

AEMB National Newsletter

Alpha Eta Mu Beta
National Biomedical Engineering Honor Society

2002-2004 National Officers

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Attention New Officers

Welcome new chapter officers. We hope you are having a fun and productive year. The list below contains a few items that concern you and your chapter and should help you get off to a good start.

If you have not already done so, please tell us who your new officers are this year so we can communicate with you.

- First send your officer's e-mail addresses to jpelker@bu.edu as soon as possible.
- Next, find the chapter status form online at AHMB.org and fill it out and mail it to the address listed
- Please find the initiate form online at AHMB.org and send it with the one-time dues to the address listed.
- If you have questions or concerns, please contact one of the national officers. Our names and e-mail addresses are listed to the left.

Please supply articles for our spring newsletter. We would like to have enough articles to fill a newsletter before the end of winter break. Here are a few topic ideas to get you started.

- Service or social event
- Successful fundraising activity
- Leadership articles
- Bioengineering department news

Send articles and photos to teresa.murray@asu.edu

First AEMB Banquet: Raises Awareness of AEMB, Honors Founder

Reported by Terri Murray

We held our First Annual Banquet on Thursday, October 2nd at the BMES 2003 Fall Meeting in Nashville, TN. The dinner proved to be an excellent way for us to raise awareness of our society and give our members an opportunity to speak directly with some of the leaders in Biomedical Engineering education. Peter Katona and Jack Linehan both of the Whittaker Foundation and Sue Van of the Coulter Foundation dined with students. Also, Art Coury, President of AIMBE; John Tarbell, President of BMES; and Kyriacos Athanasiou, BMES President Elect were present. Two past presidents of AEMB attending, Daniel Reneau, (our founder and guest of honor) and Stan Napper, both from Louisiana Tech attended. Other guests included AEMB Advisory Board members, Eric Guilbeau, and Paul Hale plus four BMES headquarters staff, including Executive Director, Pat Horner. Altogether 67 people attended the event.

We are grateful to the many BMES professional members who generously purchased tickets to donate to students so they could attend the banquet. A special thank you is extended to Dr. Eric Guilbeau of Arizona State University for helping Terri Murray sell enough tickets to fill the room. Another expression of appreciation goes to Pat Horner, our Executive Director who made all of the arrangements for the room and delicious dinner.

Daniel Reneau, Ph.D. at Louisiana Tech University founded the first AEMB chapter in 1979 with the sponsorship of the Alliance for Engineering in Medicine and Biology, to honor outstanding students in ABET-accredited



Daniel Reneau (left) and Herb Voigt (right)

biomedical engineering programs. Dr. Reneau was our honored guest and speaker for the evening. AEMB President, Dr. Herb Voigt presented Dr Reneau with a plaque expressing our gratitude. After the presentation, Dr. Reneau treated us to a fifteen-minute speech on Biomedical Engineering including where it has been and what it holds in store for us as students about to enter the field.

An unofficial survey of those students who attended the banquet indicated that they were quite pleased with the presentation and that we should have another inspirational speaker for next year.



A few of the 67 students and faculty who attended the First Annual AEMB Banquet.

We were able to increase awareness of our society through several news releases that announced the banquet. These were sent to BMES and other AIMBE member organizations. In addition, key AIMBE members received invitations as did a list of BME faculty. Add to this the number of BMES members that we asked to purchase tickets at the BMES convention and we likely reached a few hundred key bioengineering faculty and industry members. Our original intent was to have the banquet be a fundraiser for our society. That did not happen this year, although we probably came close to breaking even on the event. Now that we have established our name with a larger circle of industry professionals and have one outstanding banquet to our credit, we anticipate that our next banquet will generate revenue, as well as continued publicity for our society. The Second Annual AEMB Banquet will be held at the BMES Fall Meeting next year in Philadelphia. Please encourage your school's faculty and students to attend next year and to sponsor students.

The Origin and History of AEMB at Marquette University

Compiled by Dean Jeutter, PhD and John LaDisa

In 1979 Drs. Jodat and Jeutter, two faculty members in the Department of Biomedical Engineering at Marquette University, had a vision of assembling an honors group for students dedicated to sharing and advancing biomedical engineering. Later that year, the founding class of what would become Beta Epsilon Gamma answered the call with an induction ceremony planned entirely by the proposed student members. The faculty advisors recount the event as something special as the founding class was inducted in a dimly lit room and the combination of dry ice and water complimented the ambiance of the event.

Beta Epsilon Gamma soon became one of the most active organizations on campus. Weekly meetings were held for members to arrange University, community and social events. The student organization would frequently welcome biomedical engineering students from other colleges and universities and often traveled to learn from these organizations throughout the Midwest. Beta Epsilon Gamma had a presence on the Marquette campus beginning with the first day of classes during Organization Fest. Here new and returning engineering students shopped for activities that complimented their character, many of which were drawn

to Beta Epsilon Gamma. The organization was also represented at all of the Engineering Open Houses held throughout the year and offered CPR courses and a blood drive sponsored annually by new pledges.

