

## MINUTES OF THE MEETINGS OF THE INDIANA ACADEMY OF SCIENCE 2000

### EXECUTIVE COMMITTEE

Indiana University East, Richmond  
14 April 2000

President Ruth Howes called the meeting to order at 1:05 PM in Room 200C of the Whitewater Building. Members present: Robert Dale, Edward Frazier, Ruth Howes, Marion Jackson, Duvall Jones, Nelson Shaffer, and Robert Waltz.

The minutes of the Executive Committee meeting on 4 November 1999 held at the University of Southern Indiana were approved. The tentative agenda for this meeting were approved. Frazier moved that funds for the IAS Newsletter be budgeted under those for the Publications Committee. Passed unanimously. No known progress on finding a new IAS *Proceedings* Editor.

Howes had previously mailed to the Executive Committee and other participants in the IAS Planning Retreat the final summary of that retreat (held 18–19 February 2000 at St. Mary-of-the-Wood College), in which responses to several earlier e-mail versions were considered. She also distributed three “Action Items for the Executive Committee from the Planning Retreat,” action on the first (#1) of which was handled above by Frazier’s motion. Item #2 was that the Executive Committee recommend that the Council direct the Academy Foundation Committee to move assets within the Wright Fund to meet the needs of the research budget presented in the Report of the Planning Retreat. This item was agreed to unanimously.

In lieu of item #3, Frazier moved that the Executive Committee recommend to the IAS Council and the membership that not more than \$15,000 per year for a period not to exceed five years be transferred from the Foundation Invested Income Account to the Academy Operating Fund. Passed unanimously.

Since Frank Guthrie, Chair, Academy Foundation Trustees, could not attend this meeting, Shaffer entered for the record Guthrie’s e-mail personal comments of 12 April 2000 indicating that the five goals presented from the IAS Planning Retreat are “overly optimistic and often very unrealistic.” Guthrie also indicated that the Academy Foundation Trustees did not support item #3, which led to Frazier’s above motion.

New Business: Howes appointed Marianna J.

Zamlauski-Tucker to the Research Grants Committee for one year in lieu of Anne Spacie. Shaffer reported that Robert Howe will serve on this committee this year but not next year. Howes appointed Tracy Branam to succeed Howe.

Shaffer reported that 39 state agencies have come together to coordinate GIS studies, funded through the state agencies. He recommended that President Howes write an IAS commendatory letter to the Chair on this much-needed effort. There is another GIS meeting on 20 April 2000, and Howes appointed Ed Squiers and Robert Waltz to represent IAS at this meeting.

Another item of discussion from the IAS Planning Retreat was to change Article VI, Section 3 of the IAS Constitution on the constituency of the Executive Committee to delete the Editor of the *Proceedings* and to add the Chairs of the Academy Foundation Committee and the Research Grants Committee. After a brief discussion Frazier moved that the first sentence in Article VI, Section 3 be changed to read, “The Executive Committee of The Academy shall consist of the current elected officers, the immediate past president, and the chairs of the Academy Foundation Committee and Research Grants Committee.” Passed unanimously. (Note that the Constitution may be amended at any annual meeting of The Academy by an affirmative vote of three-fourths of the members in attendance and voting, provided that the amendment has been submitted to the membership at the previous regular meeting, or by mail, at least 30 days prior to the date on which the amendment is presented for adoption and that it has been approved by the Council.)

Frazier distributed and reviewed the IAS Account Summary from 1 January to 15 April 2000, as well as the account for the 1999 Fall meeting and those for each of the previous Fall meetings back to 1991. He pointed out that the expenses for the 1999 Fall meeting were \$1,462 over the income, which is about average except when the meetings are held at Purdue or Indiana Universities, when the loss is closer to \$10,000. Squiers moved that Frazier be commended for an understandable budget presentation. Passed unanimously.

Dale congratulated President Howes for her excellent summary of the IAS Planning Retreat 18–19 February 2000.

Howes terminated the meeting at 2:00 PM.

### COUNCIL MEETING

Indiana University East, Richmond  
14 April 2000

President Ruth Howes opened the meeting at 2:05 PM by asking Council members for a standing introduction.

Members present in addition to those listed for the Executive Committee meeting: James Berry, Stan Burden, Dick Conklin, David Daniell, Kris Dhawale, William Gommel, Nils Johansen, Richard Kjonaas, George Mourad, Holly Oster, Donald Ruch, Damian Schmelz, Ed Squiers, Dan Webster and Terry West.

Webster moved that the minutes of the Council meeting held 4 November 1999 at the University of Southern Indiana be approved as duplicated and mailed. Passed unanimously.

Agenda for this meeting were approved.

Frazier distributed his IAS Account Summary 1 January–15 April 2000, the IAS 1999 Year End Financial Report, and the Financial Report on the 1999 Fall Meeting at the University of Southern Indiana, reviewing them briefly.

Waltz, Chair of the Audit Committee, reported that the financial records of IAS were examined on 31 March 2000 and appear to be fair and accurate.

Shaffer reported that Gary Dolph could not be here, and distributed his report. Dolph has authorized printing of Vol. 106 (3–4) of the *Proceedings*, and it will appear soon. He has 14 articles in various states of review and plans to put them all in Vol. 107 (1–4). Volume 108 (1–4) will be on the Grand Calumet Basin; but because of some difficulties, it has taken eight months of editing time. No information is available on the search for a new *Proceedings* Editor.

President-Elect Squiers proposed three methods of increasing our IAS membership: (1) encourage more graduate student thesis presentations at the Fall meetings rather than at national meetings, (2) encourage state scientific agencies to participate in the Fall meetings, and (3) work on a mobile IAS display for appearances at HASTI and other science and teaching meetings in the state.

Howes presented the items from the Planning Retreat for action by the Council.

Gommel moved to approve the first (I) action item, seconded by Frazier, although there was discussion and minor editing on #1, 4, and 5:

I. The Council of the Indiana Academy of Science sets the following goals for the Academy during the next five years:

(1.) Indiana Academy of Science will be identified as a respected voice of science in Indiana. (2.) The majority of working scientists in Indiana will be members of IAS. (3.) Indiana Academy of Science will actively promote science and science ed-

ucation from kindergarten to graduate school and in informal science-based activities like museums. (4.) Indiana Academy of Science will promote all research in science, but especially that particularly relevant to the State of Indiana. For example, this includes such activities as studying flora and fauna native to the state or studying the state's geology or climate. (5.) Indiana Academy of Science will be recognized as a non-partisan source of advice on issues with scientific content by state agencies, the legislature and the executive branch of state government. The Academy will take positions on issues which clearly impact the health of science in Indiana while avoiding taking issues on political issues.

The motion was approved unanimously.

II. Research grant recipients will be ineligible for further funding if a satisfactory scientific record describing previously funded research is not on file.

