



Lou Bloomfield – TV Personality

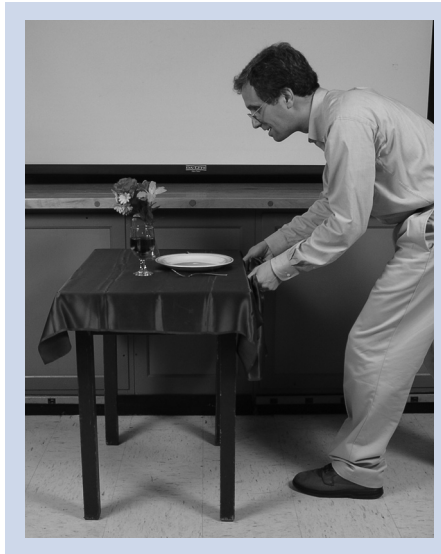
LOU BLOOMFIELD'S NEWEST gig will be on the Discovery Channel starting December 26, 2007. Professor Bloomfield is co-host, along with humorist and journalist Brian Unger, in the new series now called **Some Assembly Required**. The first six one-hour episodes are just about wrapped up.

Bloomfield is already well known as the course instructor and textbook author of *How Things Work*. Over the past few years he has traveled throughout Virginia and the country giving talks and leading sessions explaining how physics, well . . . “how things work”. He is likely to be found, as he was in Newburyport, MA this year, in a skate park dissecting skateboarding with students.

Bloomfield indicates the TV series has been special, and he is looking forward to the series being picked up for more episodes. He enjoys working with Brian Unger, who was one of the original contributors to *The Daily Show* among many others including the NPR show *Day to Day* and MSNBC's *Countdown with Keith Olberman* and as one of the co-hosts for the new PBS series, *Wired Science*.

Some Assembly Required consists of three segments for each episode. Some of the segments thus far have included such diverse things as visits to John Deere to see lawn tractors, BMW to learn about diesel engines, Guittard chocolate, New Balance running shoes, Gibson guitars, Steinway pianos, jelly beans, bowling balls, Zamboni ice machines, and Batesville caskets. Bloomfield and Unger actually follow the entire assembly of the product. Unger asks questions about what is happening. Bloomfield says Unger is good at actually asking the pertinent question while joking about it at the same time. Bloomfield provides the science background.

Now you are probably thinking the same thing we did. What is the deal with Batesville caskets? Bloomfield says we would be amazed at the effort dedicated to have every item as shiny and decorative as possible. Things like handles and corner brackets have metal evaporated



on them in huge vacuum evaporators like those many of us have used in physics research. Apparently polishing the metal and plastics is not quite good enough.

BMW is producing a new generation of diesel engines that does not produce black smoke. Bloomfield says he actually wiped the inside of the exhaust tailpipe, and it was clear! The spin around the test track was fun too!

Bloomfield reports that he is having a blast and learning things. He enjoys talking to the engineers and scientists about what actually does happen along the assembly

line. Stay tuned to the Discovery Channel.

Deaver Scholarship Fund

Since its founding over a century ago the Department of Physics has not had a general scholarship fund for undergraduate physics majors. That is now changing with the Department's establishment of the Bascom S. Deaver, Jr. Scholarship Fund in 2007. We are especially pleased to name the endowment fund after Bascom Deaver who, in his four decade career here, has done so much for our undergraduate students.

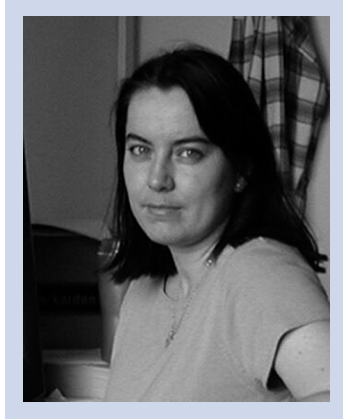
Fundraising began last spring with the physics faculty, who pledged over \$45,000. The second fundraising phase is directed towards Deaver's many graduate students. They have been very generous, and the total pledges recently passed \$100,000. In the next newsletter we expect to open the final phase of the endowment fundraising to all physics alumni. For more information, please see <http://www.phys.virginia.edu/Announcements/DeaverFund/>.



New Faculty Spotlight

Diana Vaman

Diana Vaman grew up in Romania and received her bachelors and masters degrees from the University of Bucharest. She then came to the U.S. and obtained her PhD from Stony Brook. She did post-doctoral research at both Princeton and Michigan before coming to UVa this semester as an assistant professor. Her husband, Constantin, is an experimental nuclear physicist at the National Superconducting Cyclotron Laboratory at Michigan State.



Her research in theoretical high-energy physics has been based on string theory, especially the bridge between gauge and string theories. She recently became interested in the application of string theory to perturbative non-supersymmetric gauge theories. String theory may be a candidate for a unified theory of elementary particles and their interactions, as well as gravity. String theory is sometimes referred to as a theory of quantum gravity. Diana Vaman is interested in this search for supergravity solutions.

