

UPDATED GUIDE TO SCIENTIFIC WRITING AND PUBLISHING

A. Douglas Kinghorn
Daneel Ferreira
Leslie A. Walker



Workshop presented at the Annual Meeting of the American
Society of Pharmacognosy, Portland, OR, July 29, 2017

PRESENTATION TEAM FOR WORKSHOP ON SCIENTIFIC WRITING



- [Dr. A. Douglas Kinghorn](#) (The Ohio State University; Editor, *Journal of Natural Products* since 1994) – background to the *Journal of Natural Products* and perspective on scientific writing as a journal Editor in Chief.



- [Dr. Daneel Ferreira](#) (University of Mississippi; Associate Editor, *Journal of Natural Products* since 2005; Assistant Editor, 2004) – perspective on concise scientific writing as an Associate Editor, and the ethics of authorship.



- [Leslie A. Walker](#) (Journals Editing Manager, Chemical Abstracts Service, Columbus, OH) – aspects of the production of the *Journal of Natural Products*.

BACKGROUND TO THE *JOURNAL OF NATURAL PRODUCTS* AND PERSPECTIVE ON SCIENTIFIC WRITING AS A JOURNAL EDITOR IN CHIEF



Dr. A. Douglas Kinghorn
Professor and Jack L. Beal Chair
College of Pharmacy
The Ohio State University
Editor, *J. Nat. Prod.*



JOURNAL OF
**NATURAL
PRODUCTS**

SUMMARY OF PRESENTATION

- **Accessing the Initial “Guide to Scientific Writing and Publishing”, 2006 Annual Meeting of the American Society of Pharmacognosy, Crystal City, VA, August 6, 2006**
- **Short History of *Lloydia/Journal of Natural Products* and its Editors**
- ***Profile of the Scientific Content of Journal of Natural Products in 2016***
- **Deciding to Publish a Technical Contribution**
 - Why should one publish and when?
 - Publish with pride
 - Follow the correct journal format!
- **What an Editor Requires from the Peer Review Process**
 - Hallmarks of a good manuscript peer review
 - How much time should be spent on the review of a manuscript?
- **Examples of Pitfalls Made by Authors from the Perspective of a Journal Editor-in-Chief**
- **Acknowledgments**

2006 GUIDE TO SCIENTIFIC WRITING AND PUBLISHING

- An earlier “Guide to Scientific Writing and Publishing”, presented at the 2006 Annual Meeting of the American Society of Pharmacognosy, Crystal City, VA, August 6, 2006 is available on the website of the American Society of Pharmacognosy (<http://www.pharmacognosy.us>).
- To access this, scroll down to “Resource Pages”, and then “Presentations and Workshops”.
- This earlier presentation was given by Dr. A. Douglas Kinghorn (Editor, *Journal of Natural Products*), the late Deborah A. Bittaker (Journals Editing Manager, Chemical Abstracts Service, Columbus, OH), and Matthew J. Price (Director, Product Marketing, American Chemical Society, Washington, DC).

**SHORT HISTORY OF *LLOYDIA*/THE
*JOURNAL OF NATURAL
PRODUCTS* AND ITS EDITORS**

THE LLOYD BROTHERS AND THE LLOYD LIBRARY AND MUSEUM, CINCINNATI, OHIO

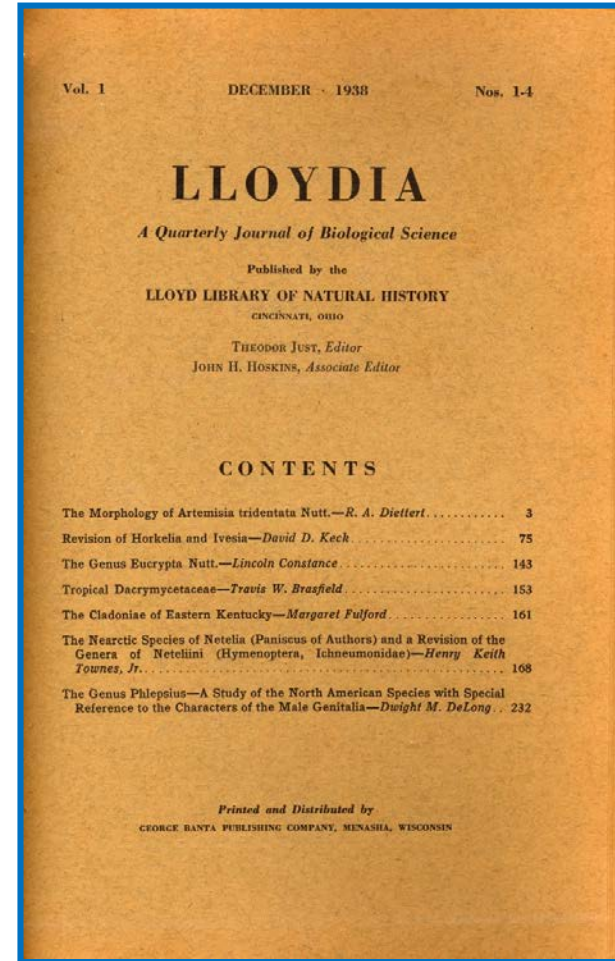
THE LLOYD BROTHERS
(FROM LEFT TO RIGHT,
CURTIS GATES, N.
ASHLEY, AND JOHN URI),
WITH OLD AND MODERN
VIEWS OF THE LIBRARY