III. The Council directs the Research Grants Committee to develop guidelines for highly competitive Wright Grants following the model presented in the report of the Planning Retreat.

Squiers moved to approve action items II and III, seconded by Waltz, and the motion passed.

Since Council action items IV and V were negated by the preceding Executive Committee meeting, Frazier moved that the IAS Council recommend to the membership that not more than \$15,000 per year for a period not to exceed five years be transferred from the Foundation Invested Income Account to the Academy Operating Fund. Seconded by Waltz and approved.

Frazier also presented his motion to change IAS Constitution Article VI, Section 3 on the membership of the Executive Committee. (See Executive Committee minutes.) Passed.

Schmelz, IAS member on the 12-person Natural Resources Commission, distributed his report. NRC sets policy for the Department of Natural Resources, the most controversial issue being the disposal of coal combustion wastes in strip mine pits.

Kjonaas distributed his report as the IAS representative to the AAAS. There were only 20 delegates at the National Association of Academies of Science, and most were the Executive Directors of their respective state academies of science. The workshop was "Will Kansas be cloned?" and several key strategies were discussed to ensure acceptance of teaching evolution in the public school science curriculum. The cost of his trip to Washington was greater than that budgeted by IAS, and Gommel moved that the difference in costs be paid to Kjonaas. Passed.

Gommel reported two deaths of IAS members since the annual meeting, Alton Lindsey and Robert Brooker, both obituaries printed in the March 2000 IAS Newsletter. The deaths of two other members were reported at the meeting, Herman Wells, IU, and Elmer Nussbaum, Taylor University. Gommel

also reminded all members to send him, Shaffer, or Oster their resumes and any member obituaries they see.

Frazier reported on Frank Guthrie's comments on Howes' report on the Planning Retreat. See Executive Committee minutes.

Mourad thanked Claire Chatot, previous Chair of the Research Grants Committee, for a smooth transition, and reported 23 of 43 research proposals funded. Research proposals are read, rated, and funding amounts suggested by each of all five members; and it is difficult to do this in a few weeks. He recommended that the deadline for receipt of the proposals be moved from 3/15 to 3/1 and from 9/15 to 9/1.

Webster requested nominations for awards ASAP.

Ruch reported IAS funds for the Biological Survey are being used by Ron Hellenthal to load data into the Indiana Biological Survey Biodiversity Data Model, there will be a Biological Survey meeting in May 2000, and a workshop on mushrooms at the Fall meeting. The first printing of the flier on exotic plants and the replacement plants has been exhausted.

Oster reported there are no new initiatives in the 2000 budget preparation year and no new money for the IAS *Proceedings*. She has a growing file of resumes and pictures of IAS members. The Academy archives will stay at the State Library.

Dhawale reported all rooms at IUE reserved for the Fall meeting and anticipates no problem with receiving abstracts in electronic formats.

Conklin asked for nominations for President, Secretary, and Research Grants Committee. Appointments have been made for Howe and Spacie, but we need a replacement for Steven Perrill.

Daniell reported the IAS meetings in 2001 will be at IU-PU Fort Wayne, but as yet we do not have a definite location for 2002.

Jones distributed and reviewed a draft report, "Help for Science Mentors," to stop the decline in IAS Youth Activities and focusing on the need for more science mentors.

Shaffer requested that IAS work with a GIS group running out of IUPUI for coordination, Howes and Shaffer to write a letter of support, and Squiers and Waltz to represent IAS at the next GIS group meeting 4/20/2000.

Berry reported the deadline for the next newsletter is June 1.

Jackson reported the IU Press is reprinting "Natural Heritage of Indiana."

Meeting adjourned at 5:25 PM.

Most IAS Council members and guests then met at the Carver's Family Restaurant for dinner at 5:45 PM. After dinner, Professor Jon Branstrator, Earlham College, lectured on "Oceans, Ice, Agriculture, Industry and Economic Development - Richmond's Environmental History," and then described the

three tours planned to begin at 9:00 AM on Saturday morning: #1—Hayes Regional Arboretum on the east side of Richmond; #2—Cope Environmental Center; #3—A 4-mile hike down the Whitewater River Gorge. Jon and Peggy Branstrator, Neil Sabine, and Mary Ann Morse led these interesting tours. People on the Whitewater Gorge tour found many fossils, such as horn corals, 500-million years old. Thanks to our IUE hosts and Earlham volunteers for a wonderful two days.

Respectfully Submitted,  
Robert F. Dale, Secretary

## EXECUTIVE COMMITTEE

Indiana University East, Richmond  
2 November 2000

President Ruth Howes called the meeting to order at 1:15 PM in the Community Room of the Whitewater Building, I.U. East, Richmond, Indiana.

Members present: James Berry, Robert Dale, Gary Dolph, Edward Frazier, Uwe Hansen, Walter Hasenmueller, Ruth Howes, Marion Jackson, Duvall Jones, Bill McKnight, Holly Oster, Edwin Squiers, Nelson Shaffer, and Terry West.

The minutes of our Executive Committee meeting on 4 April 2000 held at I.U. East were approved. The tentative agenda for this meeting were approved.

As the first item of his Publications Committee report, McKnight moved that Jim Berry of Butler University be named Editor, *Proceedings* of the Indiana Academy of Science. Approved unanimously. McKnight also recommended that Gary Dolph be commended for his 10 years service as Editor of the *Proceedings*. Approved unanimously. He then moved that Uwe Hansen be named Editor of the IAS Newsletter, and that Jim Berry be thanked for his current and past service as Editor of the newsletter. Passed unanimously. Dolph delivered a box of current *Proceedings* papers for publication to Berry, but he will finish his editing of Volume 108 on the Grand Calumet Basin.

McKnight reported on four special publications in progress: Amphibians and Reptiles, Sunflowers, Dragonflies, and the reprinting of "Butterflies of Indiana," as well as the possible reprinting or the revised 5<sup>th</sup> edition of "Plants of the Chicago Region." (Details were included in his 18 August memo to the Publications and Executive Committees with enclosures).

Frazier distributed and reviewed his Treasurer's Account Summary and 1 January–31 October 2000 Budget Comparison report. Approved. He pointed out that *Proceedings* IAS page charges were started this year.

Shaffer distributed his report on the IAS membership for each of the last five years, ending with

2000, showing the disturbing downward trend in the total membership as well as in most of the membership categories. With the loss of PSI to CINERGY, we are left with only one Corporate member, Lilly. The need for more members in all categories was discussed. On the other hand, Howes pointed out that the Junior Academy membership has increased due to the efforts of Duvall Jones, Linda Airey, and Shireen DeSouza.