Almost simultaneously, a group of small, but growing, scientific organizations including the Institute of Electrical and Electronics Engineers, Society for Engineering in Medicine and Biology, American Society of Mechanical Engineers, and American Chemical Society began a combined effort called the Alliance for Engineering and Medicine and Biology to foster the common biomedical interest shared by each of these organizations. AEMB began arranging meetings and career fairs in major cities throughout the country where engineers and scientists could continue to share biomedical knowledge. It became clear to the members of Beta Epsilon Gamma at Marquette University that the time had come to convert their organization into a chapter of AEMB. With the help of the faculty advisors, the students applied and were accepted as one of the charter chapters of AEMB. Since the inception of AEMB at Marquette University, over 185 members have been inducted and the chapter continues to be an active engineering organization on campus.

Brief Biography of Our Founder, Daniel Reneau, PhD

For those of you who did not attend the Annual Dinner, our founder Daniel Reneau has built up quite an impressive list of accomplishments. As Vice President for Academic Affairs from 1980 to 1987 and as President of Louisiana Tech University from 1987 to present, he has motivated, promoted and administered excellence in all academic areas of the university. He is the chief executive officer for over 400 faculty housed in five colleges and three professional schools

offering over 160 different degree programs. Some of his notable accomplishments include the addition of several doctoral programs (including Biomedical Engineering and Computational Analysis and Modeling), implementation of selective admissions, successful completion of a \$50M Quest for Quality fund-raising campaign, and establishment of major research centers (Center for Biomedical Engineering and Rehabilitation Science, Institute for Micromanufacturing).

THANK YOU to the many faculty and professional members of BMES who purchased tickets for students to attend the **AEMB Banquet in Nashville.**

Upcoming Conference Links and Calls For Papers

XVth Congress of the International Society of Electrophysiology & Kinesiology
June 18-21, 2004, Boston University, Boston, MA
More information at isek2004.bu.edu

Rocky Mountain Bioengineering Symposium
An International Bioengineering Conference
41st Annual Rocky Mountain Bioengineering Symposium
jointly sponsored by I.S.A.

**ISA—The Instrumentation, Systems,
and Automation Society** 

April 23-25, 2004 at Colorado State University, Fort Collins, CO
More information at www.rmbs.org



Co-sponsored by BMES
February 25 and 26, 2004
Bethesda Marriott Hotel, Bethesda, Maryland
More information at www.bmes.org

FASEB

Federation of American Societies for Experimental Biology
BMES Spring Meeting with Experimental Biology
April 17-21, 2004, Washington Convention Center, Washington, DC
More information at www.bmes.org and <http://www.faseb.org/meetings/>



Annual Fall Meeting October 13-16, 2004
Wyndham Franklin Plaza Hotel, Philadelphia, PA
<http://www.seas.upenn.edu/be/bmes2004/>
AEMB officers: apply for student travel grants

AEMB National Fundraising Ideas

Note to Chapter Officers:

Please let us know which idea(s) you prefer. Also feel free to suggest other plans. Reply to (teresa.murray@asu.edu)

A. Reasons for Raising Money

1. Advertise and promote AEMB, so that your membership is
 - A desirable, a notable honor,
 - An advantage for grad school, and
 - An advantage when job hunting
2. Send chapter officers to annual conventions by providing
 - Travel grants for officers, and
 - Interesting and informative speakers for annual meeting.
3. Provide resources and guidance to current chapters for
 - Initiating activities such as BME Day, science fairs, outreach, and
 - New member recruitment.
4. Recruit new chapters to become a larger and stronger organization
 - Represent more institutions and have a louder voice, and
 - Be more financially stable.
5. Pay our administrative bills (currently, we are all volunteers, including our Executive Director).

All of this activity is *synergetic* and helps us to *build our "brand name."*

B. Raise funds for national activities

1. Produce and sell a book containing members' resumes
 - Members and chapters send us resumes and we produce it.
 - Chapters and national officers take orders and money for them

and send national office a portion of the proceeds.

2. Sell advertising in the national newsletter.

- Chapters sell ads and collect money and keep part of the proceeds
- Send artwork and payment to national org.
- Put companies who advertise on newsletter mailing list and into database

3. Chapters solicit donations

- National org. produces a packet of fundraising ideas; distributes to chapters
- National org. provides AEMB brochures to give to prospective donors
- Chapters split donations with national on a percentage basis
- Donors go into database

4. Network

- Get to know key people at MDDI firms through industry tours, inviting industry speakers to your meetings and BME days,
- Ask contacts for donations (direct donations, travel grants, etc.),
- Provide contact information for database, and
- National shares industry contacts from database with chapters.

These ideas were originally presented at the 2002 Annual Meeting.

Your participation is essential and very much appreciated.

Beverly Biderman's Ear

By Herb Voigt

On December 28, 1998, I was in a state of panic. After failing to find a faculty member to teach a new section of "Introduction to Engineering" for the spring semester, my Chairman asked if I would develop and teach such a course myself. Secretly I had already resigned myself to the task; the scope of the seven-week module for engineering freshmen had been percolating in my mind for several weeks. The problem was I had not yet selected the text book and the class was starting in two weeks!

