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Letter From the Editor

If you're thinking "I thought the newsletter was supposed to have an official name by now," you'd be right…and have a good memory! Yes, I did promise a brand new title to appear in this very issue. We've all had a busy semester, and the name contest has unfortunately been pushed back on my schedule. Look for a voting ballot soon and we'll get this newsletter a name!

In this issue, you'll see an article by Heidi Burgiel about the open software movement and how it is affecting our own department as well as an interview between Tom Moore and Joe Chiccarelli, our first department head. In addition to these features, you'll see news about publications, seminars, and other events.

Plans are already in the works for the fall newsletter. Look forward to an update on the new science building and an article from retired faculty member Bob Sutherland on his experiences teaching in China. We'll also tell you about the three new faculty members we hired that will be starting next semester.

Enjoy reading!

Shannon Lockard

Features

Open Source Software, by Heidi Burgiel

A simplified model of computer software production might split the developers into two groups: commercial and cooperative. From a commercial software developer's point of view, producing software requires resources which must be recouped through software sales. Software piracy and other copyright violations reduce sales revenue and so have the same effect as physical theft of a product.

On the other hand there is a community of software developers whose livelihood generally does not depend on revenue from sales of software -- this community includes

university employees and hobbyists. Freely sharing their software and code, they work collaboratively on large projects, each improving and adding to the contributions of the last. Today's open software movement arose from this cooperative ideal of software development.

Many mathematicians and computer scientists are university employees, and the open software movement is alive and well in our field. The commercial software package Maple costs $70 for a student version and $995 for a single user faculty license. A home edition of Mathematica costs $295. An individual license for MATLAB costs $500. Faced with these high stakes, William Stein of the University of Washington has launched the development of a free software package called Sage that he hopes will do all that the expensive ones can do, and more. What's the catch? If Sage doesn't work there's no 1-800 number with around the clock answers to your questions; if something doesn't work you can fix it yourself!

Here in the Department of Mathematics and Computer Science we use two different open software products in our courses. In COMP203, a computer programming course designed for education majors, students use the open source programming language UCB Logo for the first half of the course (and Maple for the second half.) Even the Logo text book is open source; students can view individual chapters in pdf or html format online or download them to their laptops for later perusal (or printing).

In COMP111, a new course designed to introduce programming to liberal arts majors, Professor Abdul Sattar will be using Alice. Alice was developed by Carnegie Mellon University in collaboration with the open source champion and computer company Sun Microsystems. The Alice programming language is based on Java, and offers liberal arts students several advantages over the Java programming language. First, the focus of Alice is on animating characters in 3D worlds -- students are naturally led to use Alice to tell a story. Second, Alice programs are created by "dragging and dropping" instructions in a graphical user interface. Students using Alice will not be frustrated by missing parentheses or errors in capitalization.

These open source solutions are not perfect -- Logo is out of date, the text is too advanced, and Alice is untried -- but by using them in our classes we participate in the open software movement and also save some money.

Interview With Retired Vice President Joseph B. Chiccarelli

In early March, ***Math and Comp Sci Newsletter*** talked with Joe Chiccarelli, former head of the mathematics department at BSC. The interview was conducted by Tom Moore. Photo of Joe Chiccarelli with wife Gloria by Dave Wilson.

TM Chic, is it true that you can be called the first chairman of the mathematics department at BSC, a school founded in 1840?
JBC Actually, yes! When I was hired in 1964 at Bridgewater State no one had received a bachelor's degree in mathematics. Most of the mathematics being taught was in general education type courses. A "math major" at that time would have finished up with Calculus. George Durgin (of Shea-Durgin Hall fame) had been guiding the mathematics curriculum for years. It was his retirement that gave me the opportunity to come to BSC. Remember that Bridgewater originally began as a Normal School for training teachers and only in 1960 became a liberal arts college, changing from Bridgewater State Teacher's College to Bridgewater State College.

TM Going back a bit in time, how and when did you become interested in mathematics?
JBC Of course I had an interest in high school and when I entered Boston College in 1943 I took a standard college algebra and trig course. Now the war was still on and I was about to turn 18 and knew I'd be drafted, so I didn't return to BC but in fact was drafted into the army in January, 1945. They knew I had a year of college, so along with some others I was sent to the University of Maine and took what amounted to a first year of engineering courses, including Calculus. We didn't complete a full year of Calculus before we were shipped to Fort Belvoir, VA. To prepare engineers adequately for their wartime role, Fort Belvoir became one of the Army's primary engineer training sites. I became a buck sergeant and then a staff sergeant and instructed three cycles of men going through basic training. That's how my teaching career started!