Berry distributed and reviewed his report on possible changes (9) in the *Proceedings* of the IAS, inviting members to attend the discussion session on the future of the *Proceedings* at 2:30 PM, 3 November in Room 222, Whitewater Building.

Hansen discussed his plans and possible items for the IAS Newsletter.

Squiers listed his first five efforts as President-Elect: (1) Obtain IAS stationery for Shaffer and Secretary, (2) Work to pass state legislation to change the State Wild Flower from the peony to the fire pink, (3) Get a movable display booth to advertise the IAS, (4) Pursue increasing the number of corporate IAS memberships (@ \$500), to 20 this year, as well as members, and (5) Schedule IAS budget meeting at Taylor University for 2 December 2000.

Howes will ask members to approve two items at the annual meeting tomorrow: (1) the change to the constitution in the membership of the IAS Executive Committee, and (2) the movement of not more than \$15,000/year for a period not to exceed five years from the Foundation Investment Income Account to the Academy Operating Fund beginning in the year 2001. (These items were approved by the Council at the Spring 2000 meeting, but have to be voted on by the entire membership at the annual meeting). She also distributed and reviewed a plan for involving Indiana high school students in research. This moves the talent search from Spring to Fall and seeks more cooperation with the Hoosier Association of Science Teachers Inc. (HASTI) and the Science Education Foundation of Indiana (SEFI) by having a joint steering committee of two members each from IAS, HASTI, and SEFI. The IAS members will be the Director of the Junior Academy and the Chair of the Science Talent Search Committee. Squiers moved approval, second by Jackson, and passed unanimously.

Frazier distributed Frank Guthrie's Academy Foundation Trustee Report, pointing out that the transfer of assets in the John Wright Fund, the Investment Income Account and the Academy Foundation to Merrill Lynch from Bank One appears to be accomplishing the goals of the Trustees. The Trustees are making good progress toward the five-year goal of increasing funds for research grants and other authorized projects.

Under new business, Howes reported that AAAS has asked IAS to appoint a representative to the

AAAS Section Committee on General Interest in Science and Engineering (Y). Shaffer moved that Kjonaas be so named, Squiers seconded and passed unanimously.

Howes adjourned the meeting at 3:00 P.M.

## COUNCIL MEETING

Indiana University East, Richmond

2 November 2000

President Ruth Howes opened the meeting at 3:10 PM in the Community Room of the Whitewater Building by asking Council members for a standing introduction. Members present in addition to those listed for the Executive Committee meeting: Dick Conklin, Shree Dhawale, Rebecca Dolan, William Gommel, Jim Haddock, Ronald Hellenthal, Nils Johansen, Richard Kjonaas, Marcia Moore, George Mourad, Roger Ratcliffe, Donald Ruch, Damian Schmelz, John Schutt, Walter Wager, and Dan Webster.

Hearing no objections, the minutes of the 14 April 2000 meeting were approved. After adding the IAS website, the agenda were approved.

Frazier distributed and reviewed his Treasurer's Report.

Shaffer distributed and discussed his IAS Membership Report as of 1 November 2000 (see Executive Committee minutes).

Dolph distributed the contents page for Vol. 107, 1-4 (1998), less page numbers, and indicated that the manuscripts for works in progress had been given to Jim Berry, the new Editor for the *Proceedings*, with the exception of those for the Grand Calumet Basin, which he will finish in Vol. 108 (1999). Berry distributed his suggestions for changes in the *Proceedings* and invited all to the discussion tomorrow afternoon.

Howes asked everyone to help bring a "For" vote on the two items to come before the annual meeting tomorrow (See Executive Committee Minutes).

Squiers, to increase the IAS visibility in the State, indicated the five goals he will try to accomplish in 2001 (see Executive Committee minutes), as well as exploring the use of the Past President's fund.

With regard to changing the state flower, Ruch said the Indiana Native Plant and Wildflower Society (INPAWS) has prepared a two-color flier on this. Squiers moved that IAS support the state flower bill, changing the peony to the native fire pink. Approved unanimously.

Schmelz distributed and discussed his Report on the Natural Resources Commission, which meets monthly and sets policy for the Dept. of Natural Resources.

Kjonaas distributed and discussed his report as IAS Representative to the AAAS. At the 2000 NAAS meeting 17 of the 44 state academies were

represented at the Assembly of Delegates, and student presenters at the AJAS represented 27 state academies. Twelve states fail so thoroughly to teach evolution as to render their standards totally useless.

Nelson moved that Kjonaas also represent IAS on the AAAS (Y) committee (see Executive Committee minutes). Seconded by Gommel and approved.

Gommel read names of members reported deceased and asked for any others known to the Council, as well as vitae from all members.

Oster distributed her annual report 2000 for the IAS Wright Memorial Library. The *Proceedings* of the IAS, Vol. 106, No. 3–4 was mailed to 636 eligible IAS members, 69 Indiana libraries, and 16 indexing/abstracting services. She constructed an exhibit showing the historical relationship between the Indiana State Library and the IAS for the 175<sup>th</sup> anniversary of the State Library and the inauguration of the renovation of the Library and Historical Building on 6 October. Several updates were made to the Indiana State Library/IAS webpage, including a link to the “IAS.org” site. She will take down her website when the new website at Butler is ready. Oster also distributed a letter from the Gale Group, Farmington Hills, Michigan, 7 July 2000, with attachments of Gale Group Databases and Licensing Agreement, asking to license *Proceedings* of the IAS. They will pay royalties to IAS and start with 1999. After discussion, Gommel moved that we sign an agreement for a three-year period, pending further investigation by Shaffer, Frazier, and Oster. Seconded by Frazier and passed unanimously.

Howes thanked Shree Dhawale for all the work and excellent facilities he and his committee had arranged at IUE for our Spring and Fall IAS meetings.

Haddock distributed and discussed his report on plans of the Local Arrangements Committee for the 20–21 April 2001 and 8–9 November 2001 meetings at the Indiana University-Purdue University Fort Wayne campus.

Moore and Dolan distributed IAS website pages available on <http://www.indianaacademyofscience.org> being constructed at Butler University. This IAS website is being provided and kept up-to-date by Butler as a service to the citizens of Indiana with no cost to IAS. Any questions should be addressed to Marcia Moore at [mmoore@butler.edu](mailto:mmoore@butler.edu), or (317)-940-8302.

Webster distributed the Awards Committee recommendations:

Emeritus membership—Howard E. Dunn, Chemistry, University of Southern Indiana; Fellow—William R. Adams, Anthropology, Indiana University, Bloomington; Special Service Award—Gary E. Dolph, Editor, *Proceedings* of the IAS.

Award recommendations approved unanimously.