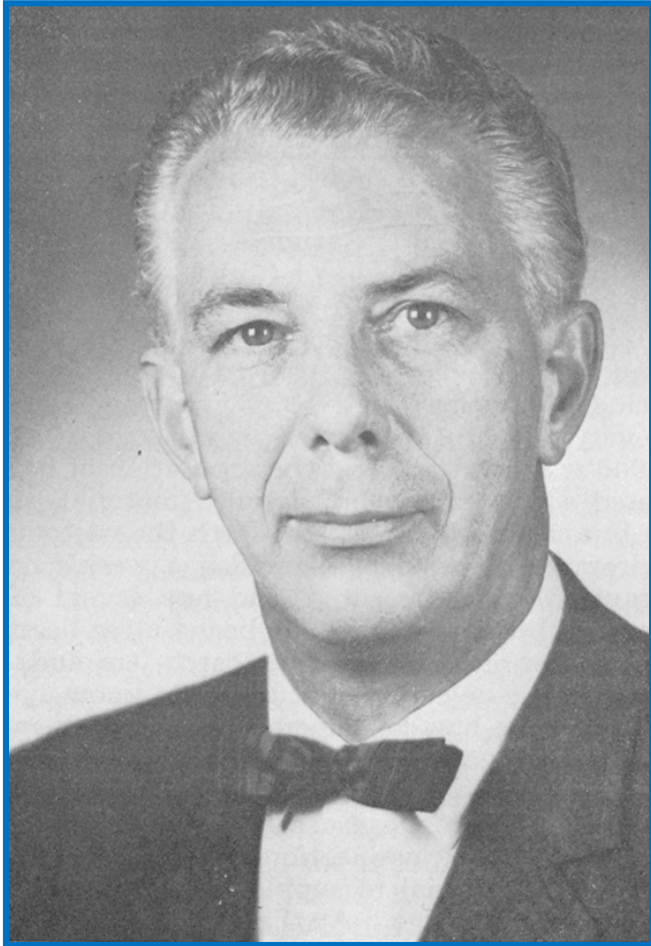
DR. THEODOR JUST, FIRST EDITOR-IN-CHIEF OF *LLOYDIA* (1938-1959)



