

PHYSICS AT SOUTHERN

Volume 41, electronic issue #5
April 27, 2000

Published once in awhile
For students, past & present, and friends of the Department

(SAU logo here)
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(Physics Dept

FLASH

Well, the news hasn't happened yet, but there is an item further down that does merit "going to press" now (in the former "Personals" section). The next issue will probably consist of only the long awaited FLASH.

A LOOK BACK

Vol. 17, No. 1
September, 1976

Dr. Henry Kuhlman was given an opportunity to participate in the archaeological expedition sent by Andrews University to Heshbon, in Jordan. His official title and primary function was "surveyor" (although he found himself in demand to repair all sorts of equipment from light sockets to building signs).

The surveying was for the purpose of making topographical maps to determine "precisely" in three dimensions where some wall of piece of pottery had been found; besides the usual instruments it involved the calculation of innumerable triangles in three dimensions, facilitated by the calculator he had taken along.

In his previous study of surveying techniques, Dr. Kuhlman found that the men in the field refer to a table which tells them the altitude of the sun as a function of the apparent elevation of the sun (which differs from the real elevation because of the refraction of the earth's atmosphere.) To speed up the retrieval of the information in the table, and to minimize interpolation error, Dr. Kuhlman fitter the tabular function with an analytic function which could be entered into a pocket calculator.

This function is not a perfect fit, but it has a completely negligible error for all elevations above 8 degrees ($T=100C$, $p=752mm$ on surface). This retrieval aid is "in press" for a surveyors' journal.

THE CONGNICENTI

~Janene Burdick and husband Jack sent along a delightful photograph of John Alfred Burdick, born February 8, 2000! [The "!" does not mean "factorial."]

~Jonathan Casselman, secondary-level home-school student headed to Southern, writes:

"I'm certainly looking forward to visiting your campus and doing some [telescopic] observing with your group!

"Your SAU physics program sounds like a solid foundation. I Appreciate your enumerating its strengths and possibilities. The physics program

under you, Dr. Caviness, sounds like a lot of fun.

"As for your seeking students for projects involving your new Meade LX-200 with CCD camera, consider me actively sought and found! Actually, I'm just a sophomore this year, but looking towards the future, seeking God's leading.

"As for now, I'm putting the finishing touches on my Herschel 400s, while taking on the Herschel II's and the Arp galaxies. I have actually completed 7 of the Astronomical League's observing programs which I found extremely rewarding. The Binocular Messier, Honorary Messier, Deep Sky Binocular, Double Star, Lunar, Universe Sampler, and Planetary Club are my favorites!!

"Don't know if you're familiar with JMI's NGT-12.5in. Split-ring Equatorial Newtonian Reflector but after years of nest-egging, I am on the brink of laying my hands on it. You've probably seen JMI's founder, Jim Burr, on 3ABN's Astronomy programs.

~James Davis, at Sunnyvale Academy, has been asked to drop all but his Physics classes and to construct the Academy's local area network. A grant of 25 kilobucks has been made available for the project.

~Chris Hansen, professor of Physics here at Southern, suffered a mountain-bicycle accident during the afternoon of May 2. His rear tire broke air and a great deal of momentum was transferred to a nearby tree. Dr. Hansen suffered lacerations, a concussion (in spite of his helmet), and spine fractures (of the sort that heal very easily). He reports that the helicopter trip to Erlanger Hospital was exciting but not sufficiently so for a repeat performance. If you wish to write a note, the address is 9029 Wilma Drive, Chattanooga 37421. If you e-mail the editor, the message will be forwarded to him.

~Randy Kelch, Physics minor '2000, has been called to teach Physics, Chemistry, General Science, and Bible at Richmond Academy, Richmond, VA.

~Nick Vence, just finishing sophomore year, will be involved in research at Auburn University this summer. He will analyze data from a satellite that was launched to measure the earth's magnetosphere.

~Jonathan Vigh, transferred to the Pennsylvania State U. to pursue the study of meteorology, writes "I feel that I've been blessed with academic success. I have to attribute some of this to the excellent foundation I received at the hand of the Southern faculty (math and physics departments, as well as Dr. Haluska's English class).

"I [am to be] graduated with highest distinction from Penn State University with a B.S. in meteorology on May 13th. Following graduation, I'll immediately depart for a vacation in the Atlantic Provinces of Canada, and then spend the summer conducting research at the National Center for Atmospheric Research in Boulder, CO (topic still up in the air). In the fall, I'll move to Fort Collins to attend graduate school at the Colorado State University. My area of concentration will be tropical cyclone dynamics."

THE "JOB MARKET" FOR PHYSICISTS

From the American Physical Society:

UNEMPLOYMENT LEVELS WERE ONLY 2 PERCENT FOR U.S. PHYSICS PHDS receiving their degrees in 1997 and seeking employment in the winter after their graduation, dropping from a recent high of 6% for the class of 1993, according to a new report from the American Institute of Physics. However, most Ph.D.s in permanent positions stated that they were working in an area that was not primarily physics, although this does not mean that their jobs involved little or no physics. Perhaps surprisingly in the post-Cold War era, bachelor recipients from the class of 1998 appear to be, if anything, exceedingly hopeful about their long-range career goals: for example, 61% said they intended to become a college or university professor, but this is far higher than the percentage historically attaining this goal. Most employed master's degree recipients from the class of 1997 (62%) work in industry, with three-fourths viewing their job as being related to physics. After many years of decreasing steadily, the number of students earning physics bachelor's degrees has stabilized at least for the time being, with a total of 3,821 granted in the 1997-98 academic year.

(Report available at www.aip.org/statistics, the AIP Education and Employment Statistics Division.)

QUOTE

Mathematics is not a careful march down a well-cleared highway, but a journey into a strange wilderness, where the explorers often get lost. Rigor should be a signal to the historian that the maps have been made, And the real explorers have gone elsewhere.

-- W. S. Anglin

A LOOK FORWARD

June 13, 2005: The Physics Department fund-raising effort succeeds in the establishment of a \$100 million endowment, thus making it possible for any student who wishes to major in Physics to do so without incurring debt.

THE LAST LAUGH

Nature, vol, 401, page 205, 1999 carried a story titled "Freed Meteorologists come in from the Cold." The report concerned two Russian meteorologists who were captured by Islamic extremists in Kyrgyzstan. They were released when their abductors learned that they were scientists and concluded that no one was likely to ransom them. They were robbed of their money, documents, and warm clothes, but were not injured. Upon reaching safety, one of the victims is reported to have said, "We [in Russia] have now become accustomed to surviving not only without salaries, but also without clothes."

(Dr. Hefferlin is solely responsible for this issue.)