your name in the author line of the BAEN Newsletter.

At the time I was in your class I was planning to go into the irrigation business, not the grain business. I ended up going to work for Cargill in the grain business after graduating from A&M in December 1991 and have been with Cargill ever since. I currently manage plant operations for our US and Mexico Grain and Cotton businesses. Your class obviously had more relevancy for me than I ever could have imagined it would at the time.

In 2010 I had the opportunity to travel across your home country of Brazil and visit 17 of our facilities there during soybean harvest. It was an incredible experience and I look forward to spending more time there in the future.

I trust all is well in the Department and I appreciate the opportunity to read the newsletter.

Best Regards,

Marc Mears
Vice President, Cargill AgHorizons
US/Mexico Grain and Cotton Operations

WHERE ARE YOU NOW?

We want to know about you. Where you are, your job, your life....Tell us anything we can include in the BAEN newsletter. We want to connect with our former students, former faculty and staff, and include some news related to you. Please drop an e-mail to Elena Castell at ecastell@tamu.edu.
Another year for Mexico Exchange has passed and what an Exchange it was! This year our department hosted 9 students, 2 faculty members and 1 staff member from the University of Guanajuato, Mexico for the week of November 9th through the 14th. Each year our students are called upon to be heavily involved in this program and organize daily industry tours, provide housing for our guests, plan and execute nighttime social activities, assist as drivers and provide translation assistance.

This year over 20 TAMU students assisted with this program. Activities this year included a tour of the LCRA power plant in La Grange, a tour of Minute Maid in Waco, a stop at the TAMU Howdy Farm, a fun day at the capital in Austin and much more! A new addition was the inclusion of all student groups from AGSM to BAEN to the BAEN Graduate Student Association. This program provides valuable leadership experience for our students and reaffirms the connection our department has with the University of Guanajuato which has endured over the past several decades. Please contact me at stoking@tamu.edu for any questions you might have about future or past Mexico Exchange programs. We are always on the lookout for new tours so be sure to let us know if you are willing to host a tour at your company or organization.

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<th>Student/Faculty Helper List</th>
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<tr>
<td>Tommy Marchetti</td>
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<td>Victoria Garibay</td>
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<td>Zackary Skrabanek</td>
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<td>Carina Mayorga (Stephanie Ruiz roommate, Intl Bus major)</td>
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<td>Stephanie Ruiz</td>
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<td>Mauricio Martinez</td>
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<td>Nathan King (Pockets)</td>
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<td>Crystal Bradley</td>
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<td>Ferne Maulsby</td>
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SCOATES HALL ARCHITECTURAL RESTORATION

The restoration of Scoates Hall continues, and will be completed prior to the spring 2015 semester. As a part of the ongoing Capital Improvement project, we have had the ability to select paint colors that match those originally used in the building, but other aspects were not in the budget. A partnership of funding from the Provost, College of Agriculture and Life Sciences, the Classroom Renovation Committee, and the department let address features that could only be restored while the scaffolding was in place. This included the ceiling and chandelier. The photos above show the chandelier and stenciled ceiling as it existed in 1933 (b/w on left) and today following the restoration. The photo on the right shows the colors that have been restored, but the photo does not do justice to the appearance of the room. It is beautiful!

The Scoates Hall lecture room chandelier and ceiling tiles have been restored to their original condition. The photo on the left is from 1933 and on the right is a current view of the ceiling.

The current funding has been able to address only a portion of the restoration that is planned for the main lecture hall and the foyer/entryway. Did you know the classroom has both a color and a monochrome mural? Both were painted by Gertrude Babcock, the monochrome in 1932 and the color mural in 1939. Both are damaged, and in need of repair, but those and other features will have to be addressed in the future. You can follow the status on the restoration web page (http://baen.tamu.edu/centennial/scoates-hall-renovation/).
CENTENNIAL EVENTS

The Agricultural Engineering Department was established as an autonomous department within the Agricultural and Mechanical College of Texas on July 6, 1915. Agricultural Engineering related courses had been taught under the Agronomy and Civil Engineering Departments for several years, but in 1915, the discipline was recognized as distinct and worthy to be a separate department. At the time of forming, Elmer Gee was the only faculty member. One hundred years later, the department has 37 faculty members located across the state and working on a range of topics that would be completely foreign to Elmer Gee or his students.

The department is planning a yearlong set of activities to focus on both the past and the future. Planning is currently underway, so check back at http://baen.tamu.edu/centennial/events/ for updates and further information. All former students and other supporters are invited and urged to participate in the various activities.

IMPORTANT DATES

While many activities are still in the planning stages, some event dates are known. The general theme of the celebration will be to highlight departmental accomplishments of the past century during the Spring 2015 semester, present activities during Summer and look to our next century during the Fall semester.

Hold these dates!
- **February 6, 2015:** Grand Reopening of Scoates Hall Lecture Room
- **February 18, 2015:** Edward A. Hiler – Seminar Topic: water use, conservation and applications
- **March 25, 2015:** Otto R. Kunze – Seminar Topic: rural electrification and post-harvest processing
- **April 15, 2015:** Calvin B. Parnell – Seminar Topic: cotton engineering
- **July 27, 2015:** Texas A&M reception at the 2015 ASABE Annual Meeting in New Orleans will feature the centennial activities.
- **October 9-10, 2015:** The major Centennial event will be held on these days on campus. The department will host the Texas Section of ASABE in College Station on Oct. 7-9. Everyone is invited to participate in both events.

CENTENNIAL BOOK

Editor’s Notes

Elena Castell-Perez

On behalf of the Newsletter team, I want to thank those of you who have sent great feedback regarding the BAEN newsletter. Please contact us with any suggestions on topics or if you have any important news to share with the BAEN family.

I am looking forward to hearing from you.

Contributions to the newsletter are due by the 15th of the month before the next scheduled issue.

Newsletter Schedule - 15
• February, 2015
• August, 2015
• December 2015