Ruch reported for the Biodiversity and Natural

Areas Committee. Tom Simon is Chairman of the Indiana Biological Survey, which is patterned after the program in Ohio. Their website, [indianabiologicalsurvey.org](http://indianabiologicalsurvey.org) is almost ready. The BNA committee (Ruch) will host “How to Identify Mushrooms—The Basics for the Beginner” at 1:00 P.M. on 3 November in 221 Whitewater Building, and he apologized for scheduling this special session at the same time as the annual IAS meeting.

Hellenthal briefly described his work on databases and information modeling.

Conklin announced the IAS election results: President-Elect—Terry West; Secretary—Nils Johansen; Academy Foundation—Wendell McBurney; and Research Grants—John Huffman.

McKnight reviewed the publications report (see Executive Committee minutes).

Jackson reported that the “Natural Heritage of Indiana” has been reprinted.

Mourad distributed and reviewed the 2000 Annual Report 2000 of the Research Grants Committee. This included tables of both Senior (48) and Junior (27) Research applications for the Spring and Fall 2000, by discipline and university, or high school, and those funded. Due largely to the IAS 18-19 February 2000 retreat, the research funds allocated will increase from \$40,000 to \$70,000 for senior grants over the next five years and from \$2,500 to \$3,500 for junior grants. West pointed out disparity between 34 biology proposals funded against 3 for Geology.

Jones thanked Mourad for their overlapping Junior Academy research efforts and distributed a proposal to AAAS for funds (\$1,500 for 2000–2001) to support secondary school student research grants, attaching the summary report for the results of the 1999–2000 AAAS \$1,500 Grant.

President Howes adjourned the meeting at 5:30 P.M.

## GENERAL BUSINESS MEETING

Indiana University East, Richmond

3 November 2000

The annual IAS meeting was opened at 12:50 P.M. with a welcoming statement by Walter Wagor, Asst. Vice-Chancellor for Academic Affairs, IUE. John Schutt introduced the Speaker of the Year, Gary M. Hieftje, Dept. of Chemistry, IU Bloomington, who gave an exciting speech on “Instrumentation Science in the New Millennium.”

Ruth Howes called the Annual IAS Business Meeting to order at 1:30 P.M. The first order of business was to approve the two items previously approved by the Council at its 14 April 2000 meeting: (1.) Amending the IAS Constitution to change the membership of the Executive Committee by removing the Editor of the *Proceedings* of the IAS

and adding the Chairs of the Research Grants Committee and the Foundation Committee to the Executive Committee, and (2.) Transferring no more than \$15,000/year for a period not to exceed five years from the Foundation Invested Income Account to the Academy Operating Fund, beginning in the year 2001. Hansen moved approval of (1), seconded by Squiers, and passed unanimously. Frazier moved approval of (2), seconded by Dale, and passed unanimously.

Squiers moved that IAS support efforts to the change of the state flower from the peony to the native fire pink (*Silene virginica* L.). Frazier seconded and it passed unanimously.

Howes read a Resolution drafted for the IAS meetings 2–November 2000:

Whereas; the members of the Indiana Academy of Science are deeply grateful for the invitation to hold the 116<sup>th</sup> annual meeting of the Academy on the campus of Indiana University East, at Richmond; and

Whereas; the administration, faculty, staff and students of Indiana University East have cooperated admirably in providing their facilities, resources, and support for this 116<sup>th</sup> annual meeting of the Indiana Academy of Science; be it

Resolved; that the Academy members here assembled express their sincere appreciation to Dr. David Fulton, Chancellor, and to Vice-Chancellors Diane Roberts, Joanne Matika, and Benjamin Young, for all the courtesies that have been extended to the Academy during this meeting. We are especially grateful to Dr. Shrikrishna Dhawale and Dr. Michael Foos, chairpersons of the local planning committee, to all the members of the committee, and to other facilitators for the arrangements of the entire program and for the comfort and conveniences provided Academy members and guests. We also express our sincere thanks to all Academy members who organized and participated in activities associated with this 116<sup>th</sup> annual meeting of the Indiana Academy of Science.

Frazier moved approval of the Resolution, seconded by Gommel, and passed unanimously.

Webster announced the awards recipients: Emeritus membership—Howard E. Dunn, Chemistry, University of Southern Indiana; Fellow—William

R. Adams, Anthropology, Indiana University, Bloomington; Special Service Award—Gary E. Dolph, Editor, *Proceedings*.

Conklin announced the IAS election results: President-Elect—Terry West; Secretary—Nils Johansen; Academy Foundation—Wendell McBurney; and Research Grants—John Huffman.

Gommel read the names of the following members whose deaths had been reported since our 1999 annual meeting: Robert M. Brooker, William R. Clark, Keith Hunnings, Alton A. Lindsey, Mrs. George F. Martin, Frank J. Welcher, and Herman B. Wells. Members then stood for a moment of silence to honor these departed colleagues for their contribution to the IAS and scientific community at large. Gommel also asked members to send their own vita and obituaries for any members known to have died to him, Oster, or Hansen (new IAS newsletter editor).

Howes announced formation of new website <http://www.indianaacademyofscience.org> being constructed at Butler University. This IAS website is being provided and kept up-to-date by Butler as a service to the citizens of Indiana with no cost to IAS. Any questions should be addressed to Marcia Moore at [mmoore@butler.edu](mailto:mmoore@butler.edu) (317)-940-8302.

Howes then thanked all officers, especially Rebecca Dolan, Marion Jackson, and Edwin Squires, for their wonderful help in her year 2000 presidency, and handed the gavel to Squiers.

Squiers thanked Howes for all her efforts in leading the IAS this past year and gave five assignments to the membership: (1). Support the change of the state flower from the peony to the fire pink. (2). Help encourage the use of the moving IAS display by sending information on meetings where the display could be used to make the IAS more visible. (3). Suggest corporations and contacts in same for corporate IAS memberships, to increase these from 1 to about 20 in 2001. (4). Recommend your associates for IAS membership. (5). Visit our new website or the old one at the State Library and click on the new one.

Squiers adjourned the 116<sup>th</sup> IAS annual meeting at 2:00 P.M.

Respectfully submitted,  
Robert F. Dale, Secretary IAS

## MINUTES OF THE MEETINGS OF THE INDIANA ACADEMY OF SCIENCE 2001

### EXECUTIVE COMMITTEE

Indiana University-Purdue University  
Fort Wayne  
20 April 2001

President Ed Squiers called the meeting to order at 1:10 PM. Attending: President-Elect Terry West, Treasurer Ed Frazier, Secretary Nils I. Johansen, Past-President Ruth Howes, George Mourad, Jim Berry, Frank A. Guthrie, Uwe Hansen, Executive Director Nelson Shaffer.

Minutes from the meeting of 2 November 2000 at I.U. East, Richmond, were approved with typos corrected as shown.

Tentative agenda were approved.

