



The American Society of Pharmacognosy

The ASP Newsletter
Volume 49, Issue 4

Research at Risk: The Era of Sequestration

By Dr. Georgia Perdue

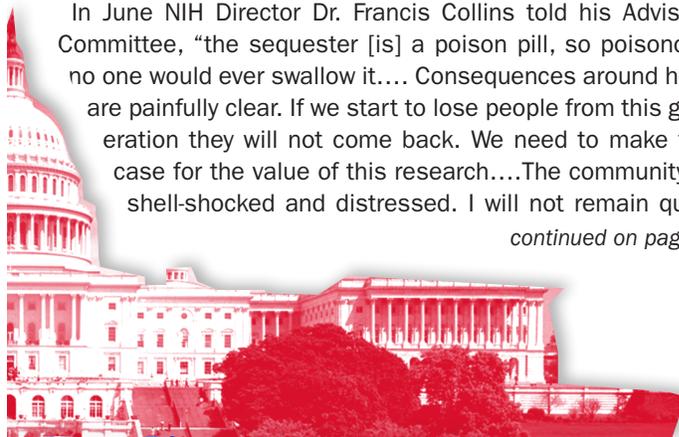
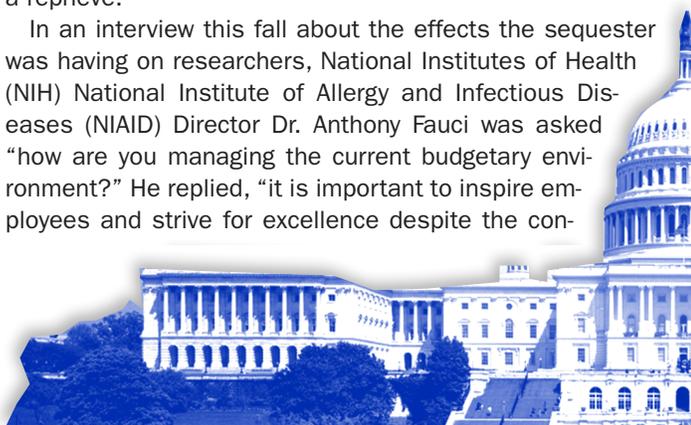
During budget negotiations in 2011, lawmakers agreed to raise the debt ceiling but, it had to be accompanied with budget cuts. President Obama agreed to the cuts, which he labeled “sequester,” to reduce the deficit over nine years (2013-2021). The cuts were to take effect on January 1, 2013; they were postponed to March 1, 2013. Cuts were supposedly evenly divided between the Department of Defense and other agencies. It is conceivable that certain agencies may, at some point, be given a reprieve.

In an interview this fall about the effects the sequester was having on researchers, National Institutes of Health (NIH) National Institute of Allergy and Infectious Diseases (NIAID) Director Dr. Anthony Fauci was asked “how are you managing the current budgetary environment?” He replied, “it is important to inspire employees and strive for excellence despite the con-

straints. It is also important to analyze, scrutinize and not whine about what you cannot do.... Cutting biomedical research is terribly ill advised. However, much can and will be accomplished with what we have.” At his September Advisory Council meeting, Dr. Fauci said “the chances of negotiating the sequester [during budget talks] are virtually zero. It is imminently clear that the sequester is hurting very much the biomedical community.... The real concern is that biomedical researchers will be lost if this keeps up.”

In June NIH Director Dr. Francis Collins told his Advisory Committee, “the sequester [is] a poison pill, so poisonous no one would ever swallow it.... Consequences around here are painfully clear. If we start to lose people from this generation they will not come back. We need to make the case for the value of this research....The community is shell-shocked and distressed. I will not remain quiet

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EDITOR'S CORNER



As I write this note the day after Thanksgiving, I realize there is much for us as a Society to be thankful for; however, the cutbacks in the federal budget, known as sequestration, is not one of them. In this issue of the *Newsletter*, our lead article tackles this issue with a distinctly ASP perspective.

When we were tossing around ideas for articles almost six months ago, the concept of looking at the impact of the sequestration on fellow ASP members seemed to be an important and real issue for many of our members. I could think of no one better suited to writing this piece than ASP's own, Dr. Georgia Perdue, who has covered Washington issues for the *ASP Newsletter* for more than five years.

Previously, she was the Editor-in-Chief of her own publication, *Washington Insight*. I am very pleased indeed that Dr. Perdue has taken on this task, and even more pleased that she has interviewed a number of ASP members to hear their perspective on the sequestration. Frankly, I was afraid that this story may lose its edge if the sequestration was resolved, but my fear was unfounded, and the sequestration remains a very real issue late in 2013 due to inaction in Washington D.C.

In addition to her lead article on the sequestration, Dr. Perdue has also managed to contribute her regular column "Brief News from Washington." I truly appreciate Dr. Perdue's contributions and commitment to the *Newsletter*. It is a rare indeed to find such a devoted volunteer contributor.

ASP Fellow Dr. Doug Kinghorn volunteered to write the ASP Fellow's column for this issue. He provides a historical perspective on his years as the Editor of the *Journal of Natural Products*. The radical changes that have occurred in publishing in the past decade or so has greatly shaped the *Journal*, and Dr. Kinghorn walks us through those changes from the relatively low technology early days when he took over from former Editor, Dr. Jim Robbers, to the latest changes in publishing that the more recent association with the American Chemical Society has provided.

Our regular columns continue to be the backbone of the *Newsletter*. In "Pharmacognosy Field Notes," Dr. Brian Murphy provides a fascinating account of his journey to Iceland, and demonstrates how connections made at ASP meetings can impact people's careers in unexpected ways. In "From the Archives", Ms. Devhra BennettJones does a nice job of digging into a moment, 16 years ago, where the late ASP President Varro Tyler gave the 25th Albert Ebert Memorial Lecture at University of Chicago, Chicago, Illinois.

I am now completing this Editor's Corner the second week of December, and there is news that Congress may have reached an accord for a two-year budget deal. Hope springs eternal in this holiday season, and cutbacks due to the sequestration will hopefully be a thing of the past in 2014. Finally, I hope your own holiday is full of joy and good cheer.

Dr. Edward J. Kennelly

Errata: In our previous issue, we incorrectly stated that Dr. Joseph Betz worked at the United States Food and Drug Administration. Dr. Betz is Director of the Analytical Methods and Reference Materials Program at the Office of Dietary Supplements, National Institutes of Health. Also, our awardee list omitted the name of Dr. Lin Du, University of Oklahoma, Norman, Oklahoma, winner of an ASP Travel Award for Active Members.

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For more information see the services website.

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NEWSLETTER STAFF

Edward J. Kennelly, Ph.D.
Editor-In-Chief

Amy C. Keller
Assistant Editor

Nancy Novick
Design & Production

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Please send information to:

Edward J. Kennelly, Ph.D.
Editor In Chief, *ASP Newsletter*
Department of
Biological Sciences
Lehman College, CUNY
250 Bedford Park Blvd. West
Bronx, NY 10468
718-960-1105

asp.newsletter@lehman.cuny.edu

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about this. [We] need to speak out.” A November 4, 2013, NIH statement noted that there would be 640 fewer grants funded in 2013 than in 2012; noncompeting grants would be cut between 4-7%. NIH’s overall budget will be decreased by 5%, and NSF’s budget was cut by 2.1%.

With these “happy thoughts,” I contacted three researchers within the ASP community to ascertain how the sequester is impacting their work and asked for some detail about their work.

ASP President and well-known researcher Dr. Bradley (Brad) S. Moore, has a doctorate from the University of Washington, Seattle, Washington, and completed a post-doctoral position from at University of Zurich, Zurich, Switzerland. Since 2005, Dr. Moore has been Professor of Oceanography and Pharmaceutical Sciences at the Scripps Institution of Oceanography

program, especially when research jobs are on the line. But quite frankly,” continues Dr. Moore, “I fear that the worst consequence of the defunding of American science will be the long lasting negative impact felt by our students and young investigators who represent the next generation of scientific researchers. They may [decide to] pursue alternative careers outside of academia. [It] would be a loss to all of us.”

ASP member Dr. John Beutler, a natural products researcher for 38 years, received his PhD from the Philadelphia College of Pharmacy and Science, Philadelphia, Pennsylvania, in 1980 (renamed University of the Sciences in 1998), completed post-doctoral positions at both Northeastern University, Boston, Massachusetts, and the University of Texas Medical School, Houston, Texas. He has been with the NIH National Cancer Institute (NCI)

At his September Advisory Council meeting, Dr. Fauci said “the chances of negotiating the sequester [during budget talks] are virtually zero. It is imminently clear that the sequester is hurting very much the biomedical community.... The real concern is that biomedical researchers will be lost if this keeps up.”

and the Skaggs School of Pharmacy and Pharmaceutical Sciences at the University of California, San Diego (UCSD-SIO). His scientific interests focus on “chemically exploring and biosynthetically exploiting marine bacterial natural products as drug leads. Over the past 15 years, [his] research laboratory has contributed to the rational chemoenzymatic synthesis and genetic engineering of designer molecules through the discovery and detailed characterization of novel biosynthetic enzymes and their encoding genes. [They] also employ a genomic-guided discovery approach that has resulted in the rational discovery of new chemical entities. The Moore group at UCSD-SIO ... “consists of six graduate students, eight postdoctoral researchers, a project scientist and several visiting scientists [with] chemistry, biochemistry, microbiology [or] molecular biology backgrounds. [The aim of such diversity is] to create a stimulating and diverse working group to successfully spearhead multidisciplinary research projects. [The group] is supported by four NIH R01 grants and a joint NIH-NSF Oceans and Human Health Center grant.”

