



THE AMERICAN SOCIETY OF PHARMACOGNOSY

The ASP Newsletter Volume 49, Issue 1

ASP Annual Meeting 2013: Meet Us in St. Louis!

By Dr. Ray Cooper and Mr. Mark O'Neil-Johnson

The Annual Meeting of the American Society of Pharmacognosy "Natural Products at a Crossroad: Current and Future Directions," will take place in St. Louis, Missouri, from July 13 to July 18, 2013.

The organizers have a terrific meeting planned to be held in the heart of downtown St. Louis by the mighty Mississippi River at the Hyatt Regency St. Louis at the Arch. The Hyatt Regency is offering attractive rates of only \$135/room, but room space is limited at these prices. Please book early and remember that reservations are on a first come, first serve basis. The hotel and venue for the Annual Meeting is situated next to the famous St. Louis Gateway Arch and within walking distance of many downtown attractions and restaurants.

At the Hyatt, we have secured one entire floor allocated to the meeting with lecture halls and a large adjacent area for the posters and breakout gatherings. The registration website is now live, so be sure to act early to get the best discounted rates. This year, we have also made the registration costs very affordable to all, particularly for doctoral and post-doctoral students, and hopefully entire laboratories. The central location in St. Louis and affordable meeting venue should make this an outstanding opportunity for students and



postdoctoral investigators to attend.

St. Louis Lambert International Airport is the main airport. A host of major airlines offer daily service and excellent taxi service and the Metro link light-rail service running to the downtown area make the arrival transfer to the conference

venue very convenient.

For the conference, we have planned several exciting social activities. The traditional Saturday opening mixer will be at the Hyatt, followed on Monday by an "Evening at the Gardens" at the fabulous Missouri Botanical Gardens. On Tuesday afternoon we are planning a free afternoon, and our Young Investigator Event will be an Anheuser-Busch Brewery and Glass Blowing Tour. There are many other great attractions in St. Louis including the famous Arch (yes you can go to the top!), the St. Louis Zoo (free admission), and many local Museums (mostly free admissions). There is Mississippi river access and attractions, downtown Jazz clubs, microbreweries, and a wonderful vodka bar in the hip Central West End.

For the scientific program, we are reaching out to a broad and diverse natural products
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EDITOR'S CORNER



Spring has been arriving slowly here in New York this year. In April, morning temperatures are still not much above freezing, but somehow nature is marching forward, with the return of birds and the blooming of forsythia and other spring flowers. And so too, the *ASP Newsletter* spring edition must make its way to the membership.

In this edition of the *Newsletter*, we look forward to the summer months, and learn about the ASP Annual Meeting in **St. Louis, Missouri, from July 13-18**. Organizers Dr. Ray Cooper and Mr. Mark O'Neil-Johnson provide an extensive update about all of the activities that have been planned for this conference.

Several deadlines are coming up fast, including the one for abstract submission, ending May 11. Please plan to register and submit abstracts accordingly. The organizers have also announced NMR, botanicals, and microbiology workshops that will take place on Saturday, July 13, prior to the conference. The NMR and microbiology workshops, offered last year, were very popular with younger investigators in particular. Find out more about all of the scientific and social activities at www.asp2013.org.

This spring also brought sad news of the passing of several ASP members, including Mr. Paul J. Klausmeyer, who worked at the National Institutes of Health's National Cancer Institute in Bethesda, Maryland, and Dr. Andrew Marston at the University of Lausanne, Lausanne, Switzerland. In this issue, ASP member Mr. Tom McCloud has written a comprehensive and moving tribute to Paul's contributions to science and humanity. Tom also writes about one of Paul's last scientific articles in our regular column "Behind the Scenes in Pharmacognosy." In the summer issue, we will run Dr. Kurt Hostettmann's tribute to his colleague, Dr. Marston. I am reminded of how inspiring and fragile life can be.

In our second lead article, we continue to celebrate the life of Dr. Norman Farnsworth, a founding member of the ASP, who passed away in 2011. A long-time professor at the University of Illinois (UIC) College of Pharmacy, that institution has now established the Norman R. Farnsworth Annual Lecture. The inaugural lecture was presented in March by Dr. Paul Coates of the NIH Office of Dietary Supplements. ASP Associate Member and UIC doctoral student in pharmacognosy, Ms. Skylar Carlson, did a terrific job with her first *Newsletter* assignment, covering this event!

ASP President Dr. David Newman kicks off a new series in the *Newsletter* known as "Hot Topics in Pharmacognosy." Several years ago at the ASP Annual Meeting in San Diego, California, I broached the subject of having a member provide short commentaries on articles he or she encountered as part of typical literature reading that may be of general interest to members. Perhaps it was the beauty of San Diego harbor that inspired President Newman to volunteer for this job. I am delighted to have him contributing to the *Newsletter* in this fashion.

Our other regular columnists include Dr. Georgia Perdue's "Brief News from Washington" including coverage of a talk by ASP member, Dr. David Kingston, at NIH National Center of Complementary and Alternative Medicine. ASP associate member, Mr. Dan Kulakowski, continues for his second installment of "Meet a New ASP Member," and learned about a fascinating new member interested in pharmacognosy, as well as Faulkner. The ASP Fellows Series continues with another installment from Dr. Bill Gerwick.

I hope everyone has a wonderful and productive spring, no matter what temperature it may be in your area. I hope to see many members at the Annual Meeting in St. Louis.

Dr. Edward J. Kennelly

EMPLOYMENT SERVICE

The Society offers a placement service to aid our members in seeking positions or employees. This service is available only to ASP members and is free to both the applicant and the employer.

For more information see the services website.

www.pharmacognosy.us/?page_id=163

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ASP Annual Meeting 2013: Meet Us in St. Louis!

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community involved in industry, academia and education. We hope to attract new “voices” to our meeting. Our theme, “Natural Products at a Crossroad: Current and Future Directions,” embraces the fact that natural products science touches on many disciplines. The conference will kick off with three workshops on Saturday which focus on nuclear magnetic resonance (NMR), botanicals, and microbiology.

The scientific program includes advanced analytical technologies emphasizing their importance to the long term success of natural products and the traditional topics of natural products in drug discovery, marine and microbial natural products, botanicals, and ethnobotany. This meeting’s plenary lectures will highlight remarkable successes involved in natural product synthesis, recently commercialized drugs inspired from natural products, and a one-of-a-kind perspective of the evolution of NMR over the last 50 years. Several noteworthy sessions include new anticancer therapeutics derived from natural products and natural products enhancing the experience of pet foods.

Covered scientific foci include Natural Products: Drug Research and Current Drugs on the Market, Application of Natural Products for Pet Foods, Chemistry, Biology, and Ecology of Marine Natural Products, Botanicals: The Road to the Clinic, Natural Products as Anti-Cancer Agents, Ethnobotany and Botanical Discovery, Spectroscopic Technique in Natural Products Chemistry, Frontiers of Discovery Through Spectroscopy, Botanicals and Foods, and New Innovations in Agrochemical/Biotechnology.

Please consult the web page starting January 1, 2013, for registration and hotel information (www.asp2013.org). If you have any questions please do not hesitate to contact us. On behalf of the Scientific Organizing Committee, we are delighted to have the opportunity to create a wonderful ASP program and we do hope you will “Meet Me in St. Louis.” ■

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Dr. Amy Wright – Harbor Branch Oceanographic Institute
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Dr. Ed Kennelly – City University of New York

Top Read JNP Papers for 2012

By Dr. Amy Keller

The *Journal of Natural Products (JNP)* recently announced their most read publications from January to December of 2012. The *Newsletter* wishes to congratulate all the authors on their contributions to the pharmacognosy literature.

David J. Newman, Gordon M. Cragg. *Natural Products As Sources of New Drugs over the 30 Years from 1981 to 2010*. doi:10.1021/np200906s.

David J. Newman, Gordon M. Cragg. *Natural Products as Sources of New Drugs over the Last 25 Years*. doi:10.1021/np068054v.

Giovanni Appendino, Simon Gibbons, Anna Giana, Alberto Pagani, Gianpaolo Grassi, Michael Stavri, Eileen Smith, M. Mukhlesur Rahman.

Antibacterial Cannabinoids from Cannabis sativa: A Structure-Activity Study. doi:10.1021/np8002673.

Geoffrey A. Cordell, Michael D. Colvard. *Natural Products and Traditional Medicine: Turning on a Paradigm*. doi:10.1021/np200803m.

David Camp, Rohan A. Davis, Marc Campitelli, James Ebdon, Ronald J. Quinn. *Drug-like Properties: Guiding Principles for the Design of Natural Product Libraries*. doi:10.1021/np200687v.

Charles L. Cantrell, Franck E. Dayan, Stephen O. Duke. *Natural Products As Sources for New Pesticides*. doi:10.1021/np300024u.

David J. Newman, Gordon M. Cragg, Kenneth M. Snader. *Natural Products as Sources of New Drugs over the Period 1981-2002*. doi:10.1021/np030096l.

Pier-Giorgio Pietta. *Flavonoids as Antioxidants*. doi:10.1021/np9904509.

Xiaoru Wang, Jianlan You, Jarrod B. King, Douglas R. Powell, Robert H. Cichewicz. *Waikialoid A Suppresses Hyphal Morphogenesis and Inhibits Biofilm Development in Pathogenic Candida albicans*. doi:10.1021/np2009994.

Guido F. Pauli, Tanja Gödecke, Birgit U. Jaki, David C. Lankin. *Quantitative¹H NMR. Development and Potential of an Analytical Method: An Update*. doi:10.1021/np200993k.

Coates Delivers Inaugural Farnsworth Lecture at UIC

By Skylar Carlson

The Inaugural Norman R. Farnsworth Annual Lecture “Dietary Supplement Research – How Hard Can It Be?” was presented by Dr. Paul Coates, Director of National Institutes of Health (NIH) Office of Dietary Supplements (ODS) at the College of Pharmacy, University of Illinois at Chicago (UIC), Illinois, Friday, March 22, 2013, with over 100 people in attendance. This lectureship featured internationally recognized pharmacognosy researchers, and was established to preserve Dr. Farnsworth’s academic legacy as an educator, innovator, and pioneering researcher.

The UIC College of Pharmacy Dean, Dr. Jerry Bauman, commented that the college’s continued ranking in the top five pharmacy schools is directly linked to Professor Farnsworth’s ability to recruit scientists with very diverse backgrounds. One such example is Dr. Chun-Tao Che, who introduced Dr. Coates, highlighting his involvement in diabetes initiatives and research during his academic and government career.