Treasurer's Report: Dues are slower coming in for renewals. The number of corporate sponsors is down. Presented Finance Committee report from its 14 April meeting. (Approval pending Council meeting). Presented 2000 year end financial report (Approval pending Council meeting).

Executive Director's Report: Dues are late coming in. Shaffer will send out reminders. There are 722 paid, and 60 late as of 19 April 2001. The number of Corporate sponsors is down, and Shaffer will investigate. Yearbook is late (pending late dues). Will be coming out shortly. Shaffer has an IAS talk prepared with visual aids for presenting to groups.

Six members passed away since last meeting.

Discussion followed on membership in general, especially suggestions on how to increase membership.

Academy Foundation Report: Guthrie distributed a written report. He noted that the value of the portfolio is down to \$6.6 million from \$7.3 million, a reduction of 9%, very good considering the recent stock market fluctuations. The fund is well hedged against the market. A change in fund management to Merrill-Lynch resulted in a \$15,000 savings in management fees and \$49,000 increased income. The committee is pleased with Merrill-Lynch as the fund manager. The Invested Income Account has \$36,000 as of 31 March 2001. This combined with investment income of estimated \$20,000 and a 31 October-maturing Treasury note (\$50,000) should be sufficient to support the Fall round of research grants and the first appropriation to the operating budget. The Academy Foundation Account has

about \$23,000 in cash and investment should yield about \$13,000 annually. This is ample to support currently funded programs.

Secretary's Report: Minutes of past meetings were distributed at the beginning of today's meeting. Corrections noted.

President-Elect's Report: West stressed the importance of good communications within the organization, and the need to verify e-mail addresses.

President's Report: Squiers reported that the good news for IAS is that we have good people making things happen in the various committees. He complimented the members for the work they do. We have a display that is used, but the organization struggles with relevance. The President's charge is that we need to be relevant. We need to empower the section chairs. Suggestions were discussed on how to combine the input from the section chairs for the presentations at the Fall meeting with the electronic submission of abstracts directly to the Local Arrangements Committee. Further discussions with the Executive Director will continue to clarify this.

There was also discussion on how to recognize student presentations at the section presentations. Squiers also reported on his first five efforts: (1) Obtain stationery for Secretary and Executive Director: Done; (2) Change the state flower to fire-pink: Frustrating, no legislative action expected at this time, although there seems to be no opposition to the idea either. He will continue to work on this; (3) Movable display booth: Done; (4) Increase corporate members: Frustrating, membership down. Will work with Executive Director to explore possibilities; (5) Budget meeting December 2000: Done.

Publications: Report postponed until the Council meeting immediately following this meeting.

*Proceedings*: Berry reported that since the *Proceedings* is so far behind (2 years), he wants to jump ahead. He will coordinate with Oster to make this transition. There will be changes in the page charges, but no firm decision at this time. We need three editorial board members: anthropology, mathematics and psychology. Suggestions to be forwarded to Berry.

Newsletter: Hansen reported on the status of the Newsletter. Suggestions for continued improvement included having the due date for contributions to

the next issue be included in every issue. The Newsletter is the public face of the Academy. Make it “splashy.”

Grants: Mourad passed out the report of the Research Grants Committee. He emphasized that grant applicants need to be aware of the guidelines, i.e., “read the web-site.”

Old Business: Shaffer asked for a vote on the acceptance of the Gale Group license as discussed last meeting. Moved by Howes, seconded by Mourad to accept. Passed unanimously.

New business: None.

Meeting adjourned 3:07 PM.

Respectfully submitted,  
Nils I. Johansen, P.E.  
Secretary, IAS

### COUNCIL MEETING

Indiana University-Purdue University  
Fort Wayne  
20 April 2001

President Ed Squiers called the meeting to order at 3:24 P.M. Attending: Executive Committee and Council members: President-Elect Terry West, Treasurer Ed Frazier, Secretary Nils I. Johansen, Past-President Ruth Howes, George Mourad, Jim Berry, Frank A. Guthrie, Uwe Hansen, Executive Director Nelson Shaffer; Council members: Jim Haddock, Duvall A. Jones, Richard Kjonaas, Dan Webster, Donald Ruch, David Daniell, Damian Schmelz, Bill McKnight, and Holly Oster.

Minutes from the meeting of 2 November 2000 at Indiana University East, approved with typos corrected as shown.

Tentative agenda approved.

Treasurer’s Report: Dues are slower coming in for renewals. The number of corporate sponsors is down. Presented and distributed the Finance Committee report from its 14 April Meeting and the 2000 year end financial report. Motion by Frazier, Schmelz seconded, to approve the reports. Passed unanimously.

Executive Director’s Report: Dues are late coming in. Shaffer will send out reminders. 722 paid, 60 late as of 19 April 2001. Corporate sponsors are down, Shaffer will investigate. Yearbook is late (pending late dues). Will be coming out shortly. Shaffer has an IAS talk prepared with visual aids for presenting to groups.

Six members passed away since last meeting. Discussion followed on membership in general, especially suggestions on how to increase membership.

Asked for a motion to accept the Gale Group’s proposal to list the *Proceedings* on line. West made motion, Webster seconded to approve. Passed unanimously.

Academy Foundation Report: Guthrie distributed a written report. He noted that the value of the portfolio is down to \$6.6 million from \$7.3 million, a reduction of 9%; very good considering the recent stock market fluctuations. The fund is well hedged against the market. A change in fund management to Merrill-Lynch resulted in a \$15,000 savings in management fees and \$49,000 increased income. The committee is pleased with Merrill-Lynch as the fund manager. The Invested Income account has \$36,000 as of 31 March 2001. This combined with investment income of estimated \$20,000 and a 31 October maturing Treasury note (\$50,000) should be sufficient to support the Fall round of research grants and the first appropriation to the operating budget. The Academy Foundation Account has about \$23,000 in cash and investment should yield about \$13,000 annually. This is ample to support currently funded programs.

Secretary’s Report: Minutes of past meetings were distributed at the beginning of today’s meeting. Corrections noted.

Publications Committee Report: McKnight reported the status on the following publications: “Dragonflies”—final draft off next week; “Sunflowers”—scheduled for early May, four weeks for galley proofs, out by July? “Amphibians and Reptiles”—almost ready for galleys. The publications web-site is in the works.

Newsletter: Hansen reported on the status of the Newsletter. He is working on improving the images and general layout. Suggestions for continued improvement included having the due date for contributions to the next issue be included in every issue. The Newsletter is the public face of the Academy. Make it “splashy.”

*Proceedings*: Berry reported that since the *Proceedings* is so far behind (2 years), he wants to jump ahead. He will coordinate with Oster to make this transition. There will be changes in the page charges, but no firm decision at this time. We need three editorial board members; anthropology, mathematics and psychology. Suggestions to be forwarded to Berry. Berry will continue to work on timeliness and pick up abstracting services.