TM Was it back to college immediately, after your war service?
JBC I went back to BC in September of 1946. They wouldn't give me credit for the Calculus I had taken at Maine so I repeated it. The instructor was the chair of the department, a Jesuit priest named Fr. Eiardi, a wonderful man. We became very good friends.

TM Were there any other professors at BC who had a big influence on you?
JBC In my senior year a Swiss mathematician Dr. Hans Haefeli, visiting at Harvard, was brought in to teach some courses at BC. I consider him my academic father. He became a full professor at BC in 1952 and was a member of the American Mathematical Society for over fifty years. Along with Fr. Eiardi, it was he who shaped my future career. At the end of my senior year (1949) about a dozen of us majors took a qualifying teacher's exam for the City of Boston. I passed it and, as a veteran, I was put at the head of the list for a job. I got an offer of a 5^{th} grade position and turned it down. Meantime I had been subbing in schools like Boston Trade and Hyde Park High School. Eventually Fr. Eiardi suggested that I return to BC for a Master's degree on an assistantship and I did, becoming an assistant to Dr. Haefeli. We became very close friends. In fact he was the best man at Gloria and my wedding and later was the godfather to my daughter Caroline at her Baptism.

TM You did your master's degree work from 1949 to 1951. How did that go and what happened next?
JBC I wrote a master's thesis on *hypercomplex algebra* under Dr. Haefeli. But during 50-51 a call came out from that other Jesuit school, the College of the Holy Cross in

Worcester, that they needed someone to teach a full load of freshman mathematics courses for the second semester. I was asked if I wanted it and, I did it, moving out there, teaching fulltime and finishing the thesis.

TM What else was going on in your life at this time?
JBC Well, of course Gloria and I were very serious at this time. Dr. Haefeli was recommending that I apply for a Fulbright scholarship to study mathematics at the University of Rome. In particular he suggested that I study *analytic functionals.* There was an expert in this field at the university at that time. I got the Fulbright and I got the girl! (Gloria and Joe recently celebrated their 58th wedding anniversary.) Now at the time most Fulbrights to Italy were in music. Of the 45 or so scholarships to Italy that year, one went to a chemist, one (mine) to a mathematician and the rest to opera singers!

TM How was the classroom experience in Rome?
JBC Very difficult since it was given in mass lecture form, taught in Italian to students whose native tongue was Italian, with the exception of me. So translating what I was hearing during lectures and then catching up to where the lecturer was at the moment was hard. It slowed me down and I didn't progress fast enough. But when I talked to the Fulbright people they suggested that I apply for a second Fulbright, which I got, and so I ended up studying two years in Rome.

TM Now with your study in Italy ending, you have a family. Time to find a job?
JBC Well, I had been corresponding with Fr. Eiardi at BC and he told me of an opening in the mathematics department at Fordham University and asked if I was interested. You bet your boots I was interested! I ended up as instructor and assistant professor at Fordham for eight years from 1953 to 1961. I had such freedom at Fordham. I taught a lot of upper level courses for mathematics majors. We had a great five-man department where the Jesuit chairman let us basically run the show. This turned out to be the way it was my whole academic career. Looking back I can honestly say I've never had a real "boss." However, the salary was poor and I knew we wouldn't be staying in the Bronx much longer. Around this time I started writing and editing my *Dataguides* which were synopses of various branches of mathematics. So that's when my publishing began. Then during 1960-1961 a priest from Stonehill College (Easton, MA) was given a temporary teaching position at Fordham. Chatting with him he learned that I'd like to move back to the Boston area. He asked if I'd consider teaching at a small liberal arts college like Stonehill, and, Tom, here it was again. From Fr. Eiardi, to Dr. Haefeli, to this priest and even beyond to my coming to BSC, I never looked for a job! God has been good to me! Anyway, I got the job at Stonehill and since I had more mathematical background than the rest of the small staff (Fr. Lockary, a physicist, and Colonel Roth) I taught all the upper division courses. The salary was similar to what I was getting at Fordham and with the aid of the GI Bill, we bought a home in Brockton.