The purpose of these modules, two of which are taken by each engineering freshman, is to provide these students with access to engineering professors early in their training to increase retention, a major problem in all difficult majors, especially engineering. By allowing students to see various introductions to engineering it is hoped that they will see the fruits of their late night studies of calculus, chemistry, physics and programming. These students are our society's future technological agents. They are, for the most part, the best trained products of our high-schools and they are motivated to study one of the most challenging programs within higher education. The burden on these students is doubly difficult considering that many of their non-engineering classmates are experiencing lighter loads and significantly greater social life. But I digress...

As a biomedical engineer, I am trying to understand the neural circuitry of our auditory system using engineering perspectives and neuroscience techniques. My module would draw from my own research area because of my interest and thus I hoped to be able to engage these fertile minds. The title of my module is "An Introduction to the Auditory System and Hearing Prosthetics." This provides a rich set of materials to draw from – the anatomy and physiology of a major sensory system, an opportunity to discuss engineered solutions for impaired listeners (hearing aids), cochlear and cochlear nucleus implants, and finally a forum to discuss various ethical issues that have emerged as a result of the cochlear implant, especially in the context of implanting children. The students who registered for my module were almost all biomedical engineering majors. For them, I

hoped this would provide a glimpse of what is possible. Something they can reflect upon when at 2AM they are studying for an electronics exam and can't quite remember the use of what they are studying.

All I needed was the perfect textbook. But did one actually exist? Exhausting my usual sources of information and rejecting some excellent texts written for more advanced audiences, I logged onto Amazon.com for the first time. Using their search engine I quickly came across a book published in the fall of 1998 that sounded interesting – "Wired for Sound – A Journey into Hearing" by Beverly Biderman. Ms. Biderman was born hearing, but was profoundly deaf by age 13. A remarkable speech reader, she made her way through college by "passing" as a hearing person. She worked very hard, but experienced a world gone silent. Beverly was considered a poor candidate for a cochlear implant because of the length of time since she last heard. Being deaf post lingual, she acquired language the normal way, but not hearing herself speak, her speech began to degrade. Thirty years after she became deaf, Beverly received a cochlear implant.

The cochlear implant is arguably the most successful neural prosthetic devices ever made. It is an engineering marvel and its development time was extremely short. More than 60,000 humans have a cochlear Implant. Although the range of success varies greatly, it seems at minimum, lip-reading scores improve in almost all users. "When it works, however, the results are miraculous," said Bob Shannon of the House Ear Institute in Los Angeles.

Dr. Shannon is an award-winning scientist and engineer who tests cochlear implant patients to see how they perform under well-controlled laboratory conditions. He also led the cochlear nucleus implant effort that has resulted in about 100 humans with electrodes positioned directly on the auditory brainstem. Bob wrote a review of Beverly's book and after reading it I decided to buy the book. Two days later it arrived at my home and two days after that I ordered it for my class.

Beverly has written a first person account of her life before and after receiving a cochlear implant. She lets you into her audiologist's

office with her as they turn on her cochlear implant for the first time. She explains how she borrowed children's book recordings from the public library, plugged her tape recorder directly into her external processor and read along. She worked hard to make use of these new strange buzzes and pings she perceived through her new sense. Slowly she got better and better. She describes her first conversation with her hearing husband following implant turn on. She noticed that after certain words she would hear a whistle; quite annoying she thought. She concluded at first that her husband had a terrible speech impediment until she realized that those whistles were coming at the end of words ending with "s". She then made the connection that "s" corresponds to those whistles.

Well my problem was solved in a nick of time. The book was working well; there were even sections on Deaf Culture with a capital "D." Two weeks into the course I got an e-mail – from Beverly Biderman! She wanted to know who I was and why was I using her book in an engineering course? And was there anything she could do to assist?

When I didn't respond after 24 hours, she called me. When we spoke over the telephone I

marveled at what I was experiencing. This was a triumph of engineering technology, of biomedical engineering, over a malady that destroyed this woman's hearing. To insure accurate communication, Beverly would repeat my sentences to make sure she heard them correctly. She was never wrong. I was amazed.

With support from Boston University's College of Engineering, Hearing Research Center, and Alpha Eta Mu Beta, the student chapter of the Biomedical Engineering Honor Society, we brought Beverly from Toronto to Boston, where she gave three talks in three days in the spring of 1999. Her first talk was at the Cochlear Implant program at Children's Hospital, which has been operational since 1995. Her second talk was at Boston University to a group of about 100 people, including many of my students who brought copies of her book for her to sign. The last talk was to the entire student and teacher population at the Woodward School for Girls in Quincy, MA. Each of her talks was tailored for the particular audience and in each I learned something new. I am very happy to have met this remarkable woman. As for my course, I will be teaching it again this fall to a class of about 15.

Chapter Members:

We need your contribution for our spring 2004 issue of the AEMB Newsletter.

Send us articles about your chapter, links to useful information, commentaries on our industry, short stories of interest to bioengineers, and the like.

Send your submissions to teresa.murray@asu.edu