Dr. Moore told the *Newsletter*, “sequestration has, indeed, had an impact [because] my program is largely funded by federal grants from the NIH and NSF which continue to cut my annual non-competitive renewals by 2-8%. These annual cuts have ... resulted in the loss of a research position, reduced research mobility due to lower supply budgets, limited student travel to meetings, etc. The worst part of the sequestration, and the budget woes in general,” he adds, “is the overall uncertainty as to how much science will be cut in each new annual budget. [This makes it] difficult to plan and coordinate a large research pro-

gram, especially when research jobs are on the line. But quite frankly,” continues Dr. Moore, “I fear that the worst consequence of the defunding of American science will be the long lasting negative impact felt by our students and young investigators who represent the next generation of scientific researchers. They may [decide to] pursue alternative careers outside of academia. [It] would be a loss to all of us.”

at Frederick, Maryland since 1984, and is an Associate Scientist with NCI’s Center for Cancer Research (CCR), Molecular Targets Laboratory (MTL).
Dr. Beutler heads up one of MTLs four sections, Chemical Diversity and Development, with a staff of four. (The other three MTL sections are: Development and Screening, Natural Products Chemistry and Protein Chemistry and Molecular Biology). Most of his work involves synthetic chemists and cancer biologists who “pursue molecularly targeted drug discovery research by promoting an interdisciplinary, collaborative team-oriented approach to identifying and validating cancer-pertinent targets,” relates Dr. Beutler. “I have two projects [dealing with] preclinical cancer drug leads. One is the englerins, sesquiterpene esters that are selective for kidney cancer and Ewing’s sarcoma. Another is the schweinfurthins, prenylated stilbenes selective for brain cancer and neurofibromatosis. I am also involved in high throughput screening projects for cancer and HIV [in which] I am source agnostic, although both drug leads happen to come from African Euphorbiaceae plants.”

“Sequestration has been devastating for the NCI intramural program in general and our lab in particular,” notes Dr. Beutler. “Our lab lost four positions due to cutbacks over the last two years. We have no travel budget; ...mouse studies [are] nearly [extinct]. Two departing postdoctoral fellows have not been replaced. Many important things that could be done at NCI are being deferred or canceled. The grant funded community is also affected in a very big way.” “Sequestration is a disaster for biomedical research,” emphasizes Dr. Beutler. “The budget cuts were made across the board, at least that’s what they say.

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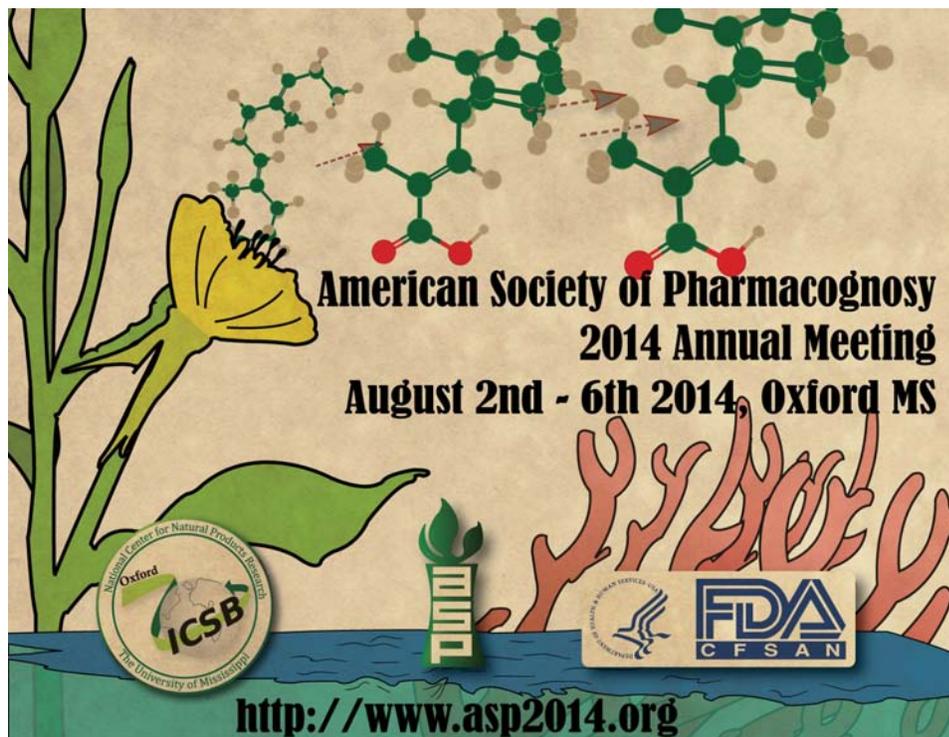
ASP 55th Annual Meeting: Oxford, Mississippi

By Dr. Troy Smillie

The 55th ASP Annual Meeting will be held from August 2-6, 2014, in Oxford, Mississippi, a town with a rich literary and artistic history and home of the University of Mississippi and the National Center for Natural Products Research. The meeting location is at the Oxford Convention Center, located a short distance from both the University and the famed downtown Oxford Square. With the help of the Oxford Convention and Visitor's Bureau, we have put together a program of social and entertainment activities to run alongside our rich and informative scientific agenda.

The upcoming year's meeting will be held jointly with the Oxford International Conference on the Science of Botanicals and will explore the topic of natural products and their impact on humankind. To this end, we will review, discuss, and explore the confluence of current research topics related to health and agriculture. Topic areas will include past achievements, current status, and future prospects in the area of natural products discovery for the betterment of health, agriculture and the environment.

Visit asp2014.org for new and updated information on everything from our scientific agenda to specifics on the social and



entertainment program, as well as registration, lodging and abstract submission information. The organizing committee and our sponsors are proud to be able to present the 2014 meeting, and we hope to see all of you there! ■

Research at Risk: The Era of Sequestration

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Our own lab made the decision to cut travel, which is certainly better than laying off more people. Every lab is hurting; if we had not received an outstanding evaluation last fall in our site visit, we might have found ourselves disbanded."

Dr. Nadja Cech received her PhD in Analytical Chemistry from the University of New Mexico, Albuquerque, New Mexico, in 2001, specializing in mass spectrometry. As Associate Professor at the University of North Carolina, Greensboro, she supervises a research group of 12 students and postdoctoral research associates. Over the last 13 years, she has developed strategies to address synergy and complexity in the biological activity of complex botanical extracts. Dr. Cech's interest in this area stems from a long history of involvement in alternative medicine. Her family owns and operates Horizon Herbs, "one of the largest mail-order

businesses of medicinal herb seed in the country," located in Williams, Oregon. She spent her childhood working on their farm. Dr. Cech has received R15 and RO1 grants from National Center for Complementary and Alternative Medicine (NCCAM) for research involving the identification of botanical products effective against inflammation and infection.

Dr. Cech mentioned, "as yet, sequestration has not directly impacted [her] research. I was fortunate to get RO1 funding in December 2012, just before the sequestration hit. However, the budget may be impacted for year two of that project." [Due to] "the government shut-down... , [we are uncertain if] we will even get our year two budget on time (or at all)," adds Dr. Cech. "This is of great concern [because] I have several research personnel [to pay] from this grant." ■

ASP Fellows Series: Reflections on 20 Years as Editor of *J. Nat. Prod.*



Theodor Just
(*Lloydia*, 1938-1959)



Arthur Schwarting
(*Lloydia*, 1961-1976)



Jack Beal
(1977-1983)



Jim Robbers
(1984-1993)



A. Douglas Kinghorn
(1993-present)

By Dr. A. Douglas Kinghorn

At the end of 2013, this correspondent will have served as Editor-in-Chief of the *Journal of Natural Products* (*J. Nat. Prod.*) for 20 years. The purpose of this ASP Fellows article is to relate to readers of the *ASP Newsletter* how working in this capacity for our journal has changed over the last two decades. A detailed history of the *J. Nat. Prod.* and its earlier iteration, *Lloydia*, was included in the book on ASP history, *50 Years of Progress in Natural Products Research, 1959-2009* (G.M. Cragg, J.M. Beutler, W.P. Jones, Eds., available on the ASP website). However, the events that have taken place in scientific publishing in general and concerning *J. Nat. Prod.* specifically over the last 20 years have been far reaching indeed. It is now far more accessible than ever before, with greatly improved color graphics, and has a much shorter publication time than previously for submitted articles. The journal is truly international, in terms of the countries of origin of the manuscripts published, and very diverse in the representation of the marine and terrestrial organism constituents described.

My story as Editor-designate began in the spring of 1993, when Dr. Harry Fong and I took a two-and-a-half hour drive from Chicago to West Lafayette, Indiana, where at Purdue University we met up with ASP members Drs. Jim Robbers (Editor) and Jerry McLaughlin (Associate Editor). Dr. Fong agreed to serve as Associate Editor (1994-1998) of *J. Nat. Prod.*,

and our only orientation to what we quickly realized would be quite a demanding job was afforded over lunch with Drs. Robbers and McLaughlin as a series of helpful hints, particularly on the subject of peer reviewing. We returned to the University of Illinois at Chicago (UIC), Chicago, Illinois, with the entire bound library of the back issues of *Lloydia* (*J. Nat. Prod.*) in the back of our vehicle.

Together with the help of Drs. Richard Powell (Associate Editor) and David Kingston (Associate Editor and Book Review Editor), we started thenceforth receiving and processing all new manuscripts, which at that time were all handled in hard copy only. At the time, the journal was produced and printed by the company Spahr & Glenn, and we were ably assisted in this process by Ms. Susan Stites as our Managing Editor. However, the journal did not appear on a set date each month, since it was necessary to obtain sufficient articles in order to render an economical print run. Also, one detail somehow escaping my earlier attention was that the Editor was required to read over and copy edit each accepted manuscript and all author galley proofs prior to publication!