Letter from the Chairman

Dear Alumni & Friends
of the Physics Department,

It is a great pleasure to report in this, the second Physics Department Newsletter, on some of our recent developments. This fall we were joined by four new faculty colleagues: Stefan Baessler, Chris Dawson, Austen Lamacraft, and Diana Vaman. Israel Klich, a fifth new faculty hire, is scheduled to join the department in the fall of 2008. Dawson, Klich, Lamacraft and Vaman are theorists; their addition to the department fills a great void on the theoretical side that developed gradually over the past decade. With Kent Paschke and Xiaochao Zheng, who joined us in 2006, we've now got a group of wonderful, energetic new instructors and researchers, who are already making a welcome difference in the life of the department. It is particularly gratifying that two of the recently hired faculty are women, which helps us ameliorate another long-standing deficiency. Adding to this mix the Fall 2007 incoming graduate class, one of our largest ever, the department is indeed bustling with new energy. A record seven faculty members received promotions this spring, rounding off a very good year. We can only aspire and work toward making the next one as good as 2007.

Dinko Počanić

Obituaries

Julian V. Noble

Julian Noble joined the faculty in 1971 after receiving his undergraduate degree from Cal Tech in 1962 and his PhD from Princeton in 1966. He retired as Professor Emeritus in 2003 and passed away in March after a long illness. He was a theoretical nuclear physicist, but had wide ranging interests in particle physics, astrophysics, theoretical biology, and numerical methods. His colleagues and students remember him for being able to solve practically any mathematical problem, his ability to lecture on any subject, and his incredible storehouse of jokes. A consummate computer programmer, he was the author of *Scientific Forth*.

John W. Stewart

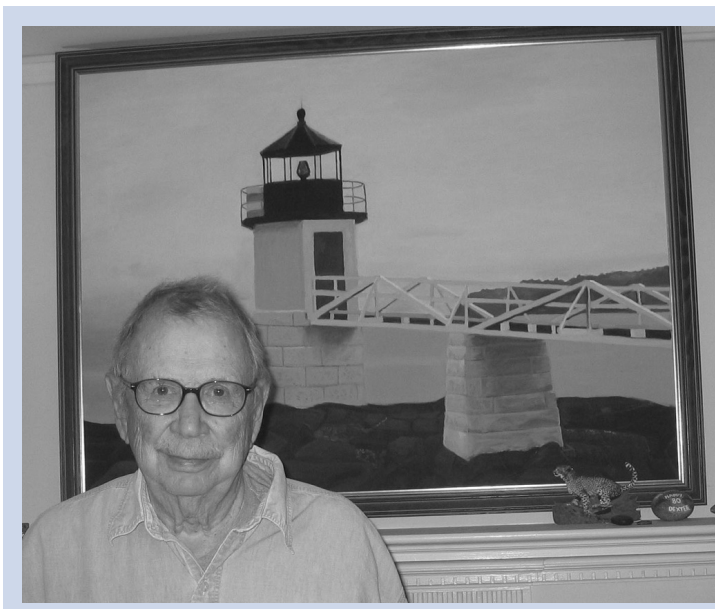
Jack Stewart passed away in June at the age of 80. After serving in World War II in the Manhattan Project in Los Alamos, Stewart obtained his undergraduate physics degree in 1949 from Princeton and his PhD from Harvard in 1954 where he studied under the Nobel Laureate Percy Bridgman. His research was in the areas of high pressure and low temperature. He joined the UVa faculty in 1954 and retired in 1994 as Professor Emeritus. Jack Stewart was an outstanding teacher, served for many years as the advisor for premedical students and Echols scholars, and was a Faculty Marshall. He was a legendary hiker who spent many summers in New Hampshire.

John W. Mitchell

Jack Mitchell, a member of the faculty from 1959 to 1979, passed away in July after a long illness at the age of 93. Originally from New Zealand, he received his undergraduate degree from the University of Canterbury in Christchurch, New Zealand, and his PhD from Oxford. His research interests were in the theory of photographic sensitivity and plastic deformation of solids. He was held in the highest esteem by Kodak and other film companies because of his significant work. Jack Mitchell was a fellow of the prestigious Royal Society of Great Britain. Professor Keith Williams presented a memorial colloquium in October about Mitchell's photography research.

W. Dexter Whitehead, Jr. An Artistic Physicist

WE CAN EXCUSE the fact that W. Dexter Whitehead, Jr. received a B.S. in chemistry from UVa, because he discovered the joy of physics and subsequently obtained both a masters (1946) and doctorate (1949) in physics from UVa before spending a storied 36-year career on the faculty from 1956 until his retirement in 1992. His administrative positions included Physics Chairman, Dean of the Faculty of Arts & Sciences, Director of the Center for Advanced Studies, and Dean of the Graduate School of Arts & Sciences. His support of science never wavered among the leaders of the university, and his counsel was often sought and freely given. He was awarded the prestigious Thomas Jefferson Award, the highest award given to a member of the University community, by a grateful university in 1975.