TM Your career involved many NSF Institutes. How did that come about?
JBC At Fordham I had been involved in NSF In-Service Institutes for high school teachers. So when I got to Stonehill I applied for one. I got an NSF Summer Institute right away and also acquired the services of a wonderful assistant teacher, Martin Badoian from Canton High School. Later I got an NSF In-Service Institute that met

Saturdays during the academic year. Now Bob Lemos, a BSC faculty member, took that institute. (He and Bob Bent were hired at BSC in 1963 and had come to BSC from being high school teachers.) Lemos wanted to learn the mathematics we were offering in the institute. It might have been *projective geometry*. Toward the end of the institute he mentioned an opening at BSC. This was the job opened up by Durgin's retirement. But I was very happy at Stonehill. Of course I knew BSC and its mission. Ironically, I had already gone to BSC to see if I could teach in their night school but the director at the time, Ida Lutz, turned me down as not qualified! Bob Lemos got me an appointment with Lee Harrington (who also taught in their math department) and who basically would decide the hire, and he immediately offered me the position as chair of the department. This meant a $4000 pay raise! Before I decided on taking it, I conferred with Fr. Richard Sullivan, the president of Stonehill College. He wanted to see what Stonehill could do monetarily to retain me. But, thinking about it, I didn't want the potential disparity in pay between me and my Stonehill colleagues to cause any bad feelings and decided that the best idea was to accept the BSC offer.

TM Your first hires at BSC include many of the colleagues I have known and a few of us are still active. There are at least four of us in the current "top ten" for longevity of service at BSC.
JBC That would include you, Tom, as well as Walter Gleason, Mike Makokian, Bob Sutherland, Phil Scalisi, Dick Quindley, and our long time colleagues who've passed on, Murray Abramson, Don Simpson, and Frank Lambiase.

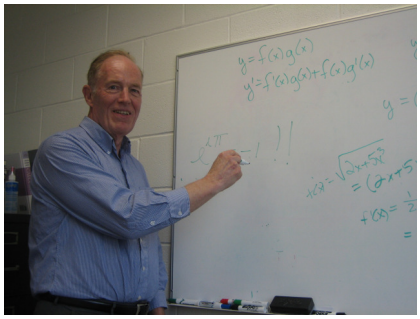
TM You've told me that you have been connected to over a dozen colleges and universities over the course of your career. Care to mention anything about any of them?
JBC I think it was in 1970 that my application for an NSF Summer Institute was turned down because they were running out of funds. But I got a call because the Institute that was running that summer at Oberlin (OH) was short of faculty. So Marty and I went out for what turned out to be an intense learning and teaching experience. It was my summer of *number theory*. Back at BSC we continued to offer NSF In-Service Institutes in mathematics and the sciences for several years.

TM Getting and administering these grants and chairing a growing department did not go unnoticed on campus, did it?
JBC As a matter of fact I was soon appointed director of continuing education (1967-1970) and from there I went on to dean of administrative services (1970-1971), then to dean of administration (1972-1978) and then, with a change of title, became Vice President of Finance and Administration (1978-1992).

TM In retirement your mathematical life has begun again, hasn't it?
JBC For the first fifteen years of retirement I volunteered at Cardinal Spellman High School in Brockton supporting their Calculus A/B courses and for the last three years I've been assisting BSC grad John Eckstrom, chair of the math department at Scituate High School, in his weekly problem sessions for his Calculus B/C courses. I've had the chance to speak on non-calculus topics too.

TM Thanks for taking the time for this interview, Chic.

Faculty News



After a long tenure of hard work and service to the math and computer science department, Richard Quindley is retiring from teaching this May. Since arriving at BSC in 1969, Dick has taught many math classes as well as accounting classes. More recently, Dick served as department chair from 2001 to 2008. During his time as chair, he feels he has contributed to the department by encouraging faculty to improve their teaching, enabling faculty to reach their goals in promotion, and hiring many good people. With retirement, Dick is looking back on all that he'll miss: his colleagues in the department and in math services, interesting discussions in the hall and at lunch, students, math conventions, and free food. But he is also looking forward to what is to come: enjoying his hobbies; biking, riding his motorcycle, skiing, and reading, as well as spending more time with his grandchildren, traveling with his wife and friends on all of those cheap midweek specials and last minute deals, all the projects around the house his wife has planned, and of course, working on his proof of the Riemann conjecture. If he tires of his plans or runs out of money, Dick says he may consider teaching an evening course. Thanks for your service, Dick, we'll all miss you!

Student News

Recently, the BSC robotics team competed at the Trinity College Home Fire Fighting Robot Competition. Their competition included teams from all over the US along with schools from Portugal, Israel, and China in the division for college students and independent engineers. They placed best among American entries, were beaten in robot performance by a Chinese team, and were only beaten in the unified performance (robot, paper exam, and poster presentation) by an Israeli team. Overall, they moved up from third place to finish second place in the competition. The team consisted of BSC students Brian MacAllister, Alex Myers, Russel Nickerson, Antonio Beltran, and recent BSC graduate, Nick Anastasia. Congratulations on your hard work!