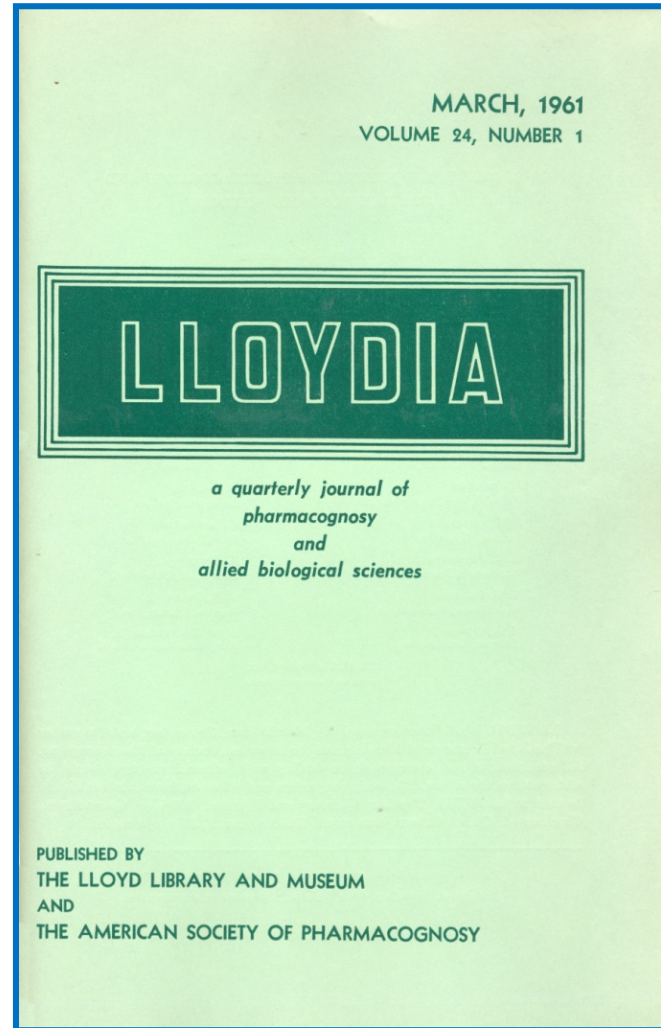
Theodor Just
University of Notre Dame



DR. ARTHUR E. SCHWARTING, SECOND EDITOR-IN-CHIEF OF *LLOYDIA* (1960-1976)



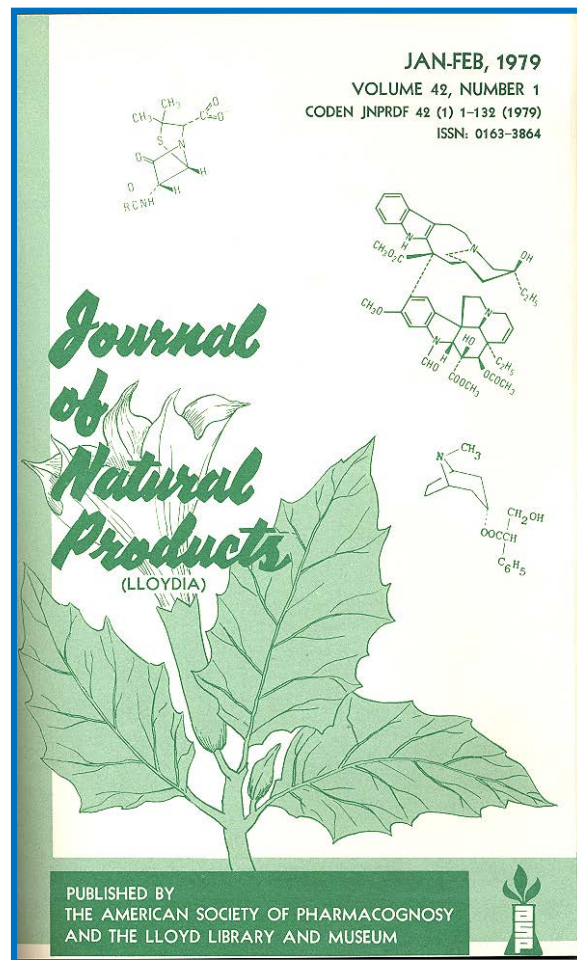
Arthur E. Schwarting
University of Connecticut



DR. JACK L. BEAL, THIRD EDITOR-IN-CHIEF OF *LLOYDIA/JOURNAL OF NATURAL PRODUCTS* (1977-1983)