Dr. Coates explained that from the conception of the ODS, there has been a disparate gap in government funding for dietary supplement research versus spending by American consumers. With roughly half of all Americans consuming dietary supplements, less than one percent of the dollars spent by consumers equates government spending on dietary supplement research. Although the trend in spending on dietary supplements has increased in recent years, Dr. Coates suggested this is due to the increased cost of dietary supplements and their prevalence, not the increased of overall usage. The ODS research efforts with soy protein and isoflavones were presented as a case study. Challenges include characterizing botanicals and developing methods to standardize endpoints via the study of pharmacokinetics.

He then highlighted the design of the ODS Botanical Research Centers with an emphasis on the approaching recompetition in 2014 and invited participation in the ODS’s strategic planning for 2015-2019. Dr. Coates also introduced the efforts of the ODS to



The late Professor Norman Farnsworth and his wife, Priscilla, at his 80th birthday celebration.

establish analytical methods and reference materials, in collaboration with National Institute of Standards and Technology (NIST), to aid in the validation of methods to analyze and standardize dietary supplements.

The Inaugural Norman R. Farnsworth Annual Lecture was well attended by graduate students, ASP members, emeriti professors Dr. Harry Fong, Dr. John Fitzloff, and family including Mrs. Priscilla Farnsworth, brother Mr. Bruce Farnsworth, as well as family friends. Dr. Jim McAlpine and Dr. Guido Pauli, in addition to UIC Botanical Center faculty Dr. Judy Bolton, Dr. Elizabeth Krause, and Dr. Richard van Breemen, were among the UIC Department of Medicinal Chemistry and Pharmacognosy faculty in attendance.

The audience was curious as to the effects of political pressure and the current overall funding situation on the office. Dr. Coates addressed these issues gracefully, explaining that the office has always done what it said it was going to do and has largely stayed clear of ill repute and negative political pressure. He replied that the expense of funding projects has roughly matched the increase in available resources and there probably will not be a surplus of new awards with this increase.

According to Dr. Coates’ recollection, Dr. Farnsworth had the foresight to notice that

pharmacognosy had seen its glory days come and go. However, Dr. Coates and Dr. Steve Straus (the only two directors of the ODS) had come to save the day, insuring that the scientific method would be applied to botanical supplement research.

Many of those involved in the Lectureship had distinct memories of Professor Farnsworth’s influence at UIC. Dr. Bauman reminisced that Professor Farnsworth would always set quite the scene for his lectures in pharmacognosy. The classroom would be dark with only the sounds of tribal drums over the loud speaker. As class began, a Tarzan-type yell could be heard from the back of the room as Norm would charge in wearing shorts and a pith helmet while wielding a blow gun and rope. He would regale the students with tales of collecting samples of rare and diverse plants in the jungle. While pharmacognosy is no longer a required course in many modern pharmacy curricula, the PhD program by the same name is standing strong thanks to the impact of his enduring legacy.

Dr. Coates’ closing words, however, were perhaps the most poignant for everyone in the room gathered to celebrate Dr. Farnsworth’s memory, saying that Norm was a good friend and someone we all miss dearly. ■

The ASP Matt Suffness Award: A Continued History

Editor's Note: This issue of the Newsletter, we bring you the second installment of our ongoing series on winners of the ASP Matthew Suffness Award. 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, induce members to nominate deserving individuals for the award in the years to come. Our series continues with a focus on past winners Dr. Roberto G.S. Berlinck (Instituto de Química de São Carlos, Universidade de São Paulo, São Paulo, Brazil), and Dr. Andrea Stierle (Department of Biomedical and Pharmacological Sciences, University of Montana, Missoula, Montana).

By Drs. John Cardellina and Amy Keller

Dr. Berlinck: The Matt Suffness Award impacted my career by providing opportunities to collaborate with colleagues nationally and internationally, including Drs. Raymond J. Andersen (University of British Columbia, Vancouver, British Columbia, Canada) and Chris M. Ireland (University of Utah, Salt Lake City, Utah). In Brazil, I also developed invaluable partnerships with biologists studying the bioactivity of natural products.

Drs. Andersen and Ireland invited me to collaborate with them in their National Cooperative Natural Products Drug Discovery Group (NCDDG). This was a unique opportunity to interact with experienced researchers from both academia and industry exploring marine biodiversity and identifying bioactive compounds.

Additionally, over the years I have collaborated with outstanding Brazilian scientists to investigate natural products for the treatment of tuberculosis, pathogenic bacteria and fungi growth, cancer, Leishmaniasis, Chagas disease, inflammation, immunomodulation, viruses, and enzymatic inhibition. The biological investigation of natural products adds a significant value in biodiscovery research programs. This approach is now integrated in my research group and attracted the interest of many students in doing bioassay-guided isolation of marine natural products. The success of our research is largely due to my collaboration with several groups of biologists, to whom I am very much indebted. I am also extremely grateful to the ASP for accepting my Matt Suffness Award nomination.



Andrea Stierle

Dr. Stierle: I was overwhelmed and honored to have received one of the first Matt Suffness Young Investigator Awards in July of 1994. I was a Research Assistant Professor at both Montana State University, Bozeman, and Montana Tech, Butte, Montana, in the early 1990s when I tried to find a fungal source of Taxol™ (paclitaxel), a compound with great promise in the fight against both refractory breast and ovarian cancers.

Taxol is a secondary metabolite of the Northwest Pacific yew, a tree that had been logged to the point of endangerment in the late 1980s. With collaborators Drs. Don Stierle and Gary Strobel, I looked for a fungal endosymbiont

that could produce the compound in culture, greatly decreasing both the cost of the drug and our reliance on a limited resource. We were successful, although the discovery was controversial. Dr. Suffness was thrilled by our discovery and called to congratulate me personally, a conversation I will never forget.

He died the year after I received the award of complications from cancer. His generosity towards young investigators and his passion for the development of a drug that could help millions of cancer patients has helped to model my own scientific career in Montana. I have been excited to see that our early work has also inspired other scientists to search for fungal sources of other compounds of interest, including camptothecin, vincristine, and podophyllotoxin, as well as other sources of paclitaxel. ■

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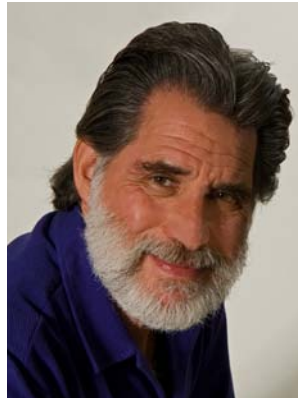
—Andrea Stierle

ABC Founder Blumenthal to Receive Top Industry Award

By Dr. Amy Keller

The Natural Products Association (NPA) announced that ASP member and American Botanical Council's (ABC) founder and Executive Director, Mr. Mark Blumenthal, will be a 2013 recipient of the NPA Industry Champion Award. Mr. Blumenthal will be publicly recognized at the Annual Business Meeting of NPA, held at the Natural Products Expo East, September 25-28, 2013, in Baltimore, Maryland.

According to the NPA, the award is designed to "recognize individuals who have made notable contributions to the natural products industry above and beyond commercial success." Mr. Blumenthal told the *Newsletter*, "I am deeply grateful to the members of the Natural Products Association for choosing me for this award this year. On behalf of all the staff — past and present — of the ABC, and its Board of Trustees, I accept this award that recognizes the unique and important role that ABC has played for the past



Mr. Mark Blumenthal

MS. JONI MCLAIN.

25 years in helping to awaken people's consciousness to the vast array of benefits of numerous medicinal plants and their preparations in modern self care and healthcare."

The NPA serves to advocate for science and informed legislation in the natural products and dietary supplements industries. The NPA "strives to achieve a broader, more accessible marketplace for natural products that will improve the quality of life for consumers worldwide."

Mr. Blumenthal continued, "Even though this award is titled the 'NPA Industry Champion Award,' I believe that ABC and I have worked for the benefit of the entire natural products and natural health 'community,' not just the industry per se.

That is, we see the industry as a subset of a much larger group of stakeholders in natural, plant-based health; this includes consumers, researchers, health professionals, educators, journalists, regulators, and many others." ■

Hot Topics in Pharmacognosy: Old Pharmacognosy, Modern Methods!

By Dr. David Newman

A very interesting paper was recently published in the *Proceedings of the National Academy, USA* (doi/10.1073/pnas.1216776110), by an archeology group from Tuscany led by Dr. Gianna Giachi. In 1974, a shipwreck dating from roughly 150 BC was discovered off the coast of Tuscany, close to what was the Etruscan city port of Populonia (modern day Piobino). Part of the cargo of this small vessel were a series of tin "pyxis," small containers that were thought to be part of what would then have been a physician's "traveling kit," or in another parlance, a doctor's "black bag."

The materials were not further investigated until recently when an X-ray of one of the tin *pyxides* showed the presence of five discoid "tablets" inside the *pyxis*. These were approximately 4 cm in diameter and averaged 1 cm in height.

In order not to further damage the artifacts, fragments from one of the broken tablets were subjected to a series of modern analytical techniques including light and scanning electron microscopy, SEM combined with energy-dispersive X-ray spectroscopy (SEM-EDX), FTIR, X-ray powder diffraction, GC/MS and botanical inspection of some plant remains. By using these techniques, the main element present was zinc as minerals (hydrozincite and

smithsonite) and then lower levels of iron (hematite) and silicon. The inorganic components appeared to be greater than 80% by weight of the tablet. The organic components (and bear in mind this was more than 2,000 years after the wreck) were starch probably from *Triticum* spp., and because of the large (relative to the rest) and varied amount of different pollen grains found, beeswax may well have been a component of the tablet.

So what might have been the use of these tablets from a pharmacognosy aspect? The standard texts at that time from Pliny the Elder and Dioscorides give details of the use of zinc oxide obtained from the smelting of copper from ores that also contained zinc (the by-product was known as *cadmia*) as treatments for ophthalmic and dermatological diseases, so it is very tempting to think that this physician specialized in treating one or both of these disease states. Or could it be an example of "polypharmacology", a methodology commonly ascribed to Traditional Chinese Medicine or other medicinal systems in the Middle and Far East?