After a fairly protracted period of negotiation, *J. Nat. Prod.* became a co-publication of the ASP and the American Chemical Society (ACS), with effect from volume 59 in 1996. There was a lot of trepidation among certain senior members of the ASP about

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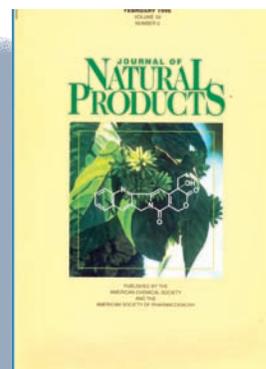
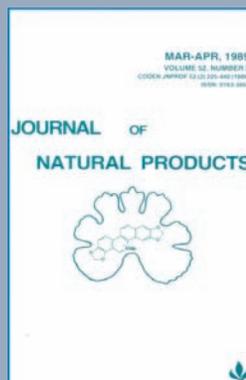
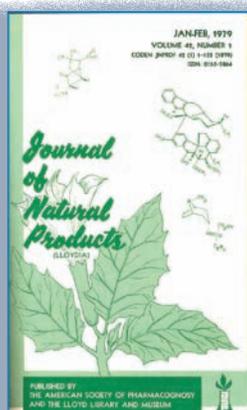
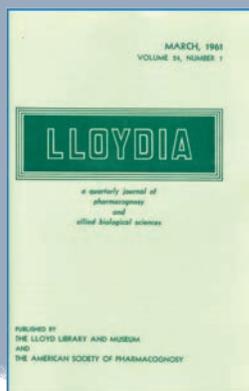
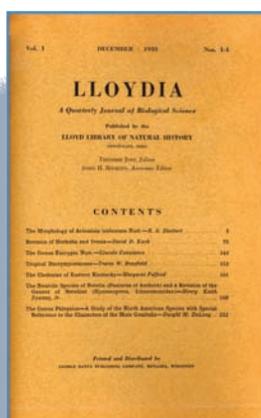
ASP Fellows Series: Reflections on 20 Years as Editor of *JNP*

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this momentous move for our Society, because of the possibility of having the fruits of our main publishing effort swallowed up by a much larger scientific group. However, working with the ACS on the journal has enabled *J. Nat. Prod.* to be at the forefront of many technological developments that have occurred, and there is no question that the prestige of *J. Nat. Prod.* has increased substantially as a result of becoming formally affiliated with ACS 18 years ago. As we entered into our working relationship with ACS, an immediate benefit to the Editor-in-Chief was that it was no longer necessary to proofread accepted manuscripts

Gerwick, Rachel Mata, and Bob Pettit, who have all been ardent supporters of the journal for many years in terms of both submitting and reviewing manuscripts, were the invited speakers at this symposium.

As a result of the enhanced technological capability of the ACS, an immediate result was an ability to change the journal cover illustration on a more frequent basis than previously. Our initial illustration for the first six months of 1996 was the plant *Camptotheca acuminata*, overlaid by the structure of camptothecin, as provided by Dr. Mansukh Wani, of Research Triangle Institute in North Carolina. The



and author galley. In my experience, during this period, the ACS has always been considerate of the viewpoint of ASP during our years of co-publication of the journal. For example, our Editorial Advisory Board meetings are held in conjunction with the Annual Meeting of ASP, and ACS always sends at least one of their staff members to participate, even when these meetings are held in Europe.

Our journal has greatly benefitted from the sales and marketing efforts of the ACS Publications Division, and considerable support is available to our editors in terms of managing article peer review and manuscript acceptance. In 2012 at the International Research Congress of Natural Products Research in New York, a special symposium was held in honor of the appearance of the 75th volume of *J. Nat. Prod.*, and this was generously supported by ACS Publications, including providing each meeting registrant with a memorial wall poster to mark the event. Drs. Bill

cover motifs are still changed only once six months, and are each provided with a caption. This gives some prominence to the work of the colleagues who submit these illustrations. In February 2011, the design of the journal was changed so that the graphical Table of Contents shown in the web edition of each article can be incorporated into the abstract. Contributors to the journal have provided some very imaginative and colorful motifs for their articles, so that *J. Nat. Prod.* is now more pleasing esthetically to read. While today most subscribers to the journal access only our web edition, it is still possible to subscribe to a “condensed print” edition, and it must be said that with the enhanced graphics available, this almost looks like a glossy magazine rather than a specialist scientific journal.

Although the position of Editor of *J. Nat. Prod.* carries with it some influence in terms of affecting the overall scientific

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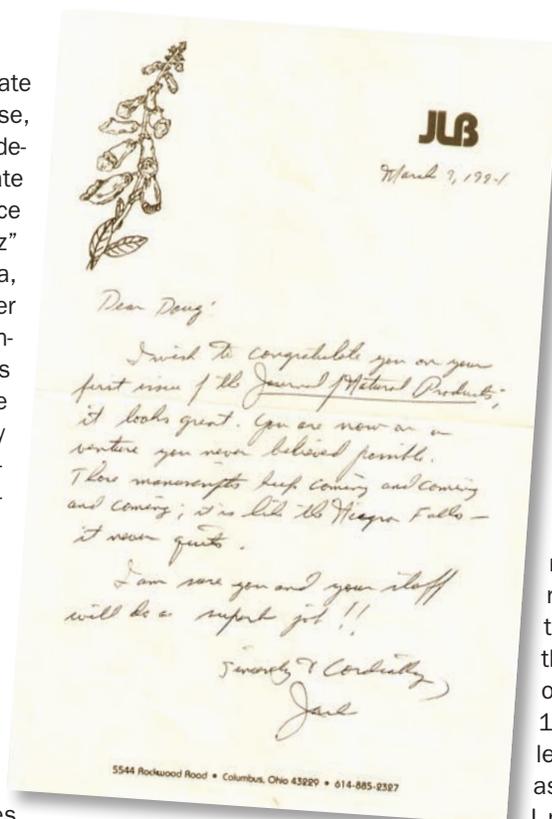
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direction of the publication, the Associate Editors, often having a particular expertise, have played a key role in the technical development of the journal. Other Associate Editors who have served the journal since 1994 are Drs. Alice Clark, Francis "Fritz" Schmitz, Bill Gerwick, Daneel Ferreira, Phil Proteau, and Cedric Pearce. After 23 years in this role, Dr. Powell has announced his intention to resign from his position on the journal, effective at the end of 2013. In view of his exemplary efforts on behalf of the journal, ably assisted by his wife Rosemary, as Editorial Assistant, Dr. Powell will be named on the journal masthead page for the next two years as Honorary Editor. He will be replaced as Associate Editor by Dr. Steve Swanson, from UIC, whose role will be to enhance the quality of the papers published in the journal on the biological activity and biochemical mechanism of action of natural products of previously known structures.

In addition, Dr. John Cardellina has served as our capable Book Review Editor, having replaced Dr. David Kingston in this position in 2003.

There have been a number of new editorial initiatives for *J. Nat. Prod.* over the last 20 years. At the initial suggestion of long-time ASP Foundation Board Chair, Dr. John M. Cassidy, followed by additional idea by members of the ASP Executive Committee, we now have two annual awards for best papers in the journal, which honor two of our former Editors. The Schwarting Prize is open to all papers, whereas the Beal paper is restricted to younger corresponding authors. This annual awards program started in 2001, and all winning papers are available through open access on the journal webpage. Another initiative is our annual special issue in honor of an outstanding natural product scientist. This has led to considerable additional interest in the journal, including the submission of many research articles, notes, and reviews from an expanded pool of natural product researchers.

The *J. Nat. Prod.* is continually evolving, and its overall quality and increased readership level are the product of the roles of many different individuals, including our authors, reviewers, and editors, and the past and present members of our editorial advisory board, in addition to the many people who help to produce and promote the journal.



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editors, Drs. Theodor Just (*Lloydia*, 1938-1959) and Arthur Schwarting (*Lloydia*; 1961-1976), but Drs. Jack Beal (1977-1983) and Jim Robbers (1984-1993) both helped me greatly as I became more familiar with the role as journal Editor in the mid-1990s. To Dr. Beal, we all owe a great debt because he facilitated an official change of name to the present title, *Journal of Natural Products*. In turn, under the tenure of Dr. Robbers as Editor, the current publication schedule of the journal was established on a monthly basis. I have a handwritten letter from Dr. Beal that is framed in pride of place in my office, now at The Ohio State University, Columbus, Ohio, which states in part: "You are now on a venture you never thought possible. Those manuscripts keep coming and coming and coming; it is like Niagara Falls." In retrospect, having now been the primary recipient of thousands upon thousands of submissions for the journal since the summer of 1993, how very true indeed! ■

The Matt Suffness Award: A Continued History

By Dr. Barry O'Keefe

Editor's Note: This issue of the Newsletter, we continue our ongoing series on winners of the ASP Matthew Suffness Award by focusing on previous award winner Dr. Barry R. O'Keefe at the National Cancer Institute. In the early 1990's, former ASP President Matthew Suffness was a pivotal player in developing what was then called the Young Investigator Award, conceived as a mechanism to highlight the achievements of some of our younger members as they established independent careers. Recognizing that our younger members are not so fortunate as to have known Dr. Suffness, we thought a series of reflections by previous winners of the Suffness Young Investigator Award would help provide them with a sense of the man, his vision, and his contributions. We hope to draw broader attention to the award itself and, hopefully, inspire members to nominate deserving individuals for the award in the years to come.