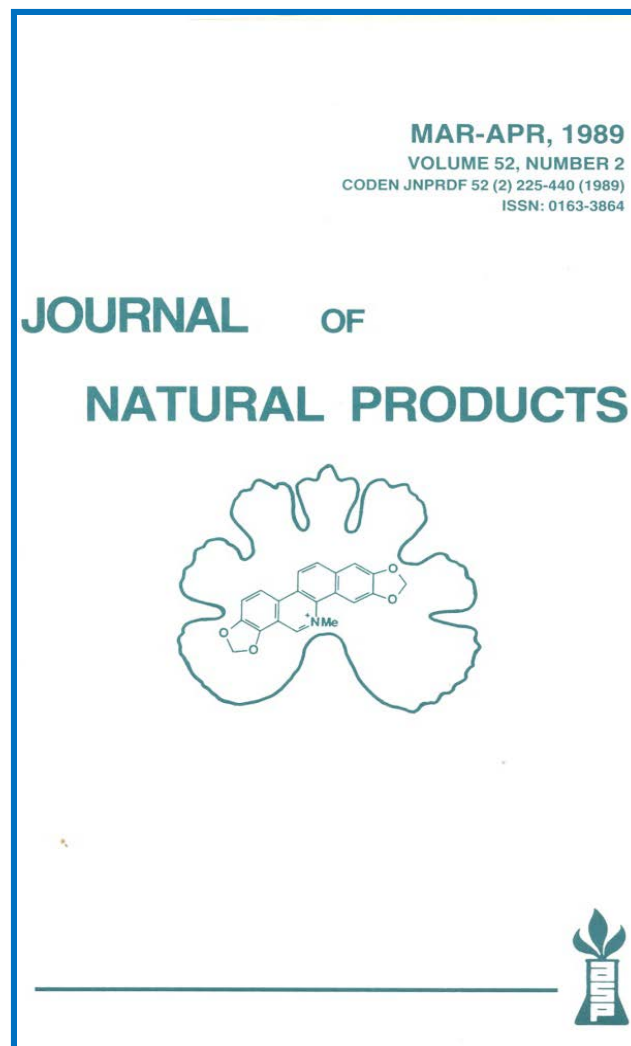
Jack L. Beal
The Ohio State University



DR. JIM ROBBERS, SECOND EDITOR-IN-CHIEF OF *JOURNAL OF NATURAL PRODUCTS* (1984-1993)



James E. Robbers
Purdue University



OTHER PAST EDITORS OF *LLOYDIA* AND THE *JOURNAL OF NATURAL PRODUCTS*

ASSOCIATE EDITORS

- John H. Hoskins (1938-1957)
- William J. Kelleher (1971-1976)
- Jerry L. McLaughlin (1984-1993)
- David G.I. Kingston (1984-1998)
- Harry H.S. Fong (1994-1998)
- Alice M. Clark (1999-2004)
- Francis J. Schmitz (1999-2001)
- William H. Gerwick (2002-2008)

ASSISTANT EDITORS

- Daneel Ferreira (2004)
- Alice M. Clark (2005-2009)

BOOK REVIEW EDITOR

- David G.I. Kingston (1979-2002)
- John H. Cardellina II (2003-2016)

AMERICAN CHEMICAL SOCIETY ASSISTANT AND ASSOCIATE EDITORS (JOURNAL PRODUCTION)

- Mary B. Harig (1996-1999)
- Anne L. Almstedt (1999)
- Diane E. Black (2000-present)

CURRENT EDITOR, ASSOCIATE EDITORS AND BOOK REVIEW EDITOR OF THE *JOURNAL OF NATURAL PRODUCTS*



A. Douglas Kinghorn
Editor
1994-present



Daneel Ferreira
Associate Editor
2005-present



Philip J. Proteau
Associate Editor
2008-present



Cedric J. Pearce
Associate Editor
2010-present



Steven M. Swanson
Associate Editor
2014-present



Melany Puglisi-Weening
Book Review Editor
2016-present

**PROFILE OF THE SCIENTIFIC
CONTENT OF THE *JOURNAL OF
NATURAL PRODUCTS* IN 2016**

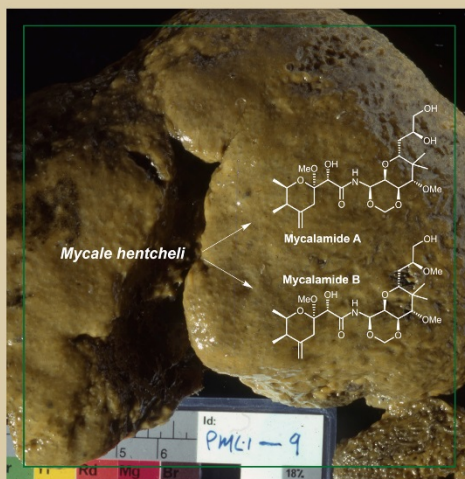
OVERVIEW OF THE *JOURNAL OF NATURAL PRODUCTS* IN 2016

- Altogether, 1196 manuscripts were received and 409 articles were published, representing a 34.2% acceptance rate.
- The published manuscripts occupied 3,151 pages and were constituted by six review articles, 340 full articles, 55 notes, and eight book reviews.
- The 2016 Impact Factor (released by Clarivate Analytics in June 2017) was 3,281, and the total number of cites in 2016 was 22,826.
- The cover illustration of the journal was changed twice in 2016, with the cover motifs provided by Prof. Murray Munro (University of Canterbury, New Zealand) and Dr. Robert Cichewicz (University of Oklahoma).
- A special issue was published in March 2016 dedicated jointly to **Professors John Blunt and Murray Munro** (both University of Canterbury, Christchurch, New Zealand).