President-Elect’s Report: West stressed the importance of good communications within the organization, and the need to verify e-mail addresses. West stated that this year as president-elect it would be his “learning year.”

President’s Report: Squiers reported that the good news for IAS is that we have good people making things happen in the various committees. He complimented the members for the work they do. We have a display that is used, but the organization struggles with relevance. The President’s charge is that we need to be relevant. We need to empower the section chairs. Suggestions were discussed on how to combine the input from the section chairs



for the presentations at the Fall meeting with the electronic submission of abstracts directly to the Local Arrangements Committee with a copy to the section chair. Further discussions with the Executive Director will continue to clarify this.

There was also discussion on how to recognize student presentations at the section presentations. Squiers also reported on his first five efforts: (1) Obtain stationery for Secretary and Executive Director: Done; (2) Change the state flower to fire-pink: Frustrating, no legislative action expected at this time, although there seems to be no opposition to the idea either. He will continue to work on this. (3) Movable display booth: Done. (4) Increase corporate members: Frustrating, membership down. Will work with Executive Director to explore possibilities. (5) Budget meeting December 2000: Done. Squiers re-emphasized that IAS needs to move into the 21<sup>st</sup> century.

Indiana Natural Resources Commission: Schmelz distributed his written report. He suggested use of the IAS newsletter to keep members informed about the commission's work.

AAAS Representative: Kjonaas distributed his written report.

Historian's Report: No report.

Committee Reports:

1. Biological Survey: Winona Welch Award report distributed. Indiana Biological Survey Annual Report distributed. Search for corporate sponsors will be coordinated with the Executive Director. The Biological Survey is working on a logo, and will involve high schools in this project.

2. Youth Activities: Jones submitted and distributed his written report. Jones re-emphasized that the youth is the source of our future scientists.

3. Grants: Mourad distributed his committee report. He emphasized that grant applicants need to be aware of the guidelines, i.e., "read the website."

New Business: Daniell announced future meeting hosts: 2002—Butler University; 2003—Anderson University; 2004—possibly Hanover College. Motion by West, Howes seconded, that IAS accept the sites. Passed unanimously. There was some discussion on the date for Fall meetings, Possible coordination with a Fall break would make it more attractive for smaller institutions to host meetings.

Local arrangements: Haddock summarized the field trips for Saturday—18 participants for Geology, 8 participants for Biology and commented on the arrangements for dinner and the evening talk. President Squiers thanked Haddock for the hospitality shown by IPFW for the meeting arrangements and field trips.

Meeting adjourned 5:56 PM.

Respectfully submitted,  
Nils I. Johansen, P.E.  
Secretary, IAS

## EXECUTIVE COMMITTEE

Indiana University-Purdue University  
Fort Wayne  
8 November 2001

President Edwin Squiers called the meeting to order at 1:08 PM. Attending: Treasurer Edward Frazier, Secretary Nils I. Johansen, Past-President Ruth Howes, George Mourad, Jim Berry, Frank A. Guthrie, Bob Waltz, Executive Director Nelson Shaffer. Also attending: Duvall A. Jones, Jim Curry, Bill McKnight.

Agenda approved by consensus.

Minutes from meeting 20 April 2001 at Indiana University-Purdue University Fort Wayne approved. Motion by Mourad, Howes seconded, unanimous approval.

Treasurer's Report: Frazier passed out financial reports. In summary, no major problems. Frazier appreciated the support of the Academy Foundation. The report "stands approved." There are 179 members pre-registered for the 2001 Fall meeting.

Executive Director's Report: Nelson commented on several issues: Need for more corporate sponsors; continue to work on the "profile" of IAS; signed off on the permission to reprint Academy publications; commented on the IAS display that has been across the State. He also encouraged members to use the display and also to recruit more members. A few comments were raised on the accuracy of the 2001 yearbook. Nelson will bring it up to date, and reminded members to bring errors and/or omissions to his attention.

President's Report: Squiers made several comments: Name recognition for the Indiana Academy of Science. There is apparently some confusion in peoples mind between the Indiana Academy, a high school program, and IAS. Suggested work on search engines in order to hit the IAS when the full name is entered. He commented on the impressive Junior Academy talent search program. Membership is an ongoing project. The wildflower bill is in limbo, but he will continue to bring it to the attention of the appropriate legislators. Challenges still facing the IAS: Increase membership from the pool of professional scientists (researchers) in the State. Need to recruit and groom younger members for leadership roles.

Continue to work on budget issues. Where to go from here? Stay on course. Get other members involved. Help the new President-Elect. We are a financially stable organization, thanks to the Academy Foundation and the diligent work carried out by Guthrie and the cooperative work between the Treasurer and the Trustees of the Academy Foundation.

Comments from others: Howes: A reminder that the President grooms the President-Elect. Nelson: Raised the question about an intern. How about

having a high school, undergraduate, or graduate student on the Council?

Jones: Reminded the Council that we have a fine, strong youth program. We can build from these programs.

President-Elect's Report: West was unable to attend (he will be here tomorrow). His report was read by Squiers.

Comments by Committee Chairs present: Postponed until Council meeting.

Academy Foundation Report: Guthrie submitted a written report. In his verbal comments, he cautioned the IAS to be careful with spending until we know what the economy is doing. He was also very pleased with Merrill-Lynch as the financial consultant.

Research Grant Report: Postponed until the Council meeting.

Action Items:

*Proceedings*: Make the *Proceedings* a semi-annual publication. The Publications Committee submitted the recommendation, and it was approved unanimously.

*Web-site consolidation*: Squiers is in charge of an *ad-hoc* committee to address this issue.

*Mileage rate change*: Mileage rate for McKnight (Publications) raised to \$0.30/mile. Motion by Howes, Guthrie seconded, approved unanimously.

*Award recommendations*: Howes had none. Squiers presented the IAS resolution thanking the host institution, approved.

*Change in format of Executive Committee meeting*: Postponed.

*Other*: None.

Additional old business: None.

New business: None.

Meeting adjourned at 2:32 PM.

Respectfully submitted  
Nils I. Johansen, P.E.  
Secretary

## COUNCIL MEETING

Indiana University-Purdue University  
Fort Wayne  
8 November 2001

President Ed Squiers called the meeting to order at 3:07 PM. Attending: Executive Committee and Council members: Treasurer Ed Frazier, Secretary Nils I. Johansen, Past-President Ruth Howes, George Mourad, Jim Berry, Frank A. Guthrie, Bob Waltz, Executive Director Nelson Shaffer; Council members: Duvall A. Jones, Richard Kjonaas, Dan Webster, Donald Ruch, David Daniell, Bill McKnight, Holly Oster, William R. Gommel, Tracy Branam, Dick Conklin.

Agenda approved by consensus.