Whitehead was a nuclear physicist and performed his doctoral research at the famous Department of Terrestrial Magnetism at the Carnegie Institution of Washington where some of the first accelerators in the United States were constructed. Although he worked with Norman Heydenburg at Carnegie, Professor Jesse Beams of UVa was his research advisor. His career led him to the Bartol Foundation of the Franklin Institute at Swarthmore and North Carolina State University before returning to UVa in 1956. His early research included neutron measurements and photoproduction cross sections. The expansion of the physics department and other sciences in the mid to late 1960s led him to the Center for Advanced Studies and further administrative posts where he excelled.

Dexter Whitehead, who will be 85 this November, now lives with his wife Lois in quaint, downtown Crozet in an older brick house surrounded by mature trees. It looks like a landscape waiting to be painted. As Bascom Deaver and I (Steve Thornton) sat in Dexter's living room in October 2007, we were surrounded by more than 20 of Dexter's landscape paintings, mostly of his beloved Maine, but also of the Shenandoah Valley and South Carolina. A large oil painting of the lighthouse at Marshall Point in Maine hangs over his fireplace. More paintings abound throughout the house.

Whitehead's studio sits only a few feet from the back kitchen door. His son Tom was busy building a large screened-in porch that will allow Dexter and Lois to sit and enjoy the beautiful view of fields and trees, with the old Crozet Elementary School off in the distance. Although he has not painted in the last couple of years, Dexter has been dabbling in mobiles and model ship building. An extensive computer system is sur-

rounded by prints, painting supplies, work tables, and all the other things you associate with an artist. Dexter's paintings have been hung in the embassies of Ankara (Turkey) Nairobi (Kenya), and Bamako (Mali). In Charlottesville, his originals and prints can be seen in the Garden Room, where lunch is served for faculty on the west range, as well as in the corridors and meeting rooms of the Cavalier Inn.

As always, Dexter's mind moves quickly. He is anxious to find out what is happening in the physics department, the search for the new Dean of Arts & Sciences, and the searches for preeminent scientists being led by President Casteen. At the same time Bascom and I can't help asking questions about the beautiful paintings we see. Dexter's father purchased Southern Island in Maine where Dexter and his sister, the well known painter Constance Kiermaier, spent many weeks painting in the summers. After selling the island to the Wyeth family in 1979, Dexter and Constance purchased Hope House on the oceanfront in quaint Tenants Harbor, Maine, only a short distance from Southern Island. They share the residence and a separate studio in the summers.

Please send comments and suggestions about the newsletter to

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Faculty Profiles

Gordon Cates



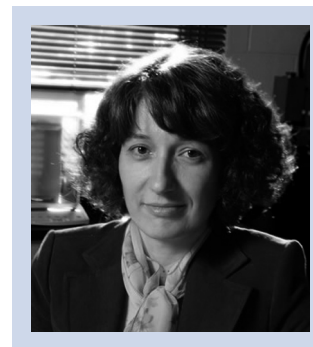
Gordon Cates, Jr. graduated from Amherst (BA) and Yale (MS, PhD) and was at Princeton for almost 14 years before coming to UVA in 2000 as a Professor of both Physics and Radiology. His research for many years has concerned the spin properties of particles and nuclei. This led to the development

of polarized noble gas targets that have been used at several major accelerators. In these targets, lasers are used to produce large nuclear spin polarizations in He-3.

Cates became interested in medical imaging when he learned that polarized He-3 and other polarized noble gases could be used for a new technique of magnetic resonance imaging. They learned that Xe-129 could be used for imaging human lungs just as is the case with He-3. The lung research also included real-time movies of the inhalation process, and techniques that provide noninvasive means for evaluating patients with pulmonary disease.

Gordon Cates' nuclear physics research has been centered at JLab (Thomas Jefferson National Accelerator Facility in Newport News, (remember that lab that was supposed to be in Charlottesville?)) where he was chair of the JLab Users group in 2005 and 2006. He has been an influential spokesperson for nuclear physics in recent years, having served on many national committees. He has been the Director of UVA's Institute of Nuclear and Particle Physics since 2001. His research group consists of six graduate students and two research scientists, not counting his many collaborators in the medical school.

Despina Louca



Despina Louca, who was born in Cyprus, received her AB degree from Bryn Mawr in both physics and biology, an MA in physics from Bryn Mawr, and her PhD from UPenn. After a postdoctoral appointment at Los Alamos National Lab, she came to UVA as an assistant professor in 1999 and was promoted to associate professor in 2005. She and her husband, fellow physics professor Seunghun Lee, have a young daughter.

Despina Louca's research in experimental condensed matter uses neutron and x-ray scattering at research centers in Los Alamos, Argonne, NIST in Gaithersburg, England, and Japan. Her research involves the magnetic and structural characterization of complex oxides, intermetallics and metallic glasses. She studies the interplay of spin, lattice, electronic and orbital degrees of freedom in magnetic systems. Newer projects include the effects of phase competition in magnetic metallic oxides, magnetic frustration in garnets, single crystal growth, and high magnetic field measurements.

Both undergraduate and graduate students work with postdocs in her UVA lab. Considerable effort is spent developing the samples needed for studies that are performed at various research facilities around the world. She has organized several international conferences and serves on several boards and committees, including being chair of the Spallation and High Flux Isotope User Group and the new Spallation Neutron Source at Oak Ridge National Laboratory.