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Sex, Drugs and Rock and Roll: The Value of Chemistry from Valium to Viagra

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Reading a financial newspaper such as The Wall Street Journal can often be a scary prospect for a scientist. Even if a researcher does know what “S&P”, “first day pop” and “no-load” means, the Science and Technology pages can still strike terror into her or his heart. Let’s face it, scientific reporting is not always completely accurate. Prominent political and business leaders have told us that “all drugs are now made by combinatorial chemistry”; “we’ve cracked the genome, the rest is just details” and “molecular computers will be made by real computers”. If these statements are indeed true, then all chemists should probably just retire to Maui as, apparently, our job is done. All joking aside, with this current explosion in biology and medicine; with the dawn of this arena we call genomics and with the current advances in engineering, the value of the molecule is sometimes lost in the excitement. This is an interesting phenomenon as, right now, the chemist is probably the most sought-after scientist in the pharmaceutical and materials industry. Someone who understands how to study, make or design small,

medium, large or really, really huge molecules has an unbelievable role to play in the next century. This presentation takes a somewhat lighthearted look at the value of chemistry and the chemist in the “new economy”. Among other things, the discussion will tackle the industry vs. academia conundrum (“come to the dark-side Luke...”); the blurring of lines between the sciences and, oh yes, how Sex Drugs and Rock and Roll have had a profound impact on molecular science. Hopefully, the role of the chemist will receive some airtime in the future as it indeed has in the past.

Dr Tony Shuker was born and raised near Birmingham England and attended the Sir Gilbert Claughton School in Dudley where he developed a keen interest in science music and athletics (but not necessarily in that order). After spending a few years as a starving blues and rock musician, Dr. Shuker received a dose of reality and a bachelor’s degree in chemistry (first class honors) from the University of Bath. During this time he performed research in the area of antibiotics

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Tuesday, September 5th, at Georgia Tech



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and, during a stint at Fisons Pharmaceuticals, worked on a number of cardiovascular projects. He then completed a Ph.D. in organic chemistry at the University of Nottingham under the supervision of Prof. Gerald Pattenden (FRS) working primarily in the area of heterocyclic natural products. Dr. Shuker then traveled to Stanford as an SERC/NATO postdoctoral fellow in the lab of Prof. Paul Wender where he worked on the total synthesis of the anticancer agent taxol. From Stanford, he was recruited to Indianapolis where he took up a position as a Senior Organic Chemist at Eli Lilly and Company in June 1994. He was given the responsibility of Project leader in 1995 and was subsequently promoted to the level of Research Scientist in 1997. During his time at Lilly, Dr. Shuker's research was focussed in the area of metabolic diseases such as diabetes and obesity. Dr. Shuker directed a number of research programs with a specific focus on the discovery of small-molecule oral agents including b3 receptor agonists, other adrenergic compounds and PPAR modulators. This research led to a number of clinical candidates and resulted in multiple patents, publications and presentations. He was also involved in managing a number of external collaborations and had a variety of corporate responsibilities. Recently, Dr. Shuker followed his wife Suzy (Professor of Chemistry & Biochemistry) to Atlanta to assume a position at Georgia Tech., where he was originally a Director at the Petit Institute for Bioengineering and Bioscience and an Adjunct Associate Professor of Chemistry. He has recently begun working with ATDC and has accepted the role of president and CEO for EmTech Biotechnology Development Inc., a commercial life-science R&D center in Atlanta. Dr. Shuker's research interests include total synthesis, rational drug design, combinatorial chemistry, obesity, diabetes, anti-sense research and programmed cell death. Along with these endeavors, Dr. Shuker is on the Board of Directors of Zygogen, Nutec Sciences, is a consultant to the pharmaceutical and biotechnology industries and is the president and CEO of ArtiSyn Holdings.

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Tuesday, September 5th, at Georgia Tech

Sex, Drugs and Rock and Roll: The Value of Chemistry from Valium to Viagra Tony Shuker, Ph.D.

Date: Tuesday, September 5, 2000

Time: 6:30-7:00 arrive & social
7:00-7:30 dinner
7:30 - 9:00 Speaker

Dinner: "Eclectic Pasta" Italian Pasta Buffet, Garden Salad, Garlic Rolls, Iced Tea or coffee, Dessert Bites
The food will be served buffet-style in the atrium of the IBB building, and the meeting will be held in the conference room adjacent to the atrium.

Cost: \$15 per person, full-time students with ID and high school teachers, \$5. Payment should be made to the ACS Georgia Section and will be collected at the door.

Location: Petite Institute for Bioengineering and Biosciences,
Georgia Institute of Technology
315 Ferst Street (corner of Ferst and Atlantic)

Directions: Exit at the Techwood/10th/14th exit, go west on 10th Street to State Street, turn left onto State, go to the stop sign, turn left onto Ferst. The Bioscience building is one block east on the corner of Ferst and Atlantic. Parking is free and available anywhere around the building or nearby parking lots.