Minutes from meeting 20 April 2001 at Indiana

University-Purdue University Fort Wayne, approved by consensus.

Treasurer's Report: Frazier submitted written reports.

In his oral comments, Frazier summarized by stating that the IAS is in good shape financially.

Academy Foundation Report: Guthrie distributed a written report. He noted that the value of the portfolio is down about 8% and the income is down about 1%. (The Foundation was commended by many for its efforts to minimize losses in view of the current financial situation.) The Foundation was also pleased with Merrill-Lynch as the fund manager. Guthrie cautioned the IAS to be cautious financially for the next year in light of the current (national) financial outlook.

Secretary's Report: Minutes of previous meeting distributed at the beginning of the meeting.

Executive Director's Report: Nelson distributed a summary of the status of the membership. In his comments he encouraged each member to get new members. If there are errors in the Yearbook, see him. If anyone would like to use the IAS travelling display panel, contact Nelson.

Newsletter Editor's Report: Squiers read Hansen's report. The deadline shifts proposed by Hansen were noted.

*Proceedings* Editor's Report: Berry showed an example of the new *Proceedings* lay-out. The *Proceedings* will now be a semi-annual publication.

President's Report: Squiers gave an oral report. We (IAS) are currently working along the lines of the 5-year plan devised at the retreat in the Spring two years ago. Issues addressed: (1) We need to continue to work on the public face of IAS. (2) We need to work on attracting professionals/researchers to the organization. (3) We also need to work on attracting graduate students and their professors, reminding them that the *Proceedings* is a vehicle of publishing. The new format with the greatly reduced turn-around time should make this attractive. (4) We need to continue to support Junior Academy functions. Few schools and few students are involved, but there are *some really good ones* out there. In general, the Youth Activities program is good investment for IAS. Jones was thanked for his efforts.

The president listed a few frustrations: The wildflower bill has not passed, and we need to find younger members willing to take up the work in leadership positions.

And a couple of bright spots: The budget, the work with the Academy Foundation, the revisions of the *Proceedings*, the new publications (see Publications Committee report), and the research grant awards and the work of the research grant committee.

President-Elect's Report: The written report was read by the President. West stated in his written

report that one of his goals for next year would be to carry forward the strong efforts of his recent predecessors as President.

Indiana Natural Resources Commission Representative's Report: Schmelz's report was distributed. There were no comments.

AAAS Representative's Report: Kjonaas gave an oral summary of activities since the spring meeting. The AAAS awarded IAS \$1500 in support of high school research projects

Historian's Report: Gommel summarized four events this last year. (1) The AAAS award (see report). (2) The Junior Academy and Talent Search adjusted to a change in format and held exciting meetings this Fall. (3) The Research Grant Committee (see report) awarded 41 grants for a total of \$51,700. (4) The Biodiversity and Natural Areas Committee and its subsection, the Indiana Biological Survey, have been active in establishing a computer data base for preserving State Collections.

The following members passed away last year: John M. Ferris, Leland S. McClung, Cornelius W. Pettinga (IAS President in 1991), Robert E. Wise. (These past members will be remembered with a moment of silence at the General Business meeting.)

Gommel also reminded the membership to forward resumes or biographical sketches to him, Howes suggested that members informed him directly or via the Executive Director or the Secretary of members receiving awards. Gommel agreed and said that this also would be an item for the Newsletter.

#### Committee Updates:

a. Publications—McKnight passed out copies of the two latest books: *Amphibians and Reptiles of Indiana* and *Dragonflies of Indiana*. He also submitted a written report on the activities of the committee.

b. Future meetings—2002: Daniell announced that the Spring and Fall meetings for 2002 will be at Butler University. The dates will be: 12–13 April 2002 for the Spring Meeting, and 10–11 October for the Fall Meeting. Because of this early date for the Fall meeting, the word needs to come out early. The Executive Director will include a note with the

dues renewal. Information will also be in the Newsletter.

2003: Meeting at Anderson University;

2004: Potential site is Hanover College.

c. Research Grants—Mourad passed out a written report. Total for 2001: 51 Senior Grants for a total of \$51,000; Spring Junior Grants—6 awarded for \$1,100. The Fall Junior grants are still under review. Mourad then presented some comments. Persons who submit proposals need to pay attention to the paperwork. He thanked his committee members for a job well done. Howes thanked him specially, since she appointed him to the task when she was President. The Council gave Mourad and his committee a round of applause.

d. Biodiversity and Natural Areas—Ruch announced the Biodiversity workshop and the Special Session on the 9th. The special session is at noon, and the workshop is from 2–4 in the afternoon. One of the Indiana Biological Survey's goals is to have an "occasional paper" series.

e. Youth Activities—Jones passed out copies of the AAAS proposal and gave an oral report of the activities. Squires said that we (IAS) owe the Youth Activity Committee a great deal of thanks for its work.

f. Library Committee—Oster gave written and oral reports. Due to remodeling at the State Library, right now the files of the Academy are pretty much inaccessible; but the job should be completed soon.

g. Nominations Committee—Conklin gave the election results: 206 ballots were returned. Robert Waltz, President-Elect for 2002 and President in 2003; Stanley Burden, Academy Foundation; Jeffrey Hughes, Research Grants.

h. Awards Committee—Howes reported. No nominees.

Action Items: The action items from the Executive Committee meeting were forwarded and unanimously accepted.

Other old business: None.

New business: None.

Meeting adjourned at 5:11 PM.

Respectfully submitted:

*Nils I. Johansen, P.E.*

Secretary



# Indiana Academy of Science

## 2001 Year End Financial Report

	Balance 1-Jan-01	Revenues	Expenses	Balance 31-Dec-01
<b>OPERATING FUND</b>	6,118.61			6,080.46
Dues		21,811.69		
Interest		300.09		
Contributions		325.00		
Spring Meeting		715.00	617.18	
Annual Meeting		7,375.00	5,676.95	
Transfer from IAS Foundation		6,000.00		
Officer's Expenses			4,000.00	
Operating Expenses			6,337.06	
Financial Expenses			1,033.38	
Newsletter Expenses			2,708.03	
Library Operations			3,027.09	
Committee Expenses			21.19	
Speaker of the Year			700.00	
AAAS Representative			881.80	
Web Site Development			1,000.00	
Youth Activities			10,562.25	
<b>Operating Fund Total</b>	<b>6,118.61</b>	<b>36,526.78</b>	<b>36,564.93</b>	<b>6,080.46</b>
<b>RESTRICTED FUNDS</b>				
Proceedings	36,653.08	20,384.00	18,207.00	38,830.08
Publications	(5,355.59)	120,072.23	115,520.70	(804.06)
*   Research Grants	9,105.25	60,799.08	61,200.00	8,704.33
Indiana Biological Survey	0.00	5,000.00	5,000.00	0.00
Lilly Library	6,578.44	0.00	0.00	6,578.44
Welch Fund	10,037.52	368.49	500.00	9,906.01
Life Members Fund	4,016.94	200.00	421.69	3,795.25
Past Presidents Fund	8,741.39	407.00	0.00	9,148.39
<b>Total Restricted Funds</b>	<b>69,777.03</b>	<b>207,230.80</b>	<b>200,849.39</b>	<b>76,158.44</b>
<b>TOTAL FUNDS</b>	<b>75,895.64</b>	<b>243,757.58</b>	<b>237,414.32</b>	<b>82,238.90</b>
<b>FUNDS ON DEPOSIT</b>				
Checking Account	8,555.35	288,656.64	282,940.13	14,271.86
Money Market Savings	57,587.06	57,258.26	57,000.00	57,845.32
Cert. of Deposit	9,753.23	368.49	0.00	10,121.72
<b>TOTAL FUNDS DEPOSITED</b>	<b>75,895.64</b>	<b>346,283.39</b>	<b>339,940.13</b>	<b>82,238.90</b>