COVER ILLUSTRATIONS OF THE *JOURNAL OF NATURAL PRODUCTS* IN 2016

JANUARY 2016
VOLUME 79
NUMBER 1
pubs.acs.org/jnp

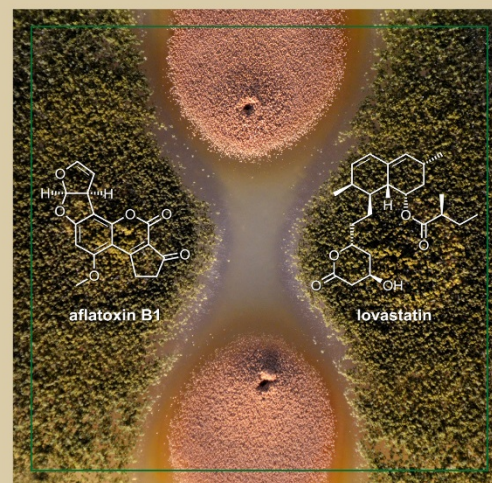
JOURNAL OF NATURAL PRODUCTS



PUBLISHED BY THE
AMERICAN CHEMICAL SOCIETY
AND THE
AMERICAN SOCIETY OF PHARMACOLOGY

JULY 2016
VOLUME 79
NUMBER 7
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JOURNAL OF NATURAL PRODUCTS



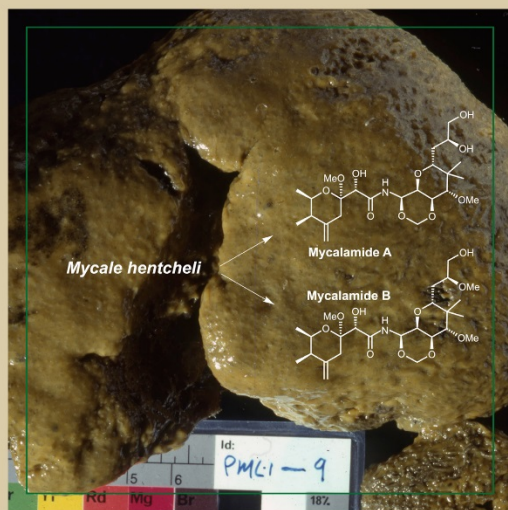
PUBLISHED BY THE
AMERICAN CHEMICAL SOCIETY
AND THE
AMERICAN SOCIETY OF PHARMACOLOGY

SPECIAL ISSUE OF THE *JOURNAL OF NATURAL PRODUCTS* IN HONOR OF PROFS. JOHN BLUNT AND MURRAY MUNRO (MARCH 2016)

SPECIAL ISSUE IN HONOR OF JOHN BLUNT & MURRAY MUNRO

MARCH 2016
VOLUME 79
NUMBER 3
pubs.acs.org/jnp

JOURNAL OF NATURAL PRODUCTS



PUBLISHED BY THE
AMERICAN CHEMICAL SOCIETY
AND THE
AMERICAN SOCIETY OF PHARMACOLOGY



Shown above are Profs. Murray Munro (left) and John Blunt (right)
Guest Editors:
Drs. Brent Copp, Gordon Cragg,
David Newman, and Cedric Pearce

OVERVIEW OF THE *JOURNAL OF NATURAL PRODUCTS* IN 2016 (CONT'D.)

- The published manuscripts were from authors working in 65 countries in academic institutions (75.5%; mainly in biology, chemistry, medicine, and pharmaceutical sciences), and also those employed in government (13.1%), industry (2.9%), private research institutes (4.1%), and other institutions (4.4%).
- The scientific scope of the papers published was: isolation and structure elucidation (66.6%), compound synthesis/SAR (11.2%), biochemistry (4.8%), pharmacology/bioactivity (11.2%), methods development (5.6%), and chemotaxonomy (0.5%).
- Natural products were described from the following organism types:
 - A. Terrestrial – microorganisms and fungi, 17.5%; higher and lower plants, 61.1%, animals, 2.0%
 - B. Marine-aquatic – all types of organisms, 19.4%

NUMBER OF NEW NATURAL PRODUCT COMPOUNDS PUBLISHED IN THE *JOURNAL OF NATURAL PRODUCTS* IN 2016^a

Terrestrial Microbes/ Fungi	Terrestrial Plants ^b	Terrestrial Animals	Marine / Aquatic ^c	Others ^d
225 (15.2%)	976 (65.7%)	15 (1.0%)	269 (18.1%)	0 (0%)

^a From a total of **1,485** new small-molecule compounds. Percentages of the total are shown in parentheses.

^b Including higher and lower plants (vascular and non-vascular).