RSVP: Lucian A. Lucia, 404-894-9712, <lucian.lucia@ipst.gatech.edu>
Katherine L. Seley, 404-894-4013, <katherine.seley@chemistry.gatech.edu>
When making reservations, please state your name, professional affiliation, and telephone number. NOTE: Reservation deadline is 5:00 PM on the Wednesday preceding the meeting. If you make a dinner reservation but fail to attend, you must still make payment for your meal to treasurer Angus Wilkinson, School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, Georgia 30332-0400, (404) 894-7452.

<http://chemistry.gsu.edu/ACS>



2000 Georgia Section Meetings:

October 4th
NMR on Polymers
Dr. Ben Luberoff

November 6th
Chemistry Profession
Dr. Cecil Dybowski

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ACS, Georgia, COLGA, and You

Federal R&D in Georgia. Did you know that the state of Georgia is the fourth largest recipient of federal R&D funds of all states? The White House Office of Science & Technology Policy (OSTP) recently released a RAND study covering fiscal 1998 that identifies R&D centers, universities, and companies where scientists and engineers are creating new knowledge and new technology. It shows that fifteen states receive 80% of federal R&D dollars. Georgia ranks fourth with \$4.4 billion, while California ranks first with \$14.4 billion. In Georgia's case this is 26% of the total federal funds that the state receives. In other words, federal spending legislation matters very much to you, me, and our fellow Georgians. Consequently, ACS through its Committee On Legislative and Government Affairs (COLGA) has provided us with an important tool that we can use to help ourselves as well as the country as a whole. To learn how you can directly link up with COLGA see the companion article, *Busy? Too Much to Do?*, on the ACS Legislative Action Network (LAN).

ACS Lobbying for DOE. Since June 8 over 2,500 messages by ACS members have been sent to members of Congress to express ACS members viewpoints on pending spending legislation. LAN participation ensures that the voice of chemists and chemical engineers is heard on Capitol Hill. LAN also makes it easy for us to do this. Below is a case example of LAN in action.

On July 13, the Senate Energy and Water Appropriations Subcommittee approved its appropriations bill for FY 2001. Thanks to the LAN members who participated in the DOE alert. (LAN members sent over 1,150 letters to their Senators stressing the importance of increasing funding for DOE's Office of Science.) The bill proposes a \$2.92 billion budget for the DOE's Office of Science, \$90 million more than the House level. Although, the level is still \$231 million less the administration's request, subcommittee members noted that they would have liked to approve higher allocations, were it not for budget constraints.

Some programs within the Office of Science fared better than other programs. For instance, both the Biological and Environmental Research (BER) program and the Basic Energy Sciences (BES) program fared better in the Senate than in the House bill, enabling some participation by DOE in nanotechnology and the microbial research project. However, high-energy physics, nuclear physics and fusion energy research received lower levels in the Senate. There was still a substantial gap between the administration's request for BER and BES and the Senate allocation. Thus, the overall funding levels for Office of Science would still negatively affect basic cutting-edge research. The Senate Appropriations Committee was scheduled to approve the bill by July 21, and it was anticipated that the full Senate would vote on the bill prior to the August recess.

By the time you are reading this article in August, funding for DOE's Office of Science may be set. However, the bill may still have to go to Conference Committee in September. You can check the ACS LAN to check on its progress.

ACS Lobbying for National Science Education. There has been a tremendous response to the recent LAN action alert asking members of Congress to co-sponsor the National Science Education Acts (NSEA). LAN members sent over 475 letters to their representatives urging them to co-sponsor the bills (H.R. 4271, 4272 and 4273). There are currently 71 co-sponsors and, according to one congressional aide, the number of co-sponsors is "steadily increasing." This is a good sign because a House bill typically needs to have 75 to 100 co-sponsors to have a realistic chance of passing. If you have not yet done so, please contact your member of Congress and ask them to support this important legislation. On May 24, 2000, Senator Pat Roberts (R-KS) introduced the companion NSEA legislation bills in the Senate, S. 2622, 2623, and 2624.

On June 13, the ACS testified on Capitol Hill that solid long-term, and content-based professional development for science and mathematics teachers is the key to enhancing student achievement in these subjects. Dianne Bunce, chair of the ACS chemical education division and a chemistry professor at Catholic University, testified before the House Science Committee on behalf of the National Science Education Enhancement Act (H.R. 4272). This bill, sponsored by Congressman Vernon Ehlers (R-3rd/MI), is designed to improve Department of Education programs relating to science and mathematics, including teacher professional development. Its core proposal would create summer professional development institutes at universities for K-12 science mathematics teachers. In her statement, Dr. Bunce praised Representative Ehlers and other sponsors of the bill for addressing the need for such training. When asked by Ehlers what the ideal method of professional development would be, she stated that it would consist of short, one-day workshops during the year with longer three- to four-week programs during the summer and other opportunities for follow-up sessions. Such programs would give teachers the sustained training needed to teach science and mathematics effectively to their students. Dr. Bunce also expressed ACS's support for the creation of mentoring programs for new teachers. She stated that at the same time that we are assisting teachers in enhancing their knowledge base, we must also put in place mechanisms to retain qualified science and mathematics teachers. New teachers need encouragement and assistance from teachers with more content knowledge and pedagogical experience. H.R. 4272 develops mentoring programs for K-12 teachers as a means of improving teacher quality and retention. The full text and summaries of the three NSEA bills can be found at www.house.gov/ehlers/issues/science.