Publications

Ju Zhou has had the paper, "On mod $(2p+1)$-orientations of graphs," accepted for publication in the Journal of Combinatorial Theory. The paper stems from one of three famous conjectures in integer flows, a topic related to coloring problems. The result generalizes previous results on nowhere zero 3-flows.

Abdul Sattar and Toby Lorenzen recently have had the paper “Teach Alice Programming to Non-Majors” accepted for publication in ACM's SIGCSE. The paper is about the design and implementation of an introductory computer programming course using Alice for non-CS majors. This course gives a broad overview of computer science as an academic discipline and teaches computer programming to non-CS majors in a fun way.

John Santore and Toby Lorenzen will publish the article "Use Writing Class Techniques to Create Software Design Documents" in the SIGCSE Bulletin's June 2009 issue. The article focuses on using writing techniques in a software engineering class. The authors propose using graded drafts including both a grade for a draft and a provisional grade (usually much lower) if the draft is turned in as the final copy. This tends to convince students who think of programming as the only extensive task in a 400-level computer science class to spend significant time on the writing as well.

Heidi Burgiel and Mahmoud El-Hashash have published two papers. The first, "On the Hamiltonicity of the Permutahedron" is published in Congressus Numerantium. The second, “The Permutation π_n is Hamiltonian” is published in the International Journal of Contemporary Mathematical Sciences.

Events

Recent Events

On February 24, BSC hosted the Stonehill/Wheaton/Bridgewater State College Colloquium Series. Dr. Bill Bloch of Wheaton College spoke on “Can an Open Function Be Discontinuous?” The seminar was well attended by Bridgewater faculty as well as faculty and students from Stonehill College. Spanokopita was had by all!

Faculty Seminars

Tuesday, March 24, 3-4 PM
John Maslanka, “Entomology of Basic Algebra”

Tuesday, March 31, 3:30-4:30 PM
Heidi Burgiel, Paul Fairbanks, Tom Moore “3 Short Talks”

Thursday, April 9, 3-4 PM
Shannon Lockard, “Birth Sequences: An Introduction and Invitation”

Monday, April 13, 4-5 PM
Ju Zhou, “Induced Matching Extendable Graphs”

Wednesday, Aprill 22, 3-4 PM
Phil Scalisi, “The Etymology of Algebra”

Upcoming Events On and Off Campus

Sunday, April 26, 2-4 PM
Abramson Colloquium & Pi Mu Epsilon Mass Gamma Induction Ceremony
John Joseph Moakley Center Auditorium
Special speaker Dr. Bill Bloch will speak on
"The Unimaginable Mathematics of Borges' Library of Babel"

Dear Alums and friends: Tax deductible contributions to the Abramson Colloquium Fund may be made through the Bridgewater State College Foundation. Checks may be made payable to the Bridgewater State College Foundation with "Abramson Colloquium" noted on the memo line. Please call the advancement office at 508-531-2609 with any questions.

July 28-30
Mahmoud El-Hashash, "Strategies and Efforts to Internationalize the Curriculum Through the Use of Technology"
International Conference for Teaching and Learning
Bridgewater State College, Bridgewater, MA

Problems

The number 121_b is a square in every base b = 3, 4, 5,… but the smallest base b for which 232_b is a square is b = 7.
What is the smallest base b for which 343_b is a square?
Also submitted with solution for publication by Tom Moore to Crux Mathematicorum.

Marty Badoian was in the inaugural class for the Massachusetts Mathematics Hall of Fame. We have a member of our current staff who was also elected to this Hall of Fame. Who is it?

Congratulations to the January 2009 Graduates!

Computer Science Majors

Nicholas A. Anastasia
Mina I. Bebawy
Luiz F. Carvalho
Matthew Ganski
Dax J. Martin
David A. Sullivan
Donald P. Wheeler

Mathematics Major

Beth A. Bettencourt
Terri A. Carde
Elizabeth A. Cowell
Christopher W. Molley
Melissa S. Mulroy
Mario Pires
Andrew M. Pontbriand
Stacie E. Torres

Call for Information

If you are an alumnus or alumna of the math and computer science department at BSC, we want to know how you're doing! Please send us some information about what you're doing now. We may publish it here!

We'll be publishing this newsletter each semester, so let us know what you want to see here. Please send any information about events, alumni, and faculty to Shannon Lockard (slockard@bridgew.edu). We look forward to hearing from you.