^c Including animals, microorganisms, and plants.

^d For example, propolis of different geographical origins.

OVERVIEW OF THE *JOURNAL OF NATURAL PRODUCTS* IN 2016 (CONT'D.)

- In 2014, a new “ACS Editors’ Choice” feature (<http://pubs.acs.org/editorschoice/>) was inaugurated to permit meritorious contributions to be published via immediate open access.
- Five papers from *J. Nat. Prod.* were chosen for ACS Editors’ Choice in 2016, with the following corresponding authors:
 - Michael Heinrich (*J. Nat. Prod.* 2016, 79, 30-37)
 - David Newman (*J. Nat. Prod.* 2016, 79, 629-661)
 - John Sorensen (*J. Nat. Prod.* 2016, 79, 1645-1650)
 - Dieter Bromme (*J. Nat. Prod.* 2016, 79, 1962-1970)
 - Thomas Ostenfeld Larsen (*J. Nat. Prod.* 2016, 79, 2250-2256).

OVERVIEW OF THE *JOURNAL OF NATURAL PRODUCTS* IN 2016 (CONT'D.)

- **2016 Arthur E. Schwarting Award (Open to All Corresponding Authors):**

Silas Anselm Rasmussen, Sebastian Meier, Nikolaj Gedsted Andersen, Hannah Eva Blossom, Jens Øllgaard Duus, Kristian Fog Nielsen, Per Juel Hansen,* and Thomas Ostenfeld Larsen.* Chemodiversity of Ladder-Frame Pymnesin Polyethers in *Pymnesium parvum*. *J. Nat. Prod.* 2016, 79, 2250-2256.

- **2016 Jack L. Beal Award (Open to Younger Corresponding Authors^a):**

Nathan P. Lavey, Jesse A. Coker, Eliza A. Ruben, and Adam S. Duerfeldt.* Sclerotiamide: The First Non-Peptide-Based Natural Product Activator of Bacterial Caseinolytic Protease P. *J. Nat. Prod.* 2016, 79, 1193-1197.

^aDefined as those within 12 years of receiving the Ph.D. degree or 10 years after gaining a first professional position (e.g., Assistant Professor).

OBSERVATIONS ON VOLUME 80 OF *JOURNAL OF NATURAL PRODUCTS* (2017) TO DATE

- Cover illustrations have been provided by **Drs. Phil Crews** (University of California-Santa Cruz; January-June) and **Bill Baker** (University of South Florida; July-December).
- A special issue appeared in March, 2017, in honor of **Dr. Crews**, with Drs. Robert Cichewicz, Gordon Cragg, Roger Linington, and Amy Wright serving as Guest Editors. Three papers from this special issue were selected for the “ACS Editors’ Choice” open access feature.
- Full-page articles on papers in *J. Nat. Prod.* by the group of Dr. Cichewicz (University of Oklahoma) and by Drs. Andrea and Donald Stierle (University of Montana) and their co-workers appeared in successive issues of *C&E News* (April 17 and 24, 2017, respectively).
- Reports on the 2017 winners of the *J. Nat. Prod.* Schwarting and Beal Awards appeared in *ACS Axial* (May 22, 2017) and the *ASP Newsletter* (vol. 53, issue 2, p. 11).

MARCH 2018 SPECIAL ISSUE

JOURNAL OF NATURAL PRODUCTS

- This will be in honor of **Dr. Susan B. Horwitz**, Distinguished Professor and Rose C. Falkenstein Professor of Cancer Research, Albert Einstein College of Medicine, Bronx, NY.
- Dr. Horwitz has a long history of working on the pharmacology of natural products, and is particularly well-known for discovering the cellular mechanism of action of taxol (paclitaxel) with microtubules (**Schiff et al., *Nature* 277, 665-667, 1979**).
- Among her many honors, she is both an Editorial Advisory Board member of *J. Nat. Prod.* and a Fellow of the American Society of Pharmacognosy
- The Guest Editors for this special issue are Drs. Steven Swanson, David Kingston, Susan Mooberry, Amos Smith, and Mansukh Wani.

**DECIDING TO PUBLISH A
TECHNICAL ARTICLE**

MANUSCRIPT PUBLICATION

- **WHY SHOULD ONE PUBLISH AND WHEN?:**

You should consider writing a manuscript when you have available solid laboratory results that answer a scientific question and a paper would be likely to be helpful to future workers in the same field.

The paper can be written as a Full Article if the work is substantial, or a Note if of more limited scope.