Busy? Too Much to Do?

If you are like me and about every other chemist whom I know, you have too much to do and too little time for all of the things that you think you should be doing. By the way did you find time to vote on July 18th? Not many Georgians did. Have you written to your congressional Representative or Senator to express your opinion this year? Few citizens do this, but those who take the time to write have a big impact on our legislators. The ACS is making it easy for us to be active, citizen scientists. Here is how you can take advantage of the ACS and help our democracy work better. Join the ACS Legislative Action Network.

Logon to www.acs.org/government (click on) [ACS Legislative Action Center](#) (click on) [Join the ACS Grassroots Network](#) (register and you are part of the solution)

What is the Legislative Action Network?

The American Chemical Society is committed to keeping its members informed of legislation that may impact the chemical enterprise and to bringing the expertise of ACS members to bear on science policy. The Legislative Action Network is the Society's electronic grassroots program for updating members on federal legislation and facilitating contact with members of Congress. The network focuses primarily on federal science education and R&D policy, but also addresses environment, workplace, and competitiveness issues.

How does the program work?

Roughly six times per year, network members receive timely Legislative Action Alerts via e-mail urging them to contact their legislators on issues of concern to ACS members. The Alerts include: background and status of the issue, ACS position, contact information, and sample letters.

What are the benefits?

Monthly Legislative Bulletins—brief e-mail updates of key federal issues. Immediate notification of hot issues via Legislative Action Alerts Access to our new web-based Legislative Action Center. The opportunity to impact national issues integral to the chemical enterprise. Knowing that you are using your scientific background and training to help our governmental officials make wise legislative choices.

For additional information please email Thomas L. Netzel, tnetzel@gsu.edu.

From the Chairman

Welcome to the second half of the year. I hope you survived the long, hot summer.

There are excellent speakers scheduled for our monthly meetings in September, October and November so please mark your calendars. All future meetings will be held in the Petite Institute for Bioengineering and Biosciences at Georgia Tech as this appears to offer the optimum location, costs, parking and lecture facilities. We have increased attendance at our monthly meetings, although still less than 5% of our section membership attend. This is an excellent forum for networking and gathering knowledge and information, come and try it!

We have managed to keep the charge low for the monthly meetings due to generous sponsorship from local companies. To date we have received contributions from Vinings Industries, Amoco, Biolab, BioSante Pharmaceuticals, Hickson Corporation, Elite Search, Georgia Pacific Resins and Coca-Cola. Many thanks. We would welcome some more sponsors, please contact the Chair-Elect, Kathie Seley, if your company can help.

Election time draws close, for both the country and the ACS Georgia Section. This year we need to elect a Chair-Elect, one Councilor and one alternate Councilor. If you would like to nominate someone, secure their agreement and send in the name and a brief biography to the Secretary, Lucian Lucia. The election will be held in October.

National Chemistry Week is celebrated in November (5th - 11th). If you or your organization would like to participate in the activities please contact Bill McGonigal, or any other Board member. We can supply ideas, organizational assistance and financial support. We would particularly like to work with High School Chemistry Departments.

There are a limited number of High Schools that avail themselves of funding from the Georgia Section, and not only for National Chemistry Week. We would like to increase this number. If you have connections please get them to call us.

In my April message I asked for interest in participation in the establishment of a local section database, to improve networking for Section members. 53 people agreed to participate. We will be sending these people a questionnaire to complete and we will install the database on the Website. Access will be password protected and limited to those people who have submitted their information. If you wish to participate please access the Website and indicate your interest. I believe this facility will have great value for local members, and the more that participate the greater the value.

Another question posed in the April message was interest in Focus Groups. 33 people expressed interest, in 36 subject areas. Prior experience has shown that formal organization of Focus Groups does not work. Therefore we are going to explore the possibility of establishing 'Chat Rooms' on our Website, covering the most popular subject areas. We will keep you informed of progress. If a particular group evolves into a more formal structure funding will be available to hold meetings, etc.

One final note. Next year is the 125th Anniversary of the ACS and major celebrations are planned. If you think there is any local activity that we should organize please contact Don Hicks.

Thank you for your participation in Local Section activities. Please contact me with any questions, complaints or suggestions.

Terry E Say



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