First, I would like to thank Drs. John Cardellina and Edward Kennelly for taking the initiative to reach out to all the Matt Suffness Young Investigator Award winners including myself. I think the Society benefits when we try to encourage a greater degree of general knowledge about the ASP, its members and its impact on the advancement of natural products research.

As to the question at hand, I was surprised and honored to be awarded the Matt Suffness Young Investigator Award in the first year after it was named for Dr. Matt Suffness. I was fortunate enough to have met Matt on several occasions, the first being my introduction to him by the late Dr. Norman Farnsworth at my first ASP meeting in Chicago. In his inimitable fashion, Norm called Matt over and said "Matt, this is Barry O'Keefe, he's an @\$%^&*, so you two should get along." Despite the introduction (or because of it), Matt was always kind and encouraging to me. Later, when I went to work at the National Cancer Institute (NCI) at the National Institutes of Health (NIH), Matt's worldwide impact on natural products research was an inspiration to me. To be honored with an



Dr. Barry O'Keefe

MR. JONATHAN C. SUMMERS

award in his name, while working at the NCI, was a special moment in my career.

Receiving the Matt Suffness Young Investigator Award does indeed change the trajectory of one's career in pharmacognosy. I saw it as validation from the ASP that my research into proteins from natural product extracts was worthwhile, and that gave me greater encouragement to continue this pursuit. The award also helped me defend this area of research when its worth was questioned. Most importantly, the award brought me recognition within the ASP which led to many new collaborations with existing members with whom I was previously personally unfamiliar. This is perhaps the most important positive aspect of winning the award. To this day, I will never forget Dr. Arnold Brossi approaching me after my talk, not to correct my likely er-

rors as I feared, but instead to congratulate me on my talk and to state, "please take my card, we serious scientists have to stick together." To receive the Matt Suffness Young Investigator Award is to be acknowledged as a "serious scientist" by the ASP. For all of us I think, nothing in science is more important than this recognition from scientists whom we have looked up to during our graduate education. ■

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Cranberries in the Spotlight

By Ms. Vanya Petrova

Chemical & Engineering News (C&EN) from November 18, 2013, featured an article that gives us a taste of the research done by ASP member Dr. Catherine C. Neto on the little, red, tart fruit loved by many during the winter holidays, cranberry (*Vaccinium macrocarpon*).

The reputation of cranberries as folk medicine or functional food has been under Dr. Neto's investigation for dozens of years. As a Professor at the University of Massachusetts, Dartmouth, her impact in the field ranges from teaching students in her laboratory how to use column chromatography to separate cranberry proanthocyanidins and flavonoids, to establishing the Cranberry Health Research Center at the university with her colleague Associate Professor Dr. Maolin Guo.

According to Dr. Neto "stud-



ies suggest that cranberry phytochemicals can influence a number of signaling pathways involved in cell growth and proliferation, modulation of reactive oxygen species and bacterial biofilm formation. With cranberry's unique mix of compounds, multiple mechanisms are likely but more studies are needed to truly understand what it can do *in vivo*."

ASP President, Dr. Bradley S. Moore, commented, "The ASP prides itself on the diversity, breadth and innovation of its membership and was delighted with the recognition of Dr. Catherine Neto in a recent C&EN article about her leading work on cranberry phytochemicals. Natural products researchers like Dr. Neto, have a lot to offer the public through their careful work to understand how food chemicals like those in cranberries and other fruits benefit and improve human health."



The full C&EN article could be found at:

<http://cen.acs.org/articles/91/i46/Cranberries-Branch-Holiday-Condiment-Medicine.html>

Renew ASP Membership Now: 2014 and Beyond

By Dr. Guido Pauli (ASP Treasurer)

The ASP membership fees for 2014 are now due, and the 2014 Renewal Form is currently available in ASP Memberclicks (<http://asph.memberclicks.net/membership-and-jnp-renewal>). If you are also interested in renewing your 2014 *J. Nat. Prod. (JNP)* subscription, please note that the deadline for web and condensed print editions of *JNP* is December 9, 2013. The American Chemical Society no longer provides a grace period for *JNP* subscriptions pending payment. While there is a slight increase to \$95/\$190 for the *JNP* web subscriptions with *JNP* archive, the 2014 condensed *JNP* print subscription rates are unchanged.

Once logging into My Profile on the ASP website, your dues payment history and projection will be displayed. Please note that, in addition to the annual active membership (\$70), we are offering multi-year payment options for all memberships. Paying ahead offers attractive savings per annum. Please refer to the ASP dues schedule for details. If you chose to renew for multiple years, future renewal forms will reflect your earlier pre-payments by calendar year, and you will be able to renew your *J. Nat. Prod.* subscription independently for each year.

ASP uses an online membership renewal system. Through this secure system, you can pay via credit card or via mailed check. Credit card payment is encouraged and much preferred. How can you pay your dues for 2014 and beyond?

Option 1: Use this direct link to the 2014 Renewal Form: https://asph.memberclicks.net/index.php?option=com_mc&view=mc&mcid=form_146513. Login with your username = asp. Note: Make sure to use the 2014 Renewal Form only! In case your browser settings prevent proper access, choose Option 2.

Option 2: Through your memberclicks profile at asph.memberclicks.net, after Login or menu "Login->Login" there are two options. Option 2A: Select the appropriate form under "Payment." Option 2B: Select "Directory -> My Memberclick Profile," then under tab "My Profile" use the "Pay 2014 Dues" link.

Cannot recall your password? Use the "Forgot Your Password?" link on the login screen (Option 2) and the system will send it to your email address in the database. Want to change your password and/or login name? Under "My Profile" (see Option 2B), select "Edit profile" in the section "My Status."

For both options, please follow the directions provided by the system. Please update your contact information on the form. When completed, you will receive an email indicating the payment and the mailing information, if you are paying by check.

Please email me (treasurer@pharmacognosy.us) if you are having problems with the system. Also note that the MemberClicks system allows you to print your own receipt.

I hope to see you at this year's ASP Annual Meeting in Oxford, Mississippi! ■

The ASP wishes to thank members who chose to renew their membership for multiple years and encourages members to take advantage of discounts offered with renewing membership for 2, 3, or 5-year periods. The Society is also grateful for any payment of dues missed in past years (2012 and 2013).



Hot Topics in Pharmacognosy: An “Ancient” Antibiotic with a New Use

By Dr. David Newman

For those of you who, like me, were playing with microbial natural products in the early 1960's, the news that the depsipeptide thiostrepton and its very close chemical cousin, siomycin A are now being considered as potential antitumor agents, comes as quite a pleasant surprise. (In my lexicon, microbes would definitely fall under a broad definition of pharmacognosy). These agents were both reported towards the beginning of the period now often referred to as the “Golden Age of Antibiotics,” but they had problems being useful due to a predilection for solvents such as dimethylformamide (DMF), glacial acetic acid and others not considered to be “useful diluents for pharmaceutical usage!”

They were both potent inhibitors of protein synthesis in bacteria. Thiostrepton was shown in the early 1970s to bind to the 50S bacterial ribosome and inhibit enzymatic and non-enzymatic translocation in *Bacillus megaterium*.¹ This was followed the next year by the demonstration that in *B. megaterium*, thiostrepton's primary function was the inhibition of the functional binding of amino-acyl-tRNA to the ribosomal A site, a different conclusion from the work by Pestka¹ and probably due to the lack of cofactors in the *in vitro* studies.²

Much work was performed on this compound in the next 30 years, including a total synthesis by the Nicolaou group in 2004,³

along with further definition of the binding site(s) in the excellent review by Wilson (2009) that also included all reported bacterial translocation inhibitors.⁴ In 2008, the “game changed” with the publication by Kwok et al., demonstrating that thiostrepton selectively inhibited breast cancer cells by inhibiting the expression of the Forkhead Box M1 (known as the “FOX M1” in later papers).⁵ This paper was rapidly followed by others demonstrating similar activities in different human tumor cell lines and identifying thiostrepton as a proteasome inhibitor.⁶ Later work by Wang and Gartel from the University of Illinois at Chicago, Illinois, demonstrated that in *in vivo* xenograft models, a nanoparticle composed of encapsulated thiostrepton suppressed FOX M1 and tumor growth in MDA-MB-231 and HepG2 xenografts.⁷ To enable readers to appreciate the explosion of interest in targeting FOX M1, the very recent review by Halasi and Gartel should be consulted,⁸ as well as the one by Sengupta et al., both in 2013, showing preliminary activity against Ewing's sarcoma in *in vivo* xenograft studies.⁹

A more than 50-year old structure is now a possible route to novel antitumor agents, and just to show how researchers are thinking ahead, Zhang and Kelly have recently published a review of the methodologies for production of variants on the thiopeptides, including thiostrepton.¹⁰ ■

The bottom line in all of this work is “never throw out a natural product structure, irrespective of how many times it infringes Lipinski's rules. And remember, natural product structures are not expected to obey these rules.”

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Behind the Scenes in Pharmacognosy: Interdisciplinary Insight

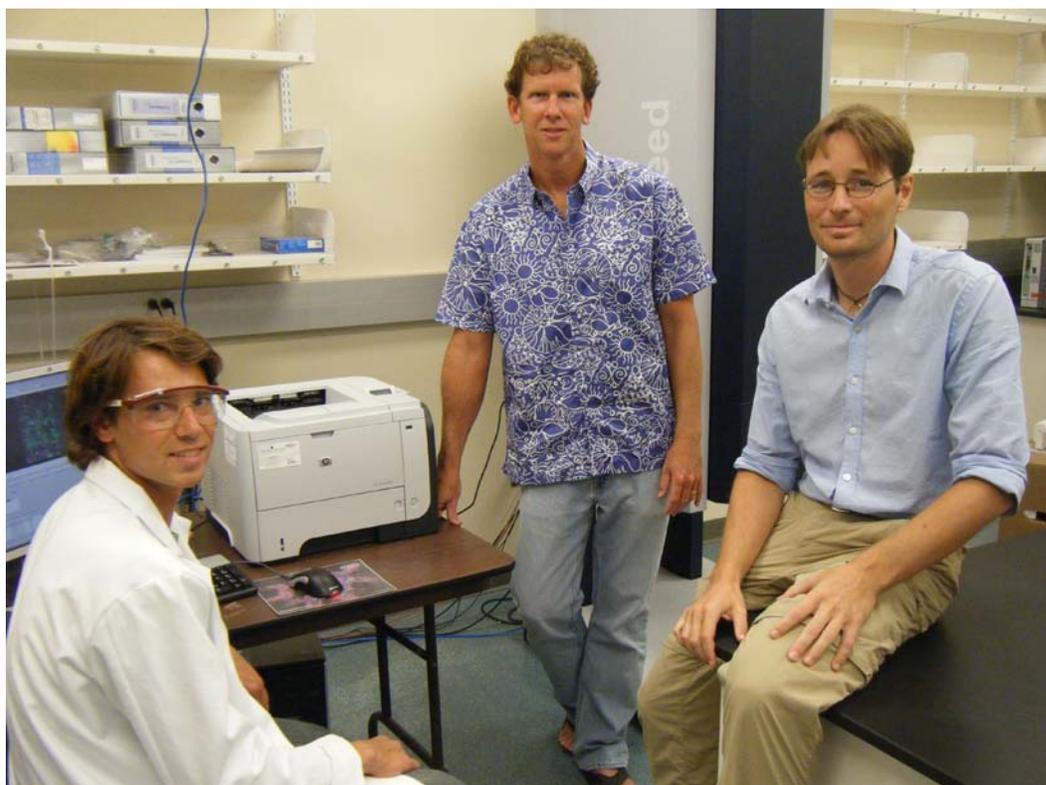
Dr. Amy Keller

This November, ASP member Dr. Pieter Dorrestein and ASP President Brad Moore published results of their laboratory's interdisciplinary work on the use of mass spectrometry and genomic techniques in the *Proceedings of the National Academy of Sciences*. As Dr. Dorrestein tells the Newsletter below, this work featured a student now pursuing a Ph.D. in the labs of both Drs. Dorrestein and Moore. In addition to describing a new approach to natural product discovery and characterization, Dr. Dorrestein highlights the potential applications of glycogenomics. Please read the original article, "Glycogenomics as a mass spectrometry-guided genome-mining method for microbial glycosylated molecules," *Proc Natl Acad Sci.* November 19, 2013;19;110(47):E4407-1.

How did you become interested in linking genomic analysis to bioactive compounds, and how does this methodology work?

This idea was developed in my lab with Mr. Roland Kersten, a Diploma Arbeiten student from Germany, before he became a joint Ph.D. student with me and Dr. Moore. Our labs together were the ideal interdisciplinary environment where Mr. Kersten could accomplish the work, due to my lab's strength in natural product mass spectrometry (MS) and the Moore lab's leadership in natural product genome mining. Mr. Kersten started to use MS/MS patterns to connect the signatures to the gene clusters, and started with peptidic natural products; he continued to work on this during his PhD. Mr. Kersten showed that we could connect MS/MS fragmentation patterns to the genes that biosynthesize natural product peptides, both ribosomal encoded and by non-ribosomal peptide syntheses.

We published this work on peptidogenomics in 2011 in *Nature Chemical Biology*. It turned out that matching MS/MS signatures to non-ribosomal peptides required less information than the ribosomal encoded counterparts, as there are few gene clusters that would match this class of biosynthesis. With this realization that minimal MS/MS information is needed to match gene clusters found on a bacterial genome, we set out to look if this held true for other classes of natural



Mr. Roland Kersten, Dr. Brad Moore, and Dr. Pieter Dorrestein.

products. Although we expected this to work with polyketides, isoprenoids, lipids, and others, the current paper approaches glycosylated natural products since glycosylations are often key to the biological activity of natural products and may be the largest class of natural products for which the fewest members have been characterized.

It turns out that a typical genome only has a few specific sugar biosynthetic enzymes and we used this limited search space to our advantage to create a glycogenetic code, a table of expected MS/MS mass shifts that correlate with specific sugar biosynthetic enzymes. We could then use the glycogenetic code to predict the candidate sugars from the genome and the way they fragment in MS/MS

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when attached to natural products. If these signatures are found on the MS/MS pattern we have a putative match between a molecule and the genes responsible for making them. Once a putative match is made, an iterative analysis between the biosynthetic enzymes and the MS/MS data will further solidify the match. Finally if a good match is obtained, the genes can be knocked out of organisms that are genetically tractable and/or isolation of the molecules is possible for nuclear magnetic resonance (NMR) analysis.

Who in your laboratory carried out the research?

Although Mr. Kersten was the driver of this project, others were involved. Dr. Nadine Ziemert, Dr. David Gonzalez, Dr. Victor Nizet, and Dr. Brendan Duggan also contributed to NMR analysis, genomic analysis, creation of knock-out models, and antimicrobial activity analysis.

Could you provide a brief explanation of the work and results in your own words?

The key contribution in this paper is the creation of a glyco-genic code that enables one to efficiently connect MS/MS signatures to glycosylated natural products and find the genes that are responsible for their biosynthesis.

In addition to characterizing microbial glycosylated natural products, what other applications might this approach have in natural product science and health research in general?

In general, MS/MS signatures can be used to organize and classify molecules that can be detected by mass spectrom-

etry irrespective if they are specialized metabolites, my preferred term for natural products due to their unique function or primary metabolites. Here we show that this can be done with glycosylated natural products, but can be readily extended to natural products that are only sugars, such as amino glycosides. I hope this paper will engage other investigators in different biological areas (e.g. plant, humans, animal, coral) to explore their glyco-genic potential. Perhaps it will also engage informaticians and computer scientists to create an automated workflow where one can upload the genome with the LC-MS/MS data to obtain the best correlations of MS/MS data to the genes responsible for the biosynthesis. This would be truly exceptional.

What is a favorite nonscientific activity of your lab?

We have our annual swim and BBQ around the Scripps Pier Day.

What is your lab's motto or slogan?

If you are afraid of breaking the instruments, you will not get data (but work out a way to repair the instrument if it breaks on you while working on it).

What is your greatest extravagance in the lab?

We thrive on the creativity from our lab members. Be daring and not afraid to fail. Only ideas that are truly novel should be considered, especially if the outcome cannot be readily predicted and/or if they are MS based tools that are generally applicable to our understanding of the functional roles of specialized metabolites. If the idea is good, we will find a way to do the experiments. ■

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Pharmacognosy Field Notes: Icy Discoveries

By Dr. Brian Murphy

It can be surprisingly difficult to tell when your life is in danger; however, due to a chance interaction at the International Congress of Natural Products Research 2012, there is a high likelihood that my life was saved by the United States Ambassador while diving in one of the most beautiful places on Earth.

At this 2012 meeting, Dr. Sesselja Omarsdottir (University of Iceland, Reykjavik, Iceland) and I forged a collaboration. Our goal was to combine our expertise and explore the breadth of microbial diversity that exists in the Icelandic benthic environment, and to discover the capacity of these microorganisms to produce biologically active secondary metabolites.

The plane touched down in Reykjavik in early March of 2013. Dr. Omarsdottir greeted me at the airport and we immediately drove across the volcanic island to the northeast fjords, without any of my dive gear (my dive bag was

likely pulled off the plane due to a suspicious shell-like metal canister filled with autoclaved Eppendorf tubes, to which security scanners were unable to penetrate; lesson learned). The plan was to pack our vehicle and trailer with gear and traverse Iceland's northeast coast.

Our guide and companion for the two-week expedition was Mr. Erlendur Bogason, head of the Strytan Dive Center based just outside of Akureyri, Iceland. A contract diver and photographer with 20 years of experience, Mr. Bogason carried with him a legendary reputation for underwater exploration and conservation, headlined by his 1997 discovery of a system of shallow marine thermal vents.

Our first few dives went very much according to plan. We rode a small inflatable boat to a hydrothermal chimney in the ma-

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All of us gearing up at the orca site; Mr. Bogason and Dr. Murphy gearing up (photo: Dr. Sesselja Omarsdottir); Crash course in boat safety



left: SCUBA is not always required to collect samples.
right: Crash course in boat safety.

We headed to arguably one of the world's greatest dive sites – Strytan. Strytan is hailed as the only known geothermal chimney that is accessible to scuba divers (others occur in depths of up to 3,000 m).

Pharmacognosy Field Notes: Icy Discoveries

This was the most challenging collection site. We descended on a rope line into homogenous blue surroundings that were paralyzing. The only guides to our sense of direction were the air being ejected from our regulators, and a gradient of dark blue that ran down the end of the rope into blackness.

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rine protected area known as Arnarnesstrytur. The chimney was teeming with life – sponges, tunicates, nudibranchs, mollusks, and a ravenous wolfish that was the protector of this submerged marvel, thousands of years in the making. We surfaced and handed the samples to Dr. Hong-Bing Liu, a postdoctoral researcher in Dr. Omarsdottir's lab. Twenty minutes prior, just before the three of us plunged through the glassy sheet of near-freezing water, we handed the boat keys to Dr. Lui and gave him a crash course in emergency procedures. This was much to Captain Bing's surprise, since this was his first time on a boat.

The following day I was reunited with my dive gear. We headed to arguably one of the world's greatest dive sites – Strytan. Strytan is hailed as the only known geothermal chimney that is accessible to scuba divers (others occur in depths of up to 3,000 m). The cone is 50 m tall and ejects water at a sizzling 72°C. This was the most challenging collection site. We descended on a rope line into homogenous blue surroundings that were paralyzing. The only guides to our sense of direction were the air being ejected from our regulators, and a gradient of dark blue that ran down the end of the rope into blackness. The line eventually led us to a point 10 m off the middle of the chimney. As we spiraled slowly up the side of the cone collecting small samples and being careful not to disturb life on its side, it was difficult to maintain neutral buoyancy due



SCUBA is not always required to collect samples; My suit had a leak and Dr. Omarsdottir watched as I skin dove a “warm water” site. Nearly got hypothermia on this one, poor decision; Mr. Erlendur Bogason, Dr. Sesselja Omarsdottir, Dr. Hong-Bing Liu, and Dr. Brian T. Murphy.

PHOTOS BY DR. BRIAN MURPHY

wherever we slept: quaint cottages containing hot tubs powered from the volcanic island's massive geothermal energy, rented small village apartments, or even in houses of ‘the locals,’ with families watching television around us as we worked. These were our laboratories.

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We set up our workspace wherever we slept: quaint cottages containing hot tubs powered from the volcanic island's massive geothermal energy, rented small village apartments, or even in houses of ‘the locals,’ with families watching television around us as we worked. These were our laboratories.

The environment was peaceful, but not stagnant. Drinkable freshwater bubbled upward from breaks in the ground, through cracks in the mats. The mixing of hot and cold freshwater was distorting objects that lay beyond its boundary. Like the onset of a psilocybin hijacking, through the mixing waters, black volcanic surface was being re-engineered.

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Mr. Bogason would often negotiate with farmers for access to special freshwater ponds. One in particular was unlike any landscape that I could have envisioned. After jumping off a 2 m high stone cliff, we were immediately cast into the set of a science-fiction thriller. My scuba drysuit might as well have been astronaut gear; I would not have known the difference. A narrow valley of bending rock created a channel just wide enough to swim through, and as we emerged from the passage it opened up to visibility greater than 100 m. Through my goggles an electric blue horizon stretched upward to a brilliant aqua and downward toward a deep purple, and was prefaced by rolling hills of bright yellow algal mats and a clay bottom littered with black volcanic rock.

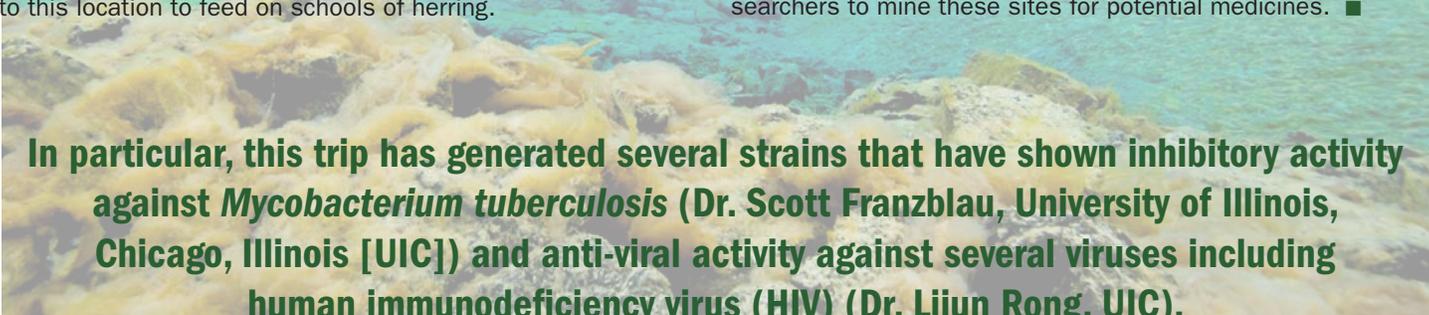
The environment was peaceful, but not stagnant. Drinkable freshwater bubbled upward from breaks in the ground, through cracks in the mats. The mixing of hot and cold freshwater was distorting objects that lay beyond its boundary. Like the onset of a psilocybin hijacking, through the mixing waters, black volcanic surface was being re-engineered. It reminded me of television dream sequences that bent solid objects into ribbons of colors, where our perception of the world would collide with the horizon of our imagination.

A stormy forecast for the East coast forced us to travel back to Reykjavik for the second leg of our dive tour, the Central coast and Southwest of Iceland. We collected from many exciting sites, though strangely, the most memorable dive was the one that was uneventful. It was a few days prior, when we were storing our gear in an underground reindeer slaughterhouse, and I had joked with Mr. Bogason that I wanted to dive with orcas (killer whales). Now, maybe the joke was lost in translation, but as we drove north and discussed where we were going to dive, he replied “we are going to find orcas.” Mr. Bogason had called ahead to a hotel in Grundarfjordur, a city famous for killer whale sight tours, and reserved a small boat for us. The orcas migrate to this location to feed on schools of herring.

As we arrived to solidify our boat rental, we learned that the United States Ambassador to Iceland was planning to eat lunch at the hotel that day. Lucky for us (me), the head chef called in sick. Also lucky for us (me), the reserve chef was the same man that was set to drive our boat. Thus, our boat trip was spontaneously cancelled because the boat captain now had to cook a meal for the Ambassador. This forced us to dive from the shore, rather than a boat. The dive was uneventful, though within one mile of us, and quite near where we had planned on boat diving, there were several large vessels circling. Back at the hotel we learned that a pod of orca were feeding—hunting and feeding.

It has been nine months since Drs. Omarsdottir, Liu, and I collected samples. We have since grown an incredible diversity of microorganisms from these samples and tested a small portion of their secondary metabolite fractions in biological assays in collaborating laboratories. In particular, this trip has generated several strains that have shown inhibitory activity against *Mycobacterium tuberculosis* (Dr. Scott Franzblau, University of Illinois, Chicago, Illinois [UIC]) and anti-viral activity against several viruses including human immunodeficiency virus (HIV) (Dr. Lijun Rong, UIC). Our studies of discovering antibiotic-producing bacteria are only splinters in the ladder of the drug discovery pipeline. But, as evidenced by this collection trip and the countless trips of other researchers worldwide that preceded ours, this research is not limited to the laboratory, and is inevitably reliant on the conservation of Earth's vast biodiversity.

Dr. Omarsdottir and I will collect again in the warmer months, this time in the northwest fjords, and we will once again call on Mr. Bogason to guide us. Armed with his underwater camera and a sense for exploration, he reminds us that this drug-discovery process is truly a collaborative effort and does not simply begin with collecting samples. At the heart of our field is preserving biodiversity, whether in the jungles of Madagascar or in the frigid waters of Iceland, and he is one of many that deserve recognition for playing a major role in the conservation that allows researchers to mine these sites for potential medicines. ■



In particular, this trip has generated several strains that have shown inhibitory activity against *Mycobacterium tuberculosis* (Dr. Scott Franzblau, University of Illinois, Chicago, Illinois [UIC]) and anti-viral activity against several viruses including human immunodeficiency virus (HIV) (Dr. Lijun Rong, UIC).

Meet a New ASP Member

ASP is pleased to welcome many new members to the society this year. One of our new members this issue is Dr. Catherine Roullier, Assistant Professor at the University of Nantes, Nantes, France. Dr. Roullier took the time to share her work with fungi, and interest in reading with us. We welcome her to the ASP.

By Mr. Dan Kulakowski

1. How did you hear about the ASP?

I first heard about ASP when I was a PhD student. I had the chance to attend the 2009 50th Annual ASP Meeting in Hilo, Hawaii, where I was awarded a travel grant.

2. Why did you join ASP?

I joined the ASP because I recently got to meet different members and I am very interested in the ASP activities. Each time I went to an ASP meeting, I had the chance to attend very interesting workshops, such as the workshop on dereplication in Hawaii in 2009, which was given by Drs. John Blunt and Murray Munro. Last year in New York, I really enjoyed the one about nuclear magnetic resonance spectroscopy (NMR). ASP meetings have always given me the chance to meet several people sharing the same interests. In being a member of the ASP I would like to keep in touch with this community of people, stay informed about the different events the ASP is organizing, and also enhance collaborative opportunities between French and United States labs.

3. Do you belong to any other scientific societies?

Yes, the Pharmacognosy Society of French Speaking Persons (AFERP).

4. What are your current research interests in pharmacognosy?

I am now working on marine-derived fungi, looking for potential new drugs. I am trying to develop and validate new tools for efficient dereplication. As the marine environment is quite rich in halogenated salts, I am currently particularly interested in fungal abilities to produce halogenated compounds.



Dr. Catherine Roullier

SANDRINE L'HERMITTE

5. What is your scientific background?

I graduated as a pharmacist in 2006 and got my PhD in 2010 at the University of Rennes (Chatenay-Malabry), France, under Dr. Joel Boustie. My thesis mainly focused on lichens and their ability to produce interesting compounds to prevent or treat skin cancer. For that purpose, a large part of my thesis concerned the study of a marine lichen growing on the intertidal zone in the western part of France. In 2011, I joined Dr. Ron Quinn's group at the Eskitis Institute, Griffith University, Brisbane, Australia, where I worked on different projects for drug discovery. I took part in high-throughput screening studies on different relevant targets for therapeutics. I performed extraction, isolation and structure elucidation of compounds from active fractions, together with dereplication and hit expansion. After one year of this post-doctoral experience, I was recruited as an Assistant Professor of Pharmacognosy in the University of Nantes, Nantes, France, in 2012.

6. What would you like to achieve through your membership?

I am not quite sure right now. First, I would like to keep informed about the ASP activities, but also maybe to get to know other people from this field of research.

7. What do you like doing in your spare time?

I like many things such as reading, playing volleyball, cycling, and playing cards with friends on Friday nights, but I do not have much spare time, as I also have my family to take care of.

8. What are you currently reading?

I am currently reading the book J. K. Rowling wrote after the Harry Potter blockbusters (which I enjoyed reading), called *The Casual Vacancy*. This book is completely different. ■

New Members of ASP 2013



ASP would like to welcome new members. The Society's main objectives are to provide the opportunity for association among the workers in pharmacognosy and related sciences, to provide opportunities for presentation of research achievements, and to promote the publication of meritorious research. New members include 5 domestic full members, 2 international members, and 6 associate members. We look forward to meeting you and learning more about you and your work.

ACTIVE MEMBERS

Dr. Christophe Duplais
Remire-Montjoly, French Guiana

Ms. Marcia Elston
Snohomish, Washington

Dr. James Harnly
Beltsville, Maryland

Dr. Ende Pan
Dallas, Texas

Dr. Catherine Roullier
Nantes, France

Roy Upton
Soquel, California

Paul Wender
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Philadelphia, Pennsylvania

Dan H. Puccetti
Albuquerque, New Mexico

Mr. Trong Tran
Brisbane, Queensland, Australia

Mr. Dongdong Wang
Brisbane, Queensland, Australia

Conference Calendar

The *Newsletter* is pleased to announce the following upcoming conferences and meetings. The events portrayed here reflect what listings and notices the *Newsletter* has specifically received. For a more extensive calendar, please visit the ASP website at www.phcog.org. If you have a conference or event you would like mentioned, please send us relevant information, including any graphics or appropriate fliers, at asp.newsletter@lehman.cuny.edu.

Asian Symposium on Medicinal Plants, Spices, and Other Natural Products

December 9-12, 2013

Karachi, Pakistan

http://www.iccs.edu/news_head.php?id=Mzl=

Society for Economic Botany & Society of Ethnobiology

May 11-14, 2014

Cherokee, North Carolina

<http://cms.gogrid.econbot.org/index.php?module=content&type=user&func=view&pid=46>

247th American Chemical Society National Meeting & Exposition

March 16-20, 2014

Dallas, Texas

<http://www.acs.org/content/acs/en/meetings/spring-2014.html>

ASP 55th Annual Meeting

August 2-6, 2014

Oxford, Mississippi

<http://www.pharmacognosy.us/calendar-of-events/future-asp-meetings/>

Phytochemical Society of Europe

April 27-30, 2014

Piatra-Neamt, Romania

<http://www.ccb-stejarul.ro/PSE2014.html>

Phytochemical Society of North America 53rd Annual Meeting

August 9-13, 2014

Raleigh, North Carolina

<http://www.pсна-online.org/2014meeting.html>





Brief News From Washington

By Dr. Georgia Perdue

- At the September meeting of the **President's Council of Advisers for Science and Technology (PCAST)**, **Dr. Thomas Frieden, Director of the Centers of Disease Control and Prevention (CDC)**, who spent five years in India setting up the clinics to treat tuberculosis, presented a report about **microbial resistance**, stating "we face **a perfect storm of vulnerability**." "There are many challenges in tracking drug resistant infections, [including] the state of the practice in prescribing antibiotics." "We're taking this precious resource and squandering it," he added. Additional points of emphasis:
- There is massive over utilization of antibiotics. We have a long way to go in the stewardship of this.
 - We have to get the cultures before starting the use of antibiotics.
 - With new amazing technologies, [e.g.,] sequencing microbial genomes, we have a real reason for optimism.
 - Collaboration [between] clinical testing and public health is very important.
 - PCAST Co-Chairman Dr. Eric Lander said most hospitals and nursing homes have no clue [about the issue] of antibiotic resistance.
 - We now have the important collaborations between public health and medicine which is being extended to dialysis facilities.
- The CDC released its full report on antibiotic resistance a week later on September 17, 2013.
- Dr. Frieden also talked about what he called "**a nightmare bacteria, a type of organism which is very transmissible,**" **CRE, [carbapenem-resistant Enterobacteriaceae]**. "It goes within species to other species. Even though it is a very bad problem we can stop it," added Dr. Frieden. He then spoke about **artemisinin**. "**A lot has to be done on [its drug resistance]. It is being grown in Southeast Asia.**"
- National Institutes of Health (NIH) National Cancer Institute Director Harold Varmus told the Board of Scientific Advisors (BSA) at their meeting on November 7, "**there will be no significant delays in awarding grants. The grant review meetings and site visits have already been rescheduled.**" He noted that "while the grant numbers look good overall, the NIH budget has not kept up with inflation. We are starving every one by requiring money [from outside sources]." Dr. Varmus also emphasized his **Biosketch changes for grants**. "I want the entire NIH to adopt Biosketch," adding, "it has already been adopted by the Howard Hughes Medical Institute. NIH wants to get it right in the first place."
- At the National Institute of Allergy and Infectious Diseases (NIAID) Council meeting in September, NIAID director Dr. Anthony Fauci said **non competing grants**, NIH-wide, will be funded at 80- 90% of committed levels. **NIAID new investigators** will be funded at the 10th percentile. He also noted that "funding for biomedical research overseas has increased," adding, "the United States is in danger of losing its status of being the global leader in biomedical research essentially forever."
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**"There are many challenges in tracking drug resistant infections, [including] the state of the practice in prescribing antibiotics."
"We're taking this precious resource and squandering it..."**

Dr. Frieden also talked about what he called “a nightmare bacteria, a type of organism which is very transmissible,” CRE, [carbapenem-resistant Enterobacteriaceae]. “It goes within species to other species. Even though it is a very bad problem we can stop it”

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- Dr. Fauci talked about **H7N9 avian influenza virus** which has led to 135 cases and 44 deaths in China. The virus infects domestic chickens and ducks and then jumps to humans. Another virus, **Middle East Respiratory Syndrome, Coronavirus, (MERS-CoV)** has been found in Qatar, Tunisia and the United Arab Emirates. There have been 114 cases and 54 deaths; it is clearly associated with clusters; (six million travelers go to the Hajj in Mecca). **The cases originated primarily in Saudi Arabia where it was found in bats. It has migrated to the United Kingdom, France, Italy, and Jordan; “it will come to the United States,”** said Dr. Fauci, **“and there is no treatment [or] vaccine.”**
- Researchers supported jointly by NIH–NSF reported that **the Chinese horseshoe bat is almost certainly the source of the severe acute respiratory syndrome coronavirus (SARS-CoV)**. Stay tuned.
- The National Science Foundation has issued a proposal under its **Ocean Sciences Post- doctoral Research Fellowships** which offers fellowships for “beginning investigators” aimed at providing those who exhibit potential “with experience that will establish them in positions of leadership in the scientific community.” Ten fellowships, \$87,000 each per year, will be awarded under “Track 1”, i.e., “Broadening Participation;” seven fellowships, \$97,000 each per year, will be awarded under “Track 2,” i.e., International.
- **BIO Ventures for Global Health** plans to establish **partnerships between researchers and pharmaceutical companies** to tap into the wealth of company compound libraries hoping researchers will find **drugs for diseases like dengue fever, which affect developing countries**. The University of Washington, Seattle, Washington, Biomedical Research Institute has already teamed up with London-based GlaxoSmithKline (GSK) to find drugs for **treating and/or preventing malaria**. GSK has a compound library of “two million candidates.”
- In 2014, GlaxoSmithKline hopes to get approval for what is considered **“the world’s first malaria vaccine.”** GSK partnered with the Malaria Vaccine Institute which receives funding from the Bill and Melinda Gates Foundation. Stay tuned.
- **Another malaria breakthrough:** NIH scientists have developed two tests which detect, within three days, if malaria parasites given to a patient are resistant or susceptible to **artemisinin**. Most of the work is being done in Cambodia.

(Personal Note: Some of the news reported here is outside Washington, but I believe it important because it has either opportunities or food for thought for ASP researchers.)

Another virus, Middle East Respiratory Syndrome, Coronavirus, (MERS-CoV) has been found in Qatar, Tunisia and the United Arab Emirates. There have been 114 cases and 54 deaths; it is clearly associated with clusters; (six million travelers go to the Hajj in Mecca). The cases originated primarily in Saudi Arabia where it was found in bats. ...“it will come to the United States,” said Dr. Fauci, “and there is no treatment [or] vaccine.”

From the Archives: A Historical View: Rho Chi Society's 25th Ebert Memorial Lecture

By Ms. Devhra BennettJones

Many of the ASP members are familiar with the prominent principles held by the Rho Chi Society and their objective, "...to encourage and recognize excellence in intellectual achievement and foster fellowship among its members." The pharmacy honor society encourages superior standards of behavior in their members, while promoting the quest for critical investigation in all facets of pharmacy endeavors. This superior model intersected with the exceptional professionalism of Dr. Varro E. "Tip" Tyler in 1997 at the University of Illinois at Chicago (UIC), Illinois when he gave the 25th Albert Ebert Memorial Lecture to the student body, hosted by the Phi chapter of Rho Chi. The Lloyd Library archives preserves documentation and photographs of the notable lecture, including Tyler's speech notes as well as correspondence leading up to, and immediately following the event.

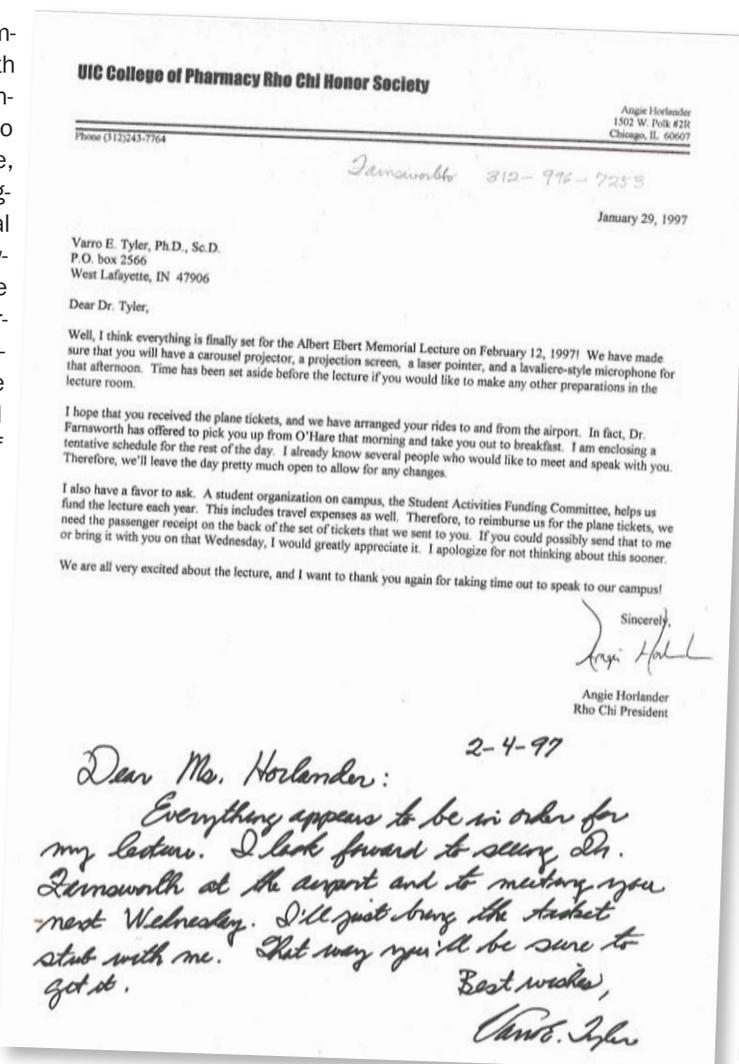
In the summer of 1996, the Phi chapter President of Rho Chi Dr. Angie Horlander (then a student), contacted Dr. Tyler about delivering the lecture. "Each year, our student chapter of Rho Chi at the University of Illinois provides this event to students as an educational experience in memory of Dr. Ebert.... The lecture will be held on February 12, 1997, from 12:30-1:30 p.m. Normally, the topic discussed tends to be general enough to draw in students from every curriculum on campus, not just from the pharmacy school. With the ever-increasing popularity of herbal medications, I think that will easily be accomplished."

Dr. Tyler was well known for his herbal expertise and his life-

long dedication to disseminating knowledge about herbal medicine to professionals and the general public. In this pursuit he kept an active schedule as was demonstrated by correspondence between his assistant Ms. Linda Michaels and Dr. Horlander, "Dr. Tyler returned from a series of speaking engagements to spend two days 'in' his office (mostly 'out' for events attendant to the annual Varro E. Tyler Distinguished Lectures) this Monday and Tuesday. Now he is off to the upper Amazon (Iquitos, Peru) where he will be teaching a large group of health-care professionals."

The venue of the 25th Albert Ebert Memorial Lecture afforded Dr. Tyler the opportunity to call on his good friend, the late Dr. Norman Farnsworth, then Research Professor in the UIC Department of Medicinal Chemistry and Pharmacognosy. Dr. Tyler served as the first President of ASP, while Dr. Farnsworth served as its second president. The correspondence between Dr. Tyler and Dr. Horlander references his and Dr. Farnsworth's reciprocal fondness. She writes to Dr. Tyler, "In fact, Dr. Farnsworth has offered to pick you up from O'Hare that morning and take you out to breakfast." Dr. Tyler responded, "Everything appears to be in order for my lecture. I look forward to seeing Dr. Farnsworth at the airport and to meeting you next Wednesday." The printed agenda included that upon Dr. Tyler's arrival at O'Hare Airport, "Dr. Farnsworth will be waiting." The ASP members that knew both pharmacognosists can well imagine their lively discussions during this visit.

Dr. Tyler's lecture notes provide a 1997 snapshot in time of the
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Response from Dr. Tyler.

"...to encourage and recognize excellence in intellectual achievement and foster fellowship among its members."

A Historical View: Rho Chi Society's 25th Ebert Memorial Lecture

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state of herbal medicine in the United States, and illustrate his tireless efforts to enlighten the general public. He began the lecture by introducing basic principles about plants as drugs. He addressed the reasons why the American public is interested in herbs, while the field of study is highly neglected by scientists in the United States. Dr. Tyler attributed this to the ways that drug laws and regulations have developed over the course of history. The Food and Drugs Act of 1906 sought to control drug fraud. In 1938, the Federal Food, Drug, and Cosmetic Act was passed to assure drug safety. He explained how the Kefauver-Harris Amendments in 1962 were meant to secure drug efficacy. For the first time, manufacturers of drugs had to prove to the Food and Drug Administration that their drug products were effective. This requirement also applied to the majority of herbs. Dr. Tyler discussed the reasons why herbs were not proven safe and effective by post-1962 evaluation standards. Then, in 1994, legislation allowed the retail sale of herbs labeled as "dietary supplements." Dr. Tyler voiced concern that the law did not provide any standards of herbal medicine quality controls. Inspired by profits, manufacturers could disseminate inaccurate literature making outrageous beneficial health claims. He concluded his lecture with a discussion of ten potentially beneficial herbs and their applications: garlic; chamomile; echinacea; ginkgo; feverfew; ginseng; valerian; St. John's wort; saw palmetto; and cranberry. These are all well-known dietary supplements to the members of the ASP. His focus on providing information about what individuals should know about herbal medicine fit well with the lecture series goal to enlighten the UIC student body, and interest College of Pharmacy students.

The Lloyd Library archives records disclose that the lecture was a great success with the Phi chapter members and the audience. Dr. Horlander wrote to Dr. Tyler, "On behalf of the Phi chapter of Rho Chi, I would like to thank you once again for speaking at our 25th Annual Albert Ebert Memorial Lecture. Your presentation was very informative and practical. People are still approaching me with comments of how much they enjoyed it." In his characteristically gracious manner that was familiar to Dr. Tyler's ASP colleagues, he replied, "...I certainly appreciated the honor you and the other Rho Chi officers and members extended to me last Wednesday when I presented the Albert Ebert Memorial Lecture at the College of Pharmacy. The plaque you gave me is a beautiful one and will occupy a prominent place in my office."

Dr. Horlander graduated from the UIC College of Pharmacy and is a Consultant Pharmacist working with nursing home patients. She

stated, "I remember Dr. Tyler being a wonderful, cordial, and kind person. You could really tell that his heart was in the topic. I appreciated his stance that science must back-up herbal medicine, and I still think we have a long way to go. It is still such an unregulated field. We have made some headway, but not enough. When I read about the testing of herbals, the tests and the claims often do not match-up." Recently, Dr. Cindy Angerhofer respectfully reminisced about the lecture, "I remember the visit of Tip Tyler to UIC



Dr. Tyler with ASP member Dr. Cindy Angerhofer and UIC College of Pharmacy Dean

for the Rho Chi lecture as a very festive occasion. He had a close relationship with Norm Farnsworth and Harry Fong but had not visited the College for a long time. A gathering of those who had nucleated the ASP was a wonderful example for the students and a cause for celebration!"

Dr. Tyler's expertise in the field of herbal medicine made him the perfect choice for the Rho Chi Pharmacy Honor Society lecture. His legacy of influencing promising pharmaceutical researchers continues today. The 2013 recipient of

the ASP Tyler Prize, Dr. Joseph Betz, Director, Analytical Methods and Reference Materials Program at the National Institutes of Health Office of Dietary Supplements, eloquently expressed Dr. Tyler's impact on his career and on him personally. "From a career perspective the Tyler Prize is the pinnacle of my career. I have been with the government for 25 years now. I am humbled to receive the award, and had great admiration for Tip as a scientist and as a man. Personally, I met Tip when I was a very young post-Doc at the FDA. He was a critic of the FDA, and that is because he did not understand how the FDA works. I helped him acquire an understanding of how the FDA works, and that is how we became friends. It was his life-long goal to make sure phytomedicine had solid scientific underpinnings. He insisted on scientific investigation and evidence to back-up research claims, and he and I agreed on that."

The annual Albert Ebert Memorial Lecture, sponsored by the Phi chapter of Rho Chi, is held every year on the UIC campus and continues to inform students of pharmacy and the general student body about pertinent issues in the pharmaceutical field. ■

The photographs and documents are preserved at the Lloyd Library and Museum, in the archives of the Varro E. "Tip" Tyler Papers, "What You Should Know About Herbal Medicine." February 12, 1997, 25th Annual Albert Ebert Memorial Lecture, University of Illinois-Chicago, College of Pharmacy, Rho Chi Honor Society, Chicago, Illinois, Box 19, Folder 12.

Guido F. Pauli, Ph.D., Treasurer
The American Society of Pharmacognosy
3149 Dundee Road, #260,
Northbrook, Illinois 60062



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