If the work is potentially highly significant, a Rapid Communication may be warranted. Review articles should be reflective of field of broad interest, and normally should be critical in their approach.

- **PUBLISH WITH PRIDE:**

Before submitting a manuscript for publication, ask yourself if you would be proud to see the paper five, ten, or even twenty years from now? Does it have the substance to justify the joint efforts of the reviewers and editor, and the expense of production?

- **FOLLOW THE CORRECT JOURNAL STYLE!**

In order to have a manuscript sent out for peer review by an editor, this is much more likely to occur if the paper is presented in the correct format for the journal in which you desire to publish.

WHAT AN EDITOR REQUIRES

FROM THE PEER REVIEW

PROCESS

MANUSCRIPT PEER REVIEW

HALLMARKS OF A GOOD MANUSCRIPT PEER REVIEW:

Referees can greatly assist editors by writing reviews that appropriately critique the scientific content of a manuscript.

All parts of a manuscript should be evaluated for novelty and accuracy.

Appropriate citation of relevant previous work is highly important.

For papers that report the structure elucidation of new natural products, an opinion on whether or not the compounds are actually new and the rigor of the analytical approaches used is valuable.

Biological papers should be examined in terms of the type of *in vitro* and/or *in vivo* model(s) used and the statistics applied.

In general, a review constituted by the line “this is an excellent paper and no changes are needed” is not very helpful to a journal editor!

HOW MUCH TIME SHOULD BE SPENT ON THE REVIEW OF A MANUSCRIPT?:

Usually, not more than half a day should be spent on this endeavor.

**EXAMPLES OF PITFALLS MADE BY
AUTHORS, FROM THE
PERSPECTIVE OF A JOURNAL
EDITOR-IN-CHIEF**

THE COVER LETTER

- **OBJECTIVE:** To reveal to the journal editors the novelty and significance of the work as documented in a single page.
- **PITFALLS SOMETIMES MADE BY AUTHORS:**
 - Not providing a cover letter at all.
 - Mentioning the wrong journal in the cover letter to which the paper is being submitted.
 - Enclosing a cover letter for a completely different manuscript than that being submitted!
 - Providing an indecisive, poorly constructed cover letter containing many typographical errors.
- **COURSE OF ACTION REQUIRED OF AUTHORS:**
 - Do not write the cover letter as a last-minute item immediately before submission of the manuscript!
 - Spend time writing and polishing the content of the cover letter at the same time as working on the manuscript itself before submission.

MANUSCRIPT PRESENTATION

- **OBJECTIVE:** Journal editors appreciate receiving a manuscript that is presented as closely as possible to their journal style (font size 12; double spaced), since this saves the time of both reviewers and editors alike.
- **PITFALLS SOMETIMES MADE BY AUTHORS:**
 - Following an arbitrary journal style of their own making.
 - Resubmitting a paper rejected by another journal in the style of the previous journal!
- **COURSE OF ACTION REQUIRED OF AUTHORS:**
 - Download a recently published paper from the journal with a similar technical scope and follow the required style.
 - Ask one or more senior colleagues fluent in the use of scientific English look over your paper before submission.
 - If necessary, use an English-language editing service to help with the manuscript preparation (e.g. through ACS ChemWorx).

CHOOSING NATURAL PRODUCT TRIVIAL NAMES

- **OBJECTIVE:** Trivial names are useful for fairly complex natural products that would otherwise have lengthy semi-systematic names.
- **PITFALLS SOMETIMES MADE BY AUTHORS:**
 - Giving new compounds from the same species of different structural types the same root trivial name, since this confuses the natural product literature unnecessarily.
 - Not checking electronically if a proposed root trivial name has been used in the chemical literature before.
 - Not following established conventions like using the suffix “ine” only for alkaloids.
 - Choosing trivial names based on the name of a project investigator, a friend, a relative, a city, or a country.
- **COURSE OF ACTION REQUIRED OF AUTHORS:**
 - Before coining an entirely new trivial name for a natural product, authors should try and correlate the compound name with an existing trivial name.

OVERSTATING THE BIOLOGICAL IMPORTANCE OF PURIFIED NATURAL PRODUCTS

- **OBJECTIVE:** For a balanced paper, it is important that both the chemical aspects and the biological aspects of a natural product manuscript are significant.
- **PITFALLS SOMETIMES MADE BY AUTHORS:**

Arbitrarily lowering the threshold value for an *in vitro* bioassay to fit the data obtained for the compounds studied [e.g., to <100 μM (!)]. Exaggerating the promise in treating human diseases based on only preliminary *in vitro* data. **EXAMPLE:** Referring to “anticancer activity” when only “cytotoxicity” data against cancer cells has been determined. (For the difference in meaning between these terms, see [Suffness and Douros, *J. Nat. Prod.* 1982, 45, 1-14](#)).
- **COURSE OF ACTION REQUIRED OF AUTHORS:**

Follow the journal guidelines for any required threshold values, e.g., <10 μM for “cytotoxicity” for *J. Nat. Prod.* Most other *in vitro* assays should have similar threshold values for “activity”.
Authors should also refrain from presenting *in vitro* bioassay data with false precision, e.g., expressing IC_{50} data in nM to four significant figures!

INITIAL SCUTINY OF A MANUSCRIPT FOR POTENTIAL SCIENTIFIC INTEGRITY PROBLEMS

- **OBJECTIVE:** Manuscripts are received by a scientific journal on the understanding that authors abide by all stated ethical requirements.
- **PITFALLS SOMETIMES MADE BY AUTHORS:**

The publication of several short scientific articles on the constituents of the same organism rather than a single substantial contribution (i.e., “excessive manuscript fragmentation”) is a wasteful process, both in terms of the precious journal space consumed as well as the time of reviewers and editors.

When some authors attempt to unnecessarily fragment their work, they also try to hide the fact that they are doing this by not citing their own relevant manuscripts that have either been published or are in the process of being published.
- **COURSE OF ACTION REQUIRED OF AUTHORS:**

Read and follow journal ethical guidelines and cite all relevant previous technical publications.

RESPONDING TO A REQUEST FROM AN EDITOR TO REVISE A MANUSCRIPT

- **OBJECTIVE:** In a revised manuscript, authors should demonstrate that they have addressed all prior perceived technical shortcomings identified by the referees and the editor handling the paper, and also that it is prepared in the correct journal style.
- **PITFALLS SOMETIMES MADE BY AUTHORS:**
 - Acting a belligerent manner concerning the reviewer and editorial suggestions.
 - Submitting a revised version that is essentially unchanged from the original manuscript.
 - Trusting that all stylistic shortcomings will “magically” disappear during the journal production process.
- **COURSE OF ACTION REQUIRED OF AUTHORS:**
 - Follow the advice given as faithfully as possible. Not all referee suggestions need to be followed exhaustively, but they all should be considered carefully.

MISCELLANEOUS PITFALLS THAT MAY BE MADE BY AUTHORS

- Adding co-authors based in prestigious institutions where none of the laboratory work described was actually performed.
- Lack of provision of a strong rationale for the purpose of the study in the introductory paragraphs.
- Not adhering to the taxonomic requirements of a journal to demonstrate that the organism investigated was identified correctly.
- Inserting too much “boastful” language in a manuscript for the significance of the results actually obtained, such as by using the word “remarkable”.
- Omitting to state the name of an institution that has permitted an *in vivo* study using vertebrate animals or a study with human subjects. In both cases, the specific protocol number for the experiment(s) described also should be stated.

RESOURCES AVAILABLE TO ASSIST WITH MANUSCRIPT REVIEWING AND WRITING

- **PEER REVIEWING:**

ACS Reviewer Lab (<https://www.acsreviewerlab.org/>). This is free online course to train researchers in the fundamentals of manuscript peer review (available after August 2017).

- **MANUSCRIPT WRITING:**

ACS On Campus (<http://asconcampus.acs.org/org/events/>) has a section entitled “Mastering the Art of Scientific Publication, inclusive of variety of editor tips provided. Further information is available on the “Resources Section” of this webpage.

The ACS Publications Division newsletter “**ACS Axial**” (<http://axial.acs.org>) has frequent articles on how to write an effective scientific paper.

ACKNOWLEDGMENTS

Journal Management Board

Dr. James B. McAlpine (ASP)

Dr. Jerry L. McLaughlin (ASP)

Robert S. O'Dell (ACS)

Leslie A. Walker (ACS)

Journal Editorial Advisory Board

Thirty very prominent male and female natural product scientists representing 13 countries from all six continents

Co-Publishers

American Chemical Society

American Society of Pharmacognosy

Journal Associate Editor,
CAS, Columbus, OH

Diane E. Black

Publications Division,
American Chemical
Society, Washington, DC

Dr. Anirban Mahapatra

Dr. Janice Silverman

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Journal Offices

Lisa Dush, Annécie
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Jr., Wei-Lun Chen, David
Gallegos, Shannon Langdon

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