\* Provided 41 senior member grants, 29 high school grants and 1 high school teacher fellowship

### ACADEMY FOUNDATION FUNDS

John S. Wright Fund Account	6,246,539.00
Academy Fund Account	177,723.00
Invested Income Account	209,231.00
<b>TOTAL FOUNDATION FUNDS</b>	<b>6,633,493.00</b>

Edward L. Frazier  
Treasurer



# INSTRUCTIONS TO AUTHORS

(revised October 2001)

**General information.**—Manuscripts and all correspondence should be sent to the Editor. To be eligible for publication in the *Proceedings*, at least one author must be a member of the Academy. Papers that have been presented at an Academy meeting may be given preference for publication. Submission of a manuscript to the Editor implies that it has not been sent to another publication, nor has it been published elsewhere. If it is accepted for publication in the *Proceedings*, it may not be republished without the written consent of the Academy.

All manuscripts are evaluated by referees. Submit three copies of the manuscript. Figures in manuscripts for review may be submitted as photocopies, and they should be approximately the size that they will be printed in the *Proceedings*.

After the manuscript has been accepted, the author will be asked to submit the manuscript as a paper copy and on a computer disc in a widely-used word processing program. Indicate clearly on the computer disc the **word processing program** and the **type of computer** (Mac or PC).

Galley proofs will be sent to the primary author for approval and correction.

**Style.**—Do not use right or full justification. Also, use a non-proportional font (e.g., Courier, but not Times Roman).

**Title page.**—The title page should include (1) the title in capital letters, (2) each author's name and address, (3) the running head (see below), and (4) the complete name, address, and telephone number of the author with whom proofs and correspondence should be exchanged, a FAX number and electronic mail address if available.

**Abstract.**—All manuscripts have an abstract, which should summarize the significant facts in the manuscript. The "ABSTRACT" heading in capital letters should be placed at the beginning of the first paragraph set off by a period. Use complete sentences, and limit the abstract to one paragraph and 250 words.

**Keywords.**—Give 3–5 appropriate keywords following the abstract.

**Text.**—Double-space text, tables, legends, etc. throughout. Three categories of headings are used. The first category (METHODS, RESULTS, etc.) is typed in capitals, centered, and on a separate line. The second (lower) category of heading, in bold type, begins a paragraph with an indent and is separated from the text by a period and a dash. (This paragraph begins with an example of this heading.) The third heading category may or may not begin a paragraph, is italicized and followed by a colon. (The paragraph below is an example.) Use only the metric system unless quoting text or referencing collection data.

*Citation of references in the text:* Cite only papers already published or in press. Include within parentheses the surname of the author followed by the date of publication. A comma separates multiple citations by the same author(s) and a semicolon separates citations by different authors, e.g., (Smith 1990), (Jones 1988; Smith 1993), (Smith 1986, 1987; Smith & Jones 1989; Jones et al. 1990).

**Literature cited section.**—Use the following style, and include the full unabbreviated journal title. Repeat the name for multiple references by the same author. Note that book titles have the first letter of each word capitalized.

Walter, J. & B. Hallet. 1979. Geometry of former subglacial water channels and cavities. *Journal of Glaciology* 23:335–346.

Walter, J. 1992. The significance and complexity of communication in moths. Pp. 25–66. *In* *Insect Communications: Mechanisms and Ecological Significance*. (P.N. Work & J.S. Rivers, eds.). Princeton University Press, Princeton, New Jersey.

**Footnotes.**—Footnotes are permitted only on the first printed page to indicate current address or other information concerning the author. These are placed together on a separate page at the end of the manuscript. Tables and figures may not have footnotes.

**Running head.**—The author's surname(s) and an abbreviated title should be typed all in capital letters and must not exceed 60 characters and spaces. The running head should be placed near the top of the title page.

**Tables.**—These should be typed double-spaced, one table to a page and numbered consecutively. Most tables contain only three horizontal lines (see recent issues for examples). Do not use vertical lines or shading. Include all pertinent information in the table legend (no footnotes).

**Illustrations.**—All art work must be camera-ready (mounted and labeled) for reproduction. Figures should be arranged so that they fit (vertically and horizontally) the printed journal page, either one column or two columns, with a minimum of wasted space. When reductions are to be made by the printer, pay particular attention to width of lines and size of lettering in line drawings. Multiple photos assembled into a single plate should be mounted with only a minimum of space separating them. In the case of multiple illustrations mounted together, each illustration must be numbered Fig. 1, Fig. 2, etc.) rather than given letter (A,B, etc.) designations. The name(s) of author(s), and an indication of top edge, and whether the illustration should be one or two columns wide, should be written on the back of the illustration. The overall dimensions should be no more than 11 inches (28 cm) × 14 inches (36 cm). Larger drawings present greater difficulty in shipping and greater risk of damage for which the *Proceedings* assumes no responsibility. In manuscripts for review, photocopies are acceptable, and should be reduced to the exact measurements that the author prefers in the final publication. Make notations in the text margins to indicate the preferred position of illustrations in the printed text. Color plates can be printed; but the author must assume the full cost, currently about \$600 per color plate.

Legends for illustrations should be placed together on the same page(s) and separate from the illustrations. Each plate must have only one legend, as indicated below:

Figures 1–4.—Right chelicerae of species of *Centruroides* from Timbuktu. 1. Dorsal view; 2. Prolateral view of moveable finger; 3. *Centruroides* holotype male; 4. *Centruroides* male. Scale = 1.0 mm.

**Page charges and reprints.**—Page charges are currently \$10 per journal page for members of the Academy and \$70 per page for non-members. Corrections in proof pages must be restricted to printer's errors only; all other alterations will be charged to the author (currently \$