To mix metaphors, this initial analysis is on the "tip of the iceberg," and it will be very interesting to follow the further "analytical adventures" with this shipwreck and the physician's "little black bag." ■

Behind the Scenes in Pharmacognosy: The Klausmeyer Legacy

Editor's note: Our "Behind the Scenes" column regularly features the work of our Society's diverse members. Sadly, ASP member Mr. Paul Klausmeyer passed away this January (a memoriam to him may be found in this issue). Mr. Klausmeyer worked as a natural products chemist in the lab of Mr. McCloud at the National Institutes of Health (NIH) National Cancer Institute (NCI) in Frederick, Maryland, for 13 years carrying out analysis, isolation, purification, and identification of bioactive natural products as a part of the Developmental Therapeutics Program (DTP) anticancer drug discovery program. In this issue's column, Mr. McCloud describes the work Mr. Klausmeyer did leading to a recent Journal of Natural Products (JNP) publication. Please read the full article entitled, "Histone Deacetylase Inhibitors from *Burkholderia thailandensis*," in *J Nat Prod.* 2011, 74, 2007-2011. (doi.org/10.1021/np200532d.)

By Mr. Tom McCloud and Dr. Amy Keller

How did you and your lab become interested in working with natural compounds that inhibit histone deacetylases (HDAC)?

The hypoxia inducible factor (HIF)-1 α signaling pathway is considered a promising target for anticancer chemotherapeutic intervention, so a robust, high-throughput in vitro screen (HTS) for the detection of HIF-1 α inhibitors was developed by the Screening Technologies Branch, NCI-Frederick. Utilizing a U251-HRE human glioma tumor cell line containing a luciferase reporter, and run under hypoxic conditions, greater than 60,000 extracts from the NCI Natural Products Repository in Frederick were assayed. The data indicated both HIF inhibiting and elevating activities existed in these crude extracts. The first priority was dereplication of these crude extracts giving inhibition of HIF-1 α activity, which was a major assignment for Mr. Klausmeyer, who isolated and identified several small molecules of varying chemotypes that elicited a decrease of HIF-1 α activity. We have previously published on some of these, listed below.

Initially puzzling at the time was a small subset of extracts which, rather than inhibiting HIF-1 α , produced a 500% induction of expression as determined from the luciferase reporter. In order to more fully understand the performance of the screen, several of these HIF-high extracts were examined. One of these extracts was found to contain the known class 1 HDAC inhibitor FK-228, already under development as an anticancer drug (NOTE: has now been approved for clinical use as Istodax, Cel-



Mr. Klausmeyer receiving an award certificate for one of the winning posters at the 2008 NCI-Frederick Spring Research Festival by Dr. Howard Young, Head of the Cellular and Molecular Immunology Section, NCI-Frederick, August 6, 2008. The poster entitled, "HIF-1 α Active Components of the Unstudied Plant, *Crossosoma bigelovii*," by Paul Klausmeyer, et.al., was later presented at the 4th Interim ASP Meeting, Oxford, Mississippi, in 2008. This was later published in full form (see publication list).

MR. JON SUMMERS.

gene Corp.). Since there are several families of HDACs, and interest in exploiting them as targets for new anticancer drugs, I felt it was worthwhile to search for a series of compounds with HDAC activity but different specificity from FK-228. Paul's manuscript on *Burkholderia* derived from that exploration.

Paul was an accomplished isolation chemist. The techniques he developed permitted 'high throughput dereplication' to be done in my lab, the Natural Products Support Group at NCI-Frederick. Being able to perform high throughput dereplication in a lab working in support of a high throughput screening operation is extremely important, as the number of 'hits' can quickly become unmanageable. The techniques for examining crude extracts including HPLC/multidetector analysis, creating a 96-well fraction plate and subsequently a 284-well retest plate, in four dilutions for testing, produced data which allowed for prioritization of biologically active extracts. Paul was given a list of crude extract hits from several different screens, and every couple of weeks we would go over the results of his dereplication studies, both chemical and biological data, and decide which 'hits' were worth spending more time on, and which were to be dropped. Both Paul and I were early risers. When I arrived at 7am, the coffee-

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Behind the Scenes in Pharmacognosy: The Klausmeyer Legacy

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pot was already going and Paul was at work in the lab. He knew what had to be done, and went about it with very little additional guidance from me.

Could you provide a brief explanation of the work and results in your own words? In what way are the data in your paper new?

In the paper being featured, the compounds produced by *Burkholderia* have biological activity as HDAC inhibitors, and one is a new structure only slightly different from known structures, but unfortunately is another class 1 inhibitor with about the same specificity toward HDACs as FK-228, so it is not likely worthy of development as a new anticancer drug. The length of time from elucidation of structure to submission of manuscript exceeded 3 years, mostly due to the time spent in the NIH legal system in determining whether they wanted to file a patent. Getting this information into the scientific literature we hope will enable a fuller understanding of HDAC-interacting compounds and lead to more potent and more specific anticancer chemotherapeutics.

What impact does this research have on natural product science and health research in general?

This present publication, as with many others in the *JNP*, continue to demonstrate the wealth of yet-to-be-discovered biologically active molecules with drug potential to be found in plants, marine organisms, and microbes. The crude extracts are available in the DTP Natural Products Repository. It is only a matter of development of new screens for new targets, followed by testing, isolation, and structure elucidation, to find previously unknown compounds.

More for interested readers:

Klausmeyer P, McCloud TG, Uranchimeg B, Melillo G, Scudiero DA, Cardellina II JH, Shoemaker RH. Separation and SAR Study of HIF-1 α Inhibitory Tubulosines from *Alangium cf. longiflorum*. *Planta Med.* **2008**, 74:258-263.

Klausmeyer P, Zhou Q, Scudiero DA, Uranchimeg B, Melillo G, Cardellina II JH, Shoemaker RH, Chang CJ, McCloud TG. Cytotoxic and HIF-1 α Inhibitory Compounds from *Crossosoma bigelovii*. *J Nat Prod.* **2009**, 72:805-812.



Fishing at the summer picnic which was held at Paul's farm this past summer, July 12, 2012. (There is a pond on the property). From left to right: Mr. Jerell Thompson, Mr. James Whitt and standing with the fish, Mr. Klausmeyer.

MR. TOM MCCLLOUD.

ASP Fellows Series: Optimism for the Natural Products Sciences?



When considering a glass of ASP member Dr. Phil Crew's Pelican Ranch 2010 Pinot Noir, is it half full or half empty?

DR. BILL GERWICK

By Dr. Bill Gerwick

Here in late February 2013, we are facing numerous challenges throughout our society; a looming fiscal breakdown in the United States, decreasing funds in the public and private sectors to support scientific research, population growth unchecked, and for some mysterious reason, not even a source of concern or serious discussion, water and food shortages, political discord and wars, climate change and ocean acidification, and the list continues.... It is enough to bring out the pessimist in any of us!

Or is it, or should it? I say decidedly 'no'; rather, we are at the edge of a great era wherein the significant challenges before us provide all the more opportunities for impactful and innovative contributions to society. In fact, I believe this is a really exciting time for the natural product sciences, as we have many significant prob-

lems to address and amazingly powerful new tools with which to embark on these journeys.

Optimism versus pessimism are tough terms to define with precision, and there is much overlap with other concepts such as idealism, pragmatism, and fatalism that further increase the rather muddled discussion on this topic. From my perspective, I favor a realist view to optimism. Work hard, work smart, and expect success; if you suffer a setback, learn from it. Engage your passions, as it taps into your creative self. I have given this advice to many students over the years – hey, you are smart, creative, hard-working – you WILL be successful! The key, given this construct, is to BE PERSISTENT. In my experience, an effort that spurts forward only to encounter a setback and then languish is not nearly as successful as one that pushes forward with tenacity and per-

sistence, learning from the problems encountered, and sometimes adjusting the direction of the pursuit as prudent to the lessons learned.

So, what is there about the natural product sciences to be so optimistic about? First and foremost, it is absolutely clear that an intelligent and thoughtful use of natural product lead molecules as part of a drug discovery program is the most effective and productive path forward. From the insightful chronicling of the role of natural products in the medicines we have today by ASP members Drs. Newman (currently the ASP President) and Cragg [1] to the scholarly analysis by Drs. Swinney and Anthony of the role natural products play in developing first-in-class medicines [2] and the rational analysis of the physical properties of drug molecules compared to natural products by Drs. Feher and Schmidt

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[3], it is clear that natural products will continue to play a key role in the development of new medicines. Not only will these treat existing diseases more effectively, but also the growing number of newly emergent diseases, and natural product solutions will ultimately be more cost effective and affordable for treating human populations than other classes of drugs.

Some point to the departure by large pharmaceutical companies from in house, identifiable natural products programs as evidence of a lack of interest in natural products as drug leads. However, others have noted that a natural product or natural product-inspired molecule taken through to advanced pre-clinical or early stage clinical becomes of high interest for licensure by large pharma. It has been further suggested that large pharma prefers to outsource the risk of natural products to those in academia or small biotech companies, investing in such molecules only after a substantial fraction of the risk has been removed. As such, there are numerous new opportunities for university laboratories and start-up companies to engage in early stage drug discovery.

The current era in natural products is a time of unparalleled access to powerful new technologies, from the analytical (e.g. NMR, MS) to the biological (e.g. high content and phenotypic screening) to the genetic (ever increasing gene sequencing capacity, bioinformatics). To name a few, uses of these tools to examine natural

products and their consequences at deeper levels represent exciting frontiers, such as how ecologically relevant molecules work at the molecular level (molecular ecology?), determination of the relative roles of associated organisms (e.g. sponges) to regulate and produce natural products, and heterologous expression of natural product pathways from environmental DNA or that of species difficult to culture or genetically transform.

Other challenges before society also represent opportunities for the natural products sciences, including land use, climate change, and ocean acidification. How will these changes to our environment alter the distribution of species? How will temperature and acidity alter gene transcription of natural product pathways, thereby altering the adaptive fitness of species? And how do released chemicals influence the behavior of co-habiting species? Indeed, there are many fascinating questions yet to explore in the world of natural products!

However, back to the quality of optimism – there is another dimension that one finds in the literature on this topic. It has to do with our personal health and well-being. Being appropriately optimistic is strongly believed to promote good health and success in professional endeavors. Approaching challenges and opportunities with an expectation of success improves performance and hence the likelihood of success. Being “appropriately optimistic” in this context means to take into account

that everyone is going to experience setbacks in their life; hence, the fitting response is to analyze why there was failure, to learn from this, and adjust one's approach accordingly. Of course, taking optimism to the extreme of being “overly optimistic” is not desired as it leads to unrealistic expectations for success and unwarranted risky behaviors. On this latter point, while ‘taking risk’ in scientific exploration is an absolute necessity, there are limits that can only be defined contextually and by applying the rule of appropriateness.

In summary, for the health of our discipline as well as ourselves, to inspire and take appropriate risks in our scientific studies, and to tap into our most creative selves, yes, I believe we are entitled to considerable optimism in the natural product sciences! ■

1. David J. Newman and Gordon M. Cragg, “Natural Products As Sources of New Drugs over the 30 Years from 1981 to 2010,” *J Nat Prod.* 2012, 75, 311–335.
2. David C. Swinney and Jason Anthony, “How were new medicines discovered?” *Nat Rev Drug Discov.* 2011, 10, 507-519.
3. Miklos Feher and Jonathan M. Schmidt, “Property Distributions: Differences between Drugs, Natural Products, and Molecules from Combinatorial Chemistry,” *J. Chem Inf Comput Sci.* 2003, 43, 218-227.

So, what is there about the natural product sciences to be so optimistic about? First and foremost, it is absolutely clear that an intelligent and thoughtful use of natural product lead molecules as part of a drug discovery program is the most effective and productive path forward.

Pharmacognosy Field Notes: Adventures of an Organic Chemist at Sea



Dr. Stout with barrel sponge, *Xestospongia muta*

By Dr. Tadeusz ('Ted') Molinski

In my laboratory at the University of California, San Diego (UCSD), we conduct investigations of natural products from marine invertebrates; mainly sponges (Porifera), tunicates (Urochordata), and sometimes mollusks and cyanobacteria. I am often asked, "So, do you collect your own organisms?" to which I reply, "Well, you can't order them up from Sigma-Aldrich!" Our diving expeditions are group trips accompanied by graduate students or postdocs who are trained not only in chemistry, but certified in scuba diving. UCSD maintains strict standards of safety to which all divers must adhere, including regular medical examinations, CPR retraining, first aid certification, and maintenance of gear and diving logs. Most of our research is conducted

in a traditional organic chemistry laboratory, but I sometimes like to say the ocean is our "other lab."

Here is a brief sea-log of a recent visit to the other lab.

In July of 2011, postdoctoral fellow Dr. Paige Stout and I embarked on an expedition to the Caribbean Sea by boarding a plane in San Diego at 7:00 am and flying all day to join the rest of the scientific party on the RV Walton Smith, a research ship berthed at the Rosenthal School of Marine and Atmospheric Sciences in Miami, Florida. The annual expedition is organized by Professor Joe Pawlik, University of North Carolina, Wilmington, North Carolina, and funded by the National Science Foundation. Up to 20 scientists from all over the world with a common interest in marine biology, particularly sponges, participate each year. Diving expeditions can be exhilarating experiences, but our 'adventure' started early.

On our first flight that day, as the plane descended for landing in Dallas, the cabin filled with smoke. An emergency was declared and upon touch-down, we and the other passengers were evacuated on the runway about a kilometer short of the terminal while fire crew and vehicles attended the hobbled jet (the story made it to national broadcast news). Amazingly, we managed to connect with our ongoing flight to Miami and the trip was back on track. The next morning, the ship carrying us along with about



Stylixa caribica



Xestospongia muta

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**I am often asked, "So, do you collect your own organisms?"
to which I reply, "Well, you can't order them up from Sigma-Aldrich!"**

Pharmacognosy Field Notes: Adventures of an Organic Chemist at Sea

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Dr. Pawlik (back row, second from left, Dr. Molinski fourth from left and Dr. Stout front row, third from left on buoy in Man of War Bay, Grand Inagua, Bahamas), and Dr. Molinski preparing CFP in ship-board laboratory.

15 scientists, plus crew, set out for the first leg of the journey; the extensive Sweetings Cay which was the first of our anchor locations. For the next two weeks we cruised a wide arc of approximately 1,200 km through the Bahamas, accruing samples along with deeply-rewarding personal stories of adventure. As the saying goes, one can dine on them for a lifetime.

Preparations for an expedition are detailed and exacting. Because the ship often travels weeks without visiting civilization, everything you will need – down to the last pipet – must be arranged to be on board before departure. One overlooked item of scientific equipment can mean the end of a planned experimental objective, although it is always surprising how it can give rise to MacGyver¹-moments of inspired improvisation. Once, on an earlier trip, we found the temperature-sensitive reductase-enzyme we brought for nitrate assays that use the Griess reaction, had “died” in transit. Within a morning, a different reducing agent was re-purposed: zinc filings we scraped from plates of sacrificial metal – ordinarily, used to arrest corrosion on ship hulls – and found in the ship-board workshop.

Living aboard a ship for two weeks can be enlivening, but there

are also routines, drills, duties and, laboratory work, too. Typically, the day started about 7:00 am with breakfast prepared by our able cook, a gregarious and personable Cuban (who, incidentally, was a dead ringer for Hollywood movie star Adam Sandler!). By 8:00 am, the crew had already deployed the small boats in the water, and scientists were ‘gearing up’; slapping on wet suits, tanks and regulators, sun-block, checking gear, and verifying the composition of compressed gas in our scuba tanks (‘Nitrox’, or air enriched with oxygen, is used to lessen the chances of ‘The Bends’; safety first). The scientific teams motor out in the boats up to 10 km away over calm, turquoise seas and anchor in promising spots. Divers enter the impossibly transparent waters then photograph, sample, measure, and collect before returning to the ‘mother ship’.

For those who have never scuba dived, the experience is mind-expanding. It can be an exceptional rush – gliding effortlessly down vertical walls draped with colorful invertebrate life visited by equally vibrant tropical fish, or the occasional shark or manta ray. It can also be a deeply tranquil experience, observing and photographing, up close, strange and ornate marine animals and

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Pharmacognosy Field Notes: Adventures of an Organic Chemist at Sea



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algae and the intricate dynamics of their lives on a coral reef. Some dive locations are so astonishingly beautiful – carpets and shelves of living coral growing to the edge of a fathomless abyss – they impart breath-taking memories that last a lifetime.

Our first objective: find samples of the sponge *Stylissa caribica*, which we knew grows only in waters in excess of 25 meters, return to the lab, and extract them with dry-ice/acetone mixtures to make 'cell-free preparations' (CFPs). The CFPs would be used, both on board the ship and back in the lab at UCSD, in enzyme studies that would help map the biosynthesis of pyrrole-amino-imidazole (PAI) alkaloids associated with this species and related sponges.² The clock was ticking because the dry-ice needed for the CFP extraction – 10 kg brought on board the first day – would last only two days, at most. Eureka! The first day's collection scored samples of *S. caribica* and others that supplied our CFP production line – until the tissue homogenizer broke on the second day!

We would go back to the ocean for second – and sometimes third and fourth – dives during daylight hours interrupted only by lunch. Ship-board meals are hearty and food is plentiful, for diving, boat handling, hauling scuba gear and exposure to sun and sea-spray are calorie-burning activities that build grand appetites. Mealtimes also provide priceless venues for sharing with colleagues everything from scientific discourse, gear-talk, or digital camera images of that big hammerhead shark seen on the morning's wall dive. Occasionally some would indulge in a night dive; an exciting experience unto itself when all that is visible is in front of an underwater light, surrounded by 'unseen' creatures. The end of the day, after lab work is finished, may roll around midnight – and activities begin again at 7:00 am.

Each evening after dinner, while at anchor or sometimes while the ship was underway, two scientific PowerPoint seminars would be presented by students, professors and postdocs on

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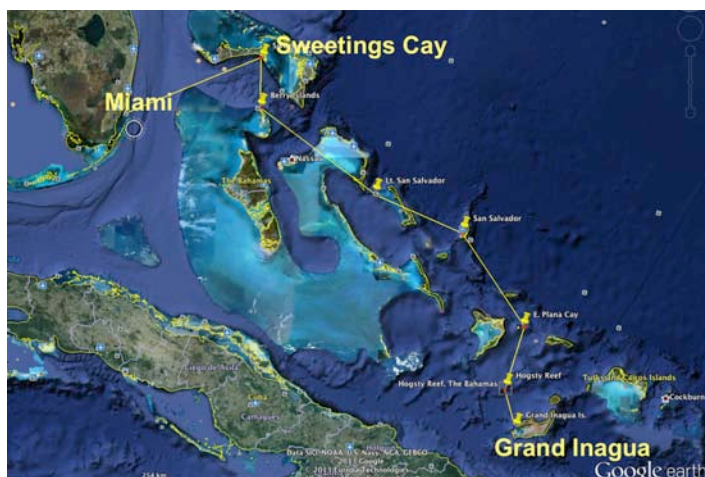


Clockwise: an encrusting sponge, a coral-boring sponge, *Aka coralliphaga*, and *Spirastrella hartmani*, another encrusting sponge.

Some dive locations are so astonishingly beautiful – carpets and shelves of living coral growing to the edge of a fathomless abyss – they impart breath-taking memories that last a lifetime.

Pharmacognosy Field Notes: Adventures of an Organic Chemist at Sea

Over the next 14 days, we would collect, photograph, archive and catalog over a hundred specimens, all securely frozen for transport back to our laboratory on dry-land at UCSD.



the topics of their own research; literally, to a captive audience. The lectures were made all the more fascinating by addressing the common interest of the scientists in the marine biology or chemistry of sponges, but diversified by sub-discipline. Subjects ranged from marine microbiology, ecology, and natural products chemistry to the hydrodynamics of sponges. Sponges are the most primitive multi-cellular animals on earth; however, we learned that some sponges live to be very ancient. Dr. Pawlik and coworkers showed, through field measurements and allometric models,³ that the larger living Caribbean “barrel sponges,” *Xestospongia muta*, are up to about 250 years old; one specimen was estimated to have lived over 2,000 years!³ My only regret: the timing of seminars overlapped with sunsets.

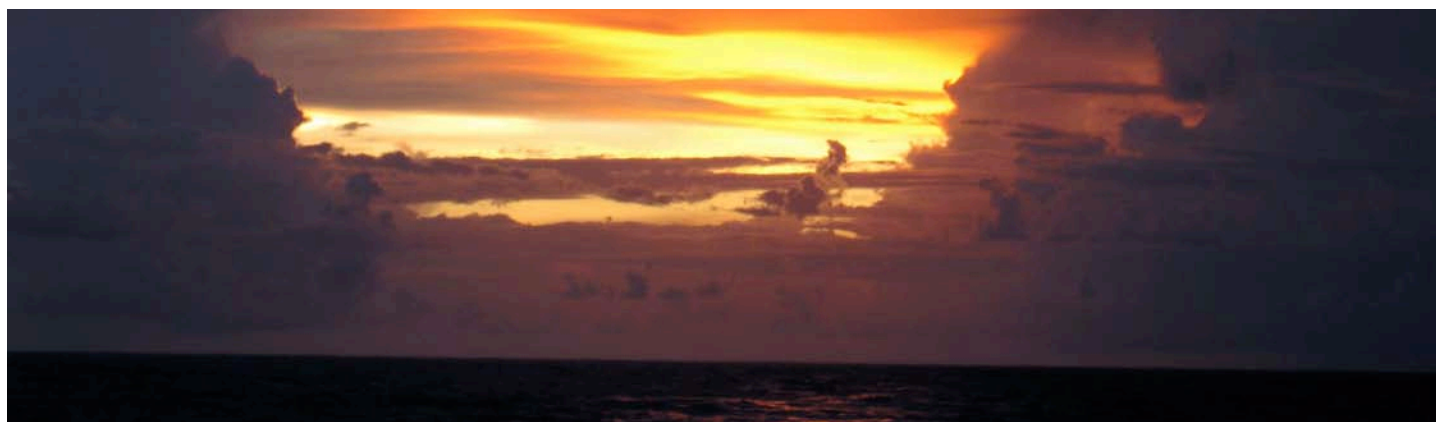
Over the next 14 days, we would collect, photograph, archive and catalog over a hundred specimens, all securely frozen for transport back to our laboratory on dry-land at UCSD. On our last day, at Grand Inagua in the southeast corner of the Bahamas, we bid farewells to our fellow scientists and the crew before fly-

ing back to San Diego via Nassau, Miami and Los Angeles, and arriving well after midnight. The newly collected samples would be the center of attention that would feed the lab's chemical investigations for the next year or more, inspire our next expedition to “the other lab,” and frame our research in marine natural products with memories of these eclectic adventures. ■

¹ “MacGyver”, TV series (1985-92) starring Richard Dean Anderson as the eponymous hero, who by “application of scientific knowledge and inventive use of common items,” fashioned formidable tools and weapons – under duress! – to extricate himself from tight spots. <http://en.wikipedia.org/wiki/MacGyver>

² (a) Stout, E. P.; Wang, Y-G.; Romo, D.; Molinski, T. F. *Angew. Chem. Intl. Ed.* **2012**, 51, 4877. (b) Stout, E. P.; Morinaka, B. I.; Wang, Y-G.; Romo, D.; Molinski, T. F. *J Nat Prod.* **2012**, 75, 527.

³ McMurray, S. E.; Blum, J. E.; Pawlik, J. R. *Mar Biol.* **2008**, 155, 159.



Clockwise: path of July 2011 expedition, Nitrox scuba tanks marked with O₂ content, sunset in the Bahamas.

Meet a New ASP Member

ASP is pleased to welcome many new members to the Society this year. One of our new members for the start of 2013 is Dr. Ian Acworth, Director, Thermo Fisher Scientific. We are pleased to become more acquainted with him and his fascinating research interests.

By Mr. Dan Kulakowski

How did you hear about the ASP?

I was looking for a relevant meeting to discuss my data on the measurement of botanicals and natural products using HPLC with either electrochemical array detection or charged aerosol detection. I came across information about the ASP Annual Meeting in San Diego in 2011 and decided to attend the conference and present my data. It was a great experience, a perfect meeting, excellent lecture topics, and very informed presenters.

Why did you join ASP?

For several reasons: to show my support, to be part of a society that reflects my interests, and to continue my education.

Do you belong to any other scientific societies?

I used to belong to many more societies than I do now, such as Society for Neuroscience, New York Academy of Sciences, Biochemistry Society UK, and The Oxygen Society (Free Radical Biology and Medicine). Due to budget constraints I have had to be more selective in my choices. Apart from ASP, I am now an active member of the Association of Official Analytical Chemists (AOAC) and the American Chemical Society (ACS).

What are your current research interests in pharmacognosy?

I have a number of interests. I have always been fascinated by biochemical pathways, especially those for secondary metabolites. I am keen to understand the role of orphan molecules, molecules whose biological significance are currently not fully understood, but are waiting to be discovered. I am interested in applying advanced analytical techniques that can address authentication, adulteration, and contamination of botanicals. Finally, as a neurochemist, I am very interested in the neuropharmacological properties of natural products.

What is your scientific background?

I have a BA, MA and PhD in biochemistry from the University of Oxford, Oxford,

United Kingdom. My doctoral research examined the link between how changes in peripheral metabolism can affect central neurotransmission leading to central fatigue. Based on my findings, I was invited to be a postdoctoral Fellow at the Department of Brain and Cognitive Sciences at Massachusetts Institute of Technology (MIT), Cambridge, Massachusetts. This allowed me to extend my research to look at the effects of endurance exercise in Boston marathoners in 1987. In order to directly study central neurotransmission, I evaluated and extended a technique called in vivo microdialysis that allows a sampling probe to be placed in living tissue. Samples can then be collected every few minutes and analyzed off-line for changes in analyte levels.

In order to measure the ultra low neurotransmitter levels (typically on the sub-picogram levels) I used a very sensitive and selective approach, HPLC with electrochemical detection. Using this technique, I could then evaluate the effects of exercise on central metabolism, but also to use this model to directly evaluate the effects of drugs on neurotransmission (e.g., was the drug a monoamine oxidase (MAO) inhibitor? An agonist? A re-uptake blocker? etc). I also used this approach to study whether analytes with purported central activity could actually pass through the blood-brain barrier. I was then hired in 1989 by the manufacturer of the electrochemical detector, ESA Inc., to head their applications and support group. Over the years my staff developed a great number of application chemistries for our customers including methods for flavonoids, phytoestrogens, catechins, and carotenoids in a wide variety of matrices including botanical extracts,



Dr. Acworth

MR. BRENT MORRISON.

plasma, and urine. ESA Inc. was acquired by Dionex and is now part of Thermo Fisher Scientific, Chelmsford, Massachusetts.

From 1989 through today, I am also an Adjunct Associate Professor of Pharmacology at The Massachusetts College of Pharmacy and Health Sciences in Boston, Massachusetts.

This allows me to continue my research interests. Interestingly, the famous pharmacognosist, Dr. Norman R. Farnsworth, was a graduate of this school.

What would you like to achieve through your membership?

Contact with colleagues having similar interests, and active participation in the Society.

What do you like doing in your spare time?

I like to garden (I specialize in hellebores, *Helleborus* spp., and daylilies, *Hemerocallis* spp.). I also collect mineral specimens from Cornwall and Devon Counties in South West England). This collection is made particularly challenging as I do not visit England often, many of the collecting sites are closed to the public, and there are no actively working mines, meaning specimens have to be acquired from old collections and museums.

What are you currently reading?

With an eleven year old daughter, I do not have much time to read. I listen to audiobooks when I drive and travel. I am currently listening to many of the classics I was forced to read at school and am enjoying them much more than in my childhood. The last work of fiction I listened to was William Faulkner's *The Sound and the Fury* (I was inspired to do so after attending last year's International Conference on The Science of Botanicals). For non-fiction I am listening to *Why Priests?* by Gary Wills.

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 10 domestic full members, 6 international members, and 12 associate members. We look forward to meeting you and learning more about you and your work.

ACTIVE MEMBERS

Dr. Ian N. Acworth
Chelmsford, Massachusetts

Dr. Pierre-Marie Allard
Moÿlan sur Mer, France

Dr. Elhadj Saidou Balde
Conakry, Guinea

Ms. Devhra L. BennettJones
Cincinnati, Ohio

Dr. Anupam Bishayee
Long Beach, California

Dr. Anthony W.G. Burgett
Norman, Oklahoma

Dr. Shengzin Cai
Norman, Oklahoma

Dr. Martin J. Campbell
Arkadelphia, Arkansas

Steven D. Foster
Eureka Springs, Arkansas

Dr. Svitlana Vasyivna Garna
Kharkiv, Ukraine

Dr. Justin Michael Juffman
Altoona, Pennsylvania

Dr. Chunlin Long
Beijing, China

Dr. James I. Olowjoba
Lagos, Nigeria

Dr. Katherine S. Ryan
Vancouver, British Columbia,
Canada

Dr. Bin Wang
Norman, Oklahoma

Dr. Kimberly N. White
Grand Junction, Colorado

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Chicago, Illinois

Joe Eckart
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Mr. Adam Shreve
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Mr. John Robert Spurgeon
Pana, Illinois

Ms. Christine M. Theodore
Norman, Oklahoma

Mr. Cletus A. Ukwubile
Zaria, Nigeria

Yang Yang
Stevens Point, Wisconsin



ASP Member Pens Novel

By Dr. Amy Keller

ASP member Dr. Ryan Case has done something unique with his pharmacognosy experience. He has written a fiction thriller novel entitled *MASALAI*, released January 21, 2013. The novel details the Indian Jones-like adventure of anthropology student Kylie Harrison and skeptical pharmacognosist Mark Brighton as they track down dangerous mythologies detailed in a mysterious journal left from World War II soldiers.

Dr. Case told the *Newsletter* that the inspiration for the novel sprung from his own fieldwork with local medicinal plants in Papua New Guinea (PNG) during his graduate studies in ASP member Dr. Guido Pauli's laboratory. "I added some bad guys, laid out a plot of twists and turns, and sewed my PNG adventures into the novel," Dr. Case said of his ideas.

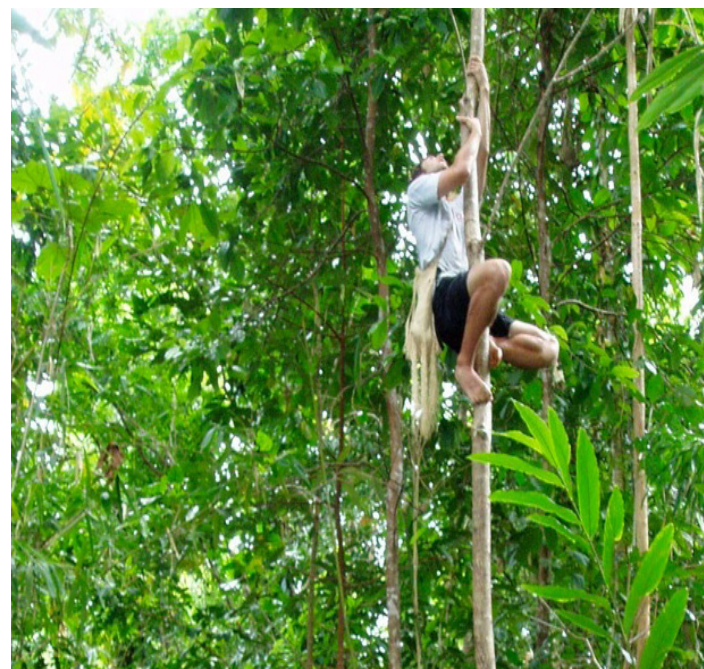
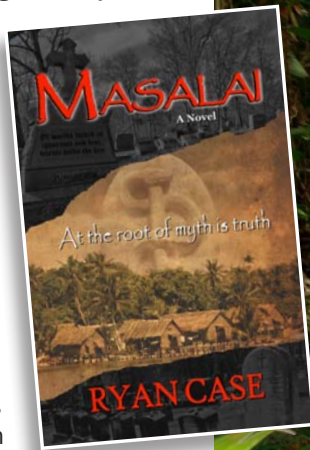
After graduating from University of Illinois, Chicago, Dr. Case did a postdoc in collaboration with National Institutes of Health's Office of Dietary Supplements and NIST (National Institute of Standards and Technology). For him, however, it was not fully satisfying as he missed the social aspects of fieldwork. He left his postdoc when he was offered an opportunity to move into the pharmaceutical industry in a role where he could conduct a different sort of fieldwork. As a medical science liaison for AbbVie Inc., he serves as the scientific tie between the company's internal research, development scientists and the academic world.

A final inspiration for *MASALAI* came to Dr. Case unexpectedly during a conversation with another member of ASP concerning theories on the scientific origins of vampires. Dr. Case related, "When ignorance and fear spend enough time together, crazy things can come out of it. Some people think that the Salem Witch trials may have been a simple product of ergot poisoning that induced hallucinations and hysteria. Why would vampires be any different? Usually, there's always something that inspired the myths, because at the root of myth is truth. Surprisingly, the truth behind vampires was at the crux of my pharmacognosy dissertation work."

In short, Dr. Case has drawn upon science, history, puzzles and adventure for his novel. ■

Above: *MASALAI*, and Dr. Case in the field in Papua, New Guinea.

PAKOP BUNA



In Memoriam: Paul J. Klausmeyer



Mr. Klausmeyer working behind Sephadex columns circa January, 2002, in Mr. McCloud's laboratory at NCIFCRF, Ft. Detrick, Frederick, Maryland.

MS. SUZANNE SHIPLEY

By Mr. Tom McCloud

On the morning of January 22, 2013, while driving to work at the National Cancer Institute (NCI) in Frederick, Maryland, ASP member Mr. Paul Klausmeyer was killed in an automobile collision. He is survived by his wife Jennifer, and daughters Eleanor and Rosemary. He was 50 years old.

A lifelong Maryland resident, Paul earned a B.S. in Biochemistry from University of Maryland Baltimore Campus, an M.S. in Chemistry from the University of Maryland (College Park), and an M.S. in Environmental Science from Hood College, Frederick, Maryland.

Paul worked as a natural products chemist at NCI in Frederick for 13 years, carrying out analysis, isolation, purification and identification of bioactive natural products

as a part of the DTP anticancer drug discovery program. He authored or coauthored 14 peer-reviewed publications and made numerous poster presentations at ASP Annual Meetings, where he enthusiastically engaged in scientific discussions with viewers. In the lab, he demonstrated ingenuity and initiative, and had developed

In the lab, Paul demonstrated ingenuity and initiative, and had developed considerable expertise in isolation and identification of small molecules.

considerable expertise in isolation and identification of small molecules. He assembled from component parts the first HPLC/Diode Array UV/Mass Spec/Fluorescence/Evaporative Laser Light Scattering multidetector system on the NCI Frederick campus and devised a method of combining data from all those detectors with bioassay results to produce a highly informative 'fingerprint' of a crude extract, often adequate in itself to make a tentative identification of a compound.

ASP President and Chief, Natural Products Branch, NCI, Dr. David Newman told the *Newsletter*, "Paul Klausmeyer was an integral part of the SAIC Natural Products Support Group (NPSG) that aided the NCI's Natural Products Branch from the start of the laboratory under Tom McCloud. Paul joined the group approximately 11 years ago and quickly demonstrated his skill at the isolation, purification and identification of bioactive materials from all types of natural product extracts that had demonstrated activity, initially in in vitro screens and then for the last few years, with in vivo active agents from murine xenografts. Paul was the only non-PhD chemist to present an invited oral paper at the recent NAD Meeting in Olomouc, The Czech Republic, in July of 2012. He is already missed as part of the NPSG, but the work that he was doing will be continued by his colleagues in his memory."

Beyond the laboratory, Paul had many interests, including hiking, canoeing, and riding his mountain bike. He was an accomplished musician and composer who played three instruments. He was a conservationist responsible for planting hundreds of trees. He loved woodworking and working on cars. A morning person, he liked a strong cup of coffee, and at the end of the day he greatly enjoyed sitting

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In Memoriam: Paul J. Klausmeyer

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around a campfire with friends enjoying music and a frosty mug of a favorite fermented natural product.

Former ASP President Dr. John Cardellina recalled, "I had the good fortune to work closely with Paul for nearly 5 years. He was a skilled experimentalist, consistent and creative in his thinking, and quite adept at teaching others complex procedures and concepts. He developed one of the most comprehensive, yet simple dereplication schemes I have seen. As exceptional a scientific colleague as Paul was, he impressed me all the more with his sense of life balance - his family was always foremost in his thoughts and plans. His passing leaves a void in both my scientific and personal life."

Paul and Jen lived in a barn for two years while building the log home, equipped with solar technology, where they lived. He took great pride in his daughters' accomplishments in the classroom, on the playing field, and in music. For many years Paul was a parent volunteer at the Winfield Elementary School and with Winfield Recreation Council's youth soccer program. He is buried at Pleasant Grove cemetery next to his parents and less than a mile from the farm where he lived his entire life.

Paul's untimely passing is a great loss to the natural products community. He will be remembered and greatly missed by his many friends, colleagues and, most of all, by his family. ■



Mr. Klausmeyer standing in front of a poster entitled, "Bisbenzylisoquinoline Alkaloids from *Gyrocarpus jacquini* Restore C/EBPalpha Expression in an In Vitro Molecular Screen. Presented at the American Society of Pharmacognosy 47th Annual Meeting, Arlington, Virginia, August 5-9, 2006.

MS. SUZANNE SHIPLEY

He was a skilled experimentalist, consistent and creative in his thinking, and quite adept at teaching others complex procedures and concepts.

Regarding the *Burkholderia thailandensis* culture used by Mr. Klausmeyer to isolated the histone deacetylases inhibitor compounds, we very nearly never had the culture to grow. We had ordered a culture from American Type Culture Collection (ATCC), but they would not initially ship it to us. (*B. thailandensis* is listed as a plant pathogen to bananas.) We had to provide extra paperwork and demonstrate that the cul-

ture would be handled in a 'safe' way. Of course our labs are inside the guarded fence at Ft. Detrick, and the cultures are grown in a United States Department of Agriculture (USDA) research lab that works on plant pathogens, but no matter. I guess you can never be too careful about protecting the banana crop of Frederick, Maryland!

-Mr. Tom McCloud

New NYBG Exhibit to Showcase Healing Plants

By Drs. Michael Balick

ASP member Dr. Michael J. Balick will curate a new exhibition at the NYBG entitled, “*Wild Medicine: Healing Plants Around the World, Featuring The Italian Renaissance Garden*,” running from May 18 to September 5, 2013. Dr. Balick serves as the Vice President for Botanical Science and Director and Philecology Curator of the New York Botanical Garden (NYBG) Institute of Economic Botany (IEB).

The power of plants to cure and rejuvenate, one of the most important ways in which mankind depends on the plant kingdom, will be explored in this multifaceted exhibition.

The exhibition’s many attractions will include such highlights as a re-creation of the Western world’s oldest botanical garden, which was founded during the Italian Renaissance for the study of medicinal plants and organized as a teaching tool for the physicians of the time who needed to know the identities of the plants they used in their practice.

There will also be interactive stations with activities and samples of products made from therapeutic plants, a presentation of rare, richly illustrated botanical books and manuscripts, a botanically inspired sculpture display, and a wide assortment of herbal and plant based programming. During its four-month run, the exhibit will feature displays of more than 500 species or cultivars of medicinal plants, most of them grown in the Garden’s glasshouses, making this one of the largest exhibitions of medicinal plants ever mounted.

Today, an estimated 4.5 billion people worldwide use plants for some part of their health care. Drawing on the expertise of the IEB, an acclaimed Renaissance scholar, and an award-winning landscape designer, the exhibit will help visitors understand the influence medicinal plants have had on history, the world’s cultures, and their own lives. *Healing Plants Around the World*, in the Haupt Conservatory’s *Tropical Rain Forest Galleries*, will chronicle the history of medicinal plants, beginning with their earliest recorded uses by Eastern and ancient Greek and Roman cultures.

Complementing the Conservatory exhibitions, *The Renaissance Herbal* in the Rondina and LoFaro Gallery of the Garden’s LuEsther T. Mertz Library will present a stunning array of rare and richly illustrated texts to show how ancient and medieval knowledge about the medicinal qualities of plants survived into the Renaissance, when herbals flourished as a manifestation of that period’s intellectual curiosity and spirit of scientific inquiry. Describing plants and their useful properties, herbals are among



WILD MEDICINE

the oldest known written and printed works in both Western and Eastern civilizations.

The Renaissance Herbal, featuring more than 50 objects dating as far back as the 13th century and drawn almost exclusively from the Mertz Library’s holdings, will be the most extensive exhibition of rare herbals to be shown in the United States in decades. Among the works on display will be a vellum manuscript dating to 1275 of *Circa instans*, the first work written in Europe combining Islamic and Western plant knowledge. On view for the first time will be an early printed copy of a medical text by learned medieval German nun Hildegard of Bingen. The exhibition will also feature a rare 1565 edition of a work by Italian botanist and medical doctor Pietro Andrea Mattioli, on loan from Oak Spring Garden Library, the private collection of Mrs. Rachel Lambert Mellon. Printed on blue paper with gold and silver inks, it is a stunning example of herbals that were produced for their aesthetic appeal as well as their content.

Many of you may remember Dr. Balick as a member of the ICNPR 2012 Organizing Committee. Along with Dr. James S. Miller, NYBG’s Dean and Vice President for Science, NYBG staff members, and graduate students from the Lehman College/CUNY/NYBG joint program, a beautiful afternoon and early evening was spent at the Botanical Garden for the ICNPR group, where 1,200 of us arrived in a specially chartered Metro-North train.

Wild Medicine is presented through the generosity of Pfizer Inc, and sponsored by MetLife Foundation and Amore Pacific. Further information on this exhibition and related programs can be found at <http://www.nybg.org/wildmedicine>. ■

The life-saving power and life-enhancing beauty of medicinal plants will be celebrated and explored at The New York Botanical Garden. Multifaceted exhibition and programs will trace the history and importance of plants as sources of medicine since ancient times.

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.

ACS National Meeting & Exposition: Chemistry of Energy & Food

New Orleans, Louisiana

April 7-11, 2013

www.acs.org

Society of Ethnobiology 36th Annual Meeting

Denton, Texas

May 15-18, 2013

<http://ethnobiology.org/conference/upcoming/registration>

Society of Economic Botany

Plymouth, England

June 28-July 2, 2013

<http://cms.gogrid.econbot.org/>

ASP 54th Annual Meeting

St. Louis, Missouri

July 13-18, 2013

www.pharmacognosy.us/calendar-of-events/future-asp-meetings/

52nd Annual Meeting of the Phytochemical Society of North America

Corvallis, Oregon

August 3-7, 2013

<http://psna2013.com/>

61st International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA)

Muenster, Germany

September 1-5, 2013

www.ga2013.org/



Brief News From Washington

By Dr. Georgia Perdue

➤ In early December at the National Institutes of Health (NIH), **Dr. David Kingston**, Distinguished Professor, Virginia Tech, Blacksburg, Virginia, gave the **Stephen E. Straus Distinguished Lecture in the Science of Complementary Health Therapies** entitled, “**Natural Products: Drugs and Medicines for all Reasons and Seasons.**” In introducing Dr. Kingston, National Center for Complementary and Alternative Medicine, (NCCAM) Director Dr. Josephine Briggs said “this is a celebratory day [for the] natural products portfolio [and a day] to remember and honor Dr. Stephen Straus, one of NIH’s extraordinary leaders. He was revered on the campus as a wise and thoughtful person. [He] took on the controversial area of NCCAM with scientific rigor....” Dr. Kingston gave a sketch of early drug discoveries from natural products ending with the discovery of the familiar anticancer drugs. He also touched on traditional herbal medicines used worldwide; five Chinese herbal drugs are in clinical trials in the United States. He believes that drug combinations are the wave of the future, citing Taxol™ and parthenolide, a major component of the feverfew (*Tanacetum parthenium*) plant, which have shown efficacy in mice. His own scientific endeavors are focused mainly on plants from Madagascar. Dr. Kingston pointed out that the once very productive pharmaceutical companies have lost interest in natural product compounds, which places funding reliance on NIH and private foundations. While he acknowledged that NIH funding for natural products research is difficult to get, he considers it crucial because natural products are a unique source of active compounds. One NIH promising funding source is the International Cooperative Biodiversity Groups (ICBG), one of which Dr. Kingston heads. He ended his hour-long talk with the following quote by Johannes Kepler in answer as to why he studied the heavens: “O God, I am thinking thoughts after Thee.” “... As a Christian



and chemist I believe [that] in studying natural products I am doing the same thing,” said Dr. Kingston.

- It is interesting to note that while American pharmaceutical companies have lost interest in natural products research, the Europeans are going to launch a five year project, the **European Lead Factory**. This **public/ private endeavor** is aimed at speeding up the development of new drugs by creating a small molecule collection of at least 300,000 substances from pharma and academia. The initiative is being spearheaded by Bayer HealthCare which plans to provide about 50,000 compounds along with its expertise in early drug discovery. For details of this interesting project see www.imi.europa.eu.
- At the February NCCAM Advisory Council meeting, a Small Business Innovation Research (**SBIR**) **concept, entitled “Natural Products Methods Development”** was presented. Its purpose is to “[stimulate] the development of new and improved technologies for natural products research.” NCCAM is proposing five areas, “...[to] significantly improve the progress in natural products research.” For details contact one of the presenters of the concept, Dr. Craig Hopp, www.hoppdc@mail.nih.gov.
- Last year was a banner year for the **Food and Drug Administration (FDA): 39 new drugs approved, the most in over 16 years; at least 10 are anticancer drugs.** One drug approved at the end of the year is Sirturo™, for drug resistant tuberculosis, the first such drug in many years. Ten of the new drugs approved were on FDA’s fast track.
- **One of FDA’s last minute approvals on December 3, 2012, was an antidiarrheal “botanical” drug for HIV patients known as crofelemer (Fulyzaq™). This compound is isolated from the sap of the South American tree, *Croton lechleri*, known as Sangre de Grado in Peru where it grows in abundance.* This drug was**

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Brief News From Washington

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originally worked on by Napo Pharmaceuticals, Inc., and then taken over by Salix Pharmaceuticals, Ltd. The two companies have been “fighting” over this drug and it may still not be resolved. Stay tuned.

- Highlights from the December **Advisory Committee to the Director meeting**, NIH Director **Dr. Francis Collins**, noted:
 - “after much deliberation, a **decision was made not to proceed with the functional integration of the Drug Abuse and Alcohol Addiction institutes...**” (see column March 2012). “We recognized over the last two years that much of the promise [in this area] was being accomplished and the administrative challenge was great and too much concentration would have been focused on it.”
 - **Dr. Maria Freire**, former President of the Mary Lasker Foundation, is the **new President of the Foundation for NIH**. She will work collaboratively with others including those involved in global health.
 - **Dr. Paul Coates will remain as Director of the Office of Dietary Supplements.**
 - Easier access to publications of research results is still a priority.
 - The IDeA program was increased by 100 million over the 2012 level.
 - NIH needs to do a better job at communicating what it does.
- The FDA has come up with new guidelines to help speed up clinical trials thus providing drugs at a faster rate. The FDA was accepting comments on its draft guidelines until February 15, 2013.
- The **National Institute of General Medical Sciences turned 50 years old**. It funds more than 4,700 basic research grants.
- The NIH replaced the RAID (Rapid Access to Interventional Development) program with BrIDGs (Bridging Interventional Development Gaps) aiming to overcome research roadblocks by helping investigators submit an Investigational New Drug application (IND) to the FDA more quickly. According to NCATS’ new director, Dr. Christopher Austin, it appears the program is highly successful. “...[It] bridges the gap between basic discovery and clinical testing by providing the expertise needed to perform crucial preclinical studies...”
- In late November, NCI director **Dr. Harold Varmus**, noted

at the NCAB meeting how happy he was with the outcome of the election because it meant that he still had his job. “I’m not so sure my wife is so happy.” He mourned the loss of Senator Arlen Specter whom he knew “quite well,” saying it was a “huge loss,” compounded by the losses of those [Congressional] “friends” of NCI who have retired or died. “**Support for increased funding for NIH is generally lacking,**” said Dr. Varmus. He told the NCAB members that they “can ... influence [their] own members of Congress by directing them to the opportunities... for increased progress against cancer.” Dr. Varmus provided an update on the House bill dealing with pancreatic cancer, **H.R. 733**, which passed the House by a voice vote. He found it “completely unacceptable” because it called for a special committee to review all grant applications dealing with pancreatic cancer and recommend what NCI should fund. **The objections of Dr. Varmus and several NCAB members led to the bill being revised and re-titled the Recalcitrant Cancer Research Act**, which passed the House Senator Tom Harkin (D-IA) introduced it in the Senate as (**S.3566**). The final step was taken by Senator Sheldon Whitehouse (D-RI) who introduced the bill as an amendment to the Defense Authorization act of 2013 which passed both Houses!! Oh, the machinations of Washington politics!

- At an abbreviated NCAB meeting in February, due to the impending snowstorm, Dr. Varmus reported that the Frederick National Laboratory for Cancer Research, operated by Science Applications International Corporation (SAIC) Frederick, Inc., plans to launch a mega project which will have interactions with universities and companies. The vision is for this lab to be a “hub.” Stay tuned.
- NIH’s Fogarty International Center (FIC) reported in February that **Dr. Paul R. Schimmel and his group at the Scripps Research Institute have unraveled the mechanism of action for a traditional herbal medicine, Chang Shan herb (*Dichroa febrifuga*), used to treat malaria.** This breakthrough provides hope for the development of additional drugs to treat not only malaria but other disorders as well. FIC to researchers: see the February 7, 2013, issue of *Nature*.
- In February, **Dr. Anthony Fauci, director of the National**

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The FDA has come up with new guidelines to help speed up clinical trials thus providing drugs at a faster rate. The FDA was accepting comments on its draft guidelines until February 15, 2013.

Lloyd Library Welcomes Tyler Papers

The Lloyd Library is pleased to announce the completed processing and accessibility of the *Varro E. "Tip" Tyler Papers!*

The collection consists of the manuscript records of Dr. Varro E. Tyler (1926-2001), organized in five series, with four sub-series. Series A contains biographical information about Tyler, including his Curriculum Vitae, bibliographies, clippings, and personnel records. Series B holds Dr. Tyler's professional correspondence with individuals and organizations. Series C covers the broad scope of his publications and is divided into four sub-series. Tyler wrote for *Prevention* magazine and *Purdue Pharmacist*. He served on numerous editorial boards and task forces regarding herbal medicine. This series contains these publications and documents Tyler's broad work with the Council for Responsible Nutrition. Series C also consists of his original publications, as well as reprints and photocopies with annotation. Series D features Dr. Tyler's extensive collection of documents about speaking engagements, conferences, and travel records. The series holds presentation materials, such as lecture notes, outlines, slides, and transparencies. Dr. Tyler's passion and



devotion to the field of herbal medicine is demonstrated by the contents of Series E. This is the largest series, containing his subject files arranged alphabetically from absinthe to zinc. The collection is approximately 50 linear feet, 98 boxes.

Varro E. "Tip" Tyler was born December 19, 1926 in Auburn, Nebraska. He had a classical education and loved history, poetry, travel, philately, and books. Tyler enrolled at the University of Nebraska, and graduated in pharmacy with high distinction in 1949. He attended Yale University as an Eli Lilly Research Fellow in 1950. After Tyler earned his M.S. and Ph.D. degrees from the University of Connecticut in 1951 and 1953, he was appointed Associate Professor and Chairman of the Department of Pharmacognosy at the University of Nebraska. He served with

merit at the University of Washington for ten years. Dr. Tyler accepted the appointment as Dean of the School of Pharmacy and Pharmacal Sciences at Purdue University in 1966. He studied medicinal and toxic constituents of higher fungi, phytochemical analysis, alkaloid biosynthesis, drug plant cultivation, and herbal medicine. Tyler's outstanding career at Purdue culminated in the designation of the Lilly Distinguished Professor of Pharmacognosy, Emeritus. Service as the first President of the ASP (1959-1961), President of the American Association of Colleges of Pharmacy (1970-1971), and President of the Institute of the History of Pharmacy (1993-1995) are among Tyler's many notable achievements. Dr. Tyler's stature in the field of pharmacognosy is evident through national and international recognition by his peers, honorary degree awards, appointments to editorial boards, and his hundreds of publications. Tyler died August 22, 2001.

The finding aid is available on the Lloyd Library website at: <http://www.lloydlibrary.org/archivescollections.html>

For reference questions and inquiries contact the Archivist, Ms. Devhra Bennett-Jones, Devhra@Lloydlibrary.org. ■

Brief News From Washington

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Institute of Allergy and Infectious Diseases (NIAID), gave his Advisory Council a **sobering report on infectious diseases**. Last year was "really extraordinary" in the United States, with outbreaks of tick-borne heartland virus in Missouri, the "second worst year" in the resurgence of West Nile virus, dengue fever in central and south Florida, just to name a few. Internationally, there were dengue outbreaks in India, Portugal, and Puerto Rico. NIAID is developing a vaccine for dengue fever which looks promising. "Believe or not an outbreak of malaria in Greece...," ebola in Uganda, severe hand-foot mouth disease in Cambodia.... The Institute of Medicine published a report in December, *Emerging Infections: Microbial Threats to Health in the United States*, on the 20th anniversary of a similar report. **Dr. Fauci noted "this is going to be a continuing, perpetual challenge for us."**

➤ While sitting in a medical office on February 27, 2013, I read

the following editorial in the *Wall Street Journal* re: the sequester: **"Before slashing cancer research, stop funding the \$130- million-a-year [NCCAM] that studies herbs and yoga."**

- * **(Personal Note:** Sangre de Grado is very near and dear to my heart. The company I worked for in Rockville, Maryland, (for which the late Dr. Norman Farnsworth was a consultant) was founded to primarily work on the sap of this tree. A wound healing assay was developed (and patented) showing the sap's efficacy. A major component of the sap, taspine hydrochloride, an anti-inflammatory agent, was isolated and patented. I am told that interest in taspine still exists. I hope it pans out after all these many years. The sap's antidiarrheal properties were not fully exploited, but much more was done with it. In time, many other Amazonian plants were collected and agents isolated.

From the Archives: The Legacy of Tip Tyler, A Pharmacognosy Advocate

By Ms. Devhra BennettJones

The long-awaited accessibility of the notable Varro E. "Tip" Tyler Papers is now open to the American Society Pharmacognosy membership and researchers from around the globe. The prominent manuscript collection has recently been archived and will be preserved at the Lloyd Library in Cincinnati, Ohio. The archives' broad scope of data documenting Tyler's career and his life-long endeavor to facilitate the standardization and regulation of the herbal medicine industry is impressive.

In 1959, upon his election as the first President of the American Society of Pharmacognosy, Dr. Varro E. "Tip" Tyler addressed the membership, "Allow me to express my sincere appreciation for the honor which you have bestowed upon me.... I consider it a distinct privilege to be permitted to serve you in this capacity.... You elected me your President in order that I might reflect your thinking in the activities of the Society."

Tip Tyler worked tirelessly during his tenure as President to promote the ASP and the field of pharmacognosy. He declared, "...I am just naïve enough to think that the perspective thus obtained has provided me with a real understanding of the problems which face our discipline and our Society."

As the President, Tip set priorities and diligently addressed them. He felt that it was his mission and responsibility to increase the membership. Tip extended over 150 individual invitations to potential members that he believed would be active in the Society and would support the field of pharmacognosy. He deemed that it was essential to educate and enlighten those in the pharmaceutical industry about pharmacognosy's merits. To this endeavor, he wrote *A Short History of the American Society of Pharmacognosy* to widely distribute among leaders and chemists in pharmaceutical manufacturing.

Tip considered it vital that the ASP have a journal in which pharmacognosists could have a venue for research publication that was administered by the direct editorial authority of the Society. In pursuit of



this goal, Tip contacted the Lloyd Library and arranged for the ASP to assume the editorship of *Lloydia* (now the *Journal of Natural Products*). He also extended the Society's influence to the management of the Library.

In his duties as the first ASP President, Tip promoted pharmacognosy to those outside of the Society. He made concerted efforts to reach international pharmacognosy interests. The ASP Executive Committee and Tip agreed that he should personally carry a letter of recognition to the 2nd International Conference on Biochemistry and Physiology of Alkaloids held in Halle, Germany, May, 1960. Tip was adamant that pharmacognosy must be accurately understood by the general public. The 1958 *Webster's New International Dictionary, 2nd Edition* defined pharmacognosy as "...descriptive pharmacology dealing with the characteristics of crude drugs and simples." At that time *Dorland's Medical Dictionary* published an equally inaccurate definition. He contacted the editors to inform them that their definitions of pharmacognosy were incorrect and insisted that the taxonomy be clarified in future publications.

Tip's efforts to promote the field of pharmacognosy outside the Society rendered the realization of how it was widely misunderstood. He said to the members, "We talk about the new pharmacognosy. We devote seminars to this topic. We speak about keeping up-to-date in the science. But most of all, we talk, talk, talk. Our scientific colleagues, pharmaceutical and otherwise, may have heard some of this talk...but they are scientists and, therefore, skeptical. They say, 'Don't talk to me, show me', and what have we to show." At the 1960 ASP Conference, Tip called on all of the Society's members to return to their laboratories and conduct research. He advocated that they inspire graduate students to specialize in pharmacognosy. They must promote the discipline to ad-

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Lloyd Library Welcomes the Tip Tyler Papers

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ministrators in order to garner increased funding for pharmacognosy departments. Tip encouraged the membership to, "...undertake a program of teaching and research which will convince others of what we already know, specifically, that pharmacognosy is pharmacy's unique contribution to science and that it is the area of greatest potential for the discovery, not only of new medicinals, but also for the discovery of principles of basic biochemical and physiological significance."

The legacy of Tip Tyler persists in the continued success of the ASP and his valuable manuscript collection at the Lloyd Library. ASP President David Newman recently remarked on Tyler's significance and contribution to pharmacognosy.

The donation of Tip Tyler's papers to the ASP is one that students of Pharmacognosy will recognize the value of, even if the *New York Times* used the following quote from Dr. Sheldon Hendler in their obituary:

"Before the 1950's, many drugs came from plants," Dr. Hendler said. But once pharmaceutical companies started producing synthetic drugs, pharmacognosy became "an arcane subject, which was taught in a few pharmacy programs to typically bored pharmacy students."

This however, is not the view of the ASP and its hundreds of members, but it is due to scientists like Tip Tyler that the information relevant to the use of plants in medicine was systematized and used. The over 50 linear feet of files that were donated to the ASP Archives contain his master information files on many, many plant products and their use in the practice of pharmacognosy over the ages.

I recently learned from the ASP Archivist (Ms. Devhra BennettJones) that their poison control students use the files regularly, so the collection is not just "molding on archives shelving" but is a viable resource for students and researchers. I am certain that this would be approved by Tip. We, as a society, must thank Tip's widow, Mrs. Virginia Tyler, for her very generous donation to the archives. I am tempted to ask, tongue in cheek, if during the archival processing any copies of the Victorian "Penny Black" stamp were found, as Tip's other great love was Philately, but I suspect the answer would be no!

The ASP can be assured that their first President's legacy continues to be relevant for pharmaceutical students and historians. Today, the ASP President is elected for a one-year term. The next President will begin their term in July at the 2013 Annual Meeting of the ASP in St. Louis, Missouri. ■

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Guido F. Pauli, Ph.D., Treasurer
The American Society of Pharmacognosy
3149 Dundee Road, #260,
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ASP Membership

Full Membership

Full membership is open to any scientist interested in the study of natural products.

Current membership dues and Journal of Natural Products subscription rates can be found at www.pharmacognosy.us.

Associate Membership

Associate membership is open to students of pharmacognosy and allied fields only. These members are not accorded voting privileges.

Current membership dues and Journal of Natural Products subscription rates can be found at www.pharmacognosy.us.

Emeritus Membership

Emeritus membership is open to retired members of the Society who maintained membership in the Society for at least five years.

Current membership dues and Journal of Natural Products subscription rates can be found at www.pharmacognosy.us.

Honorary Membership

Honorary members are selected by the Executive Committee of the American Society of Pharmacognosy on the basis of meritorious service to pharmacognosy.

Present Honorary Members are:

Dr. David P. Carew, University of Iowa · Dr. John M. Cassidy, Oregon State University

Dr. Geoffrey A. Cordell, University of Illinois at Chicago

Dr. Gordon C. Cragg, National Institutes of Health · Dr. Harry H.S. Fong, University of Illinois at Chicago

Dr. William Keller, Nature's Sunshine Products, Inc. · Dr. A. Douglas Kinghorn, Ohio State University

Dr. Robert J. Krueger, Ferris State University · Dr. Roy Okuda, San Jose State University

Dr. James E. Robbers, Purdue University · Dr. Yuzuru Shimizu, University of Rhode Island

Dr. David J. Slatkin, Chicago State University · Dr. E. John Staba, University of Minnesota

Dr. Otto Sticher, Swiss Federal Institute of Technology

Dr. Hildebert Wagner, University of Munich · Dr. Mansukh Wani, Research Triangle Institute

Additional information about membership may be obtained by writing to the Treasurer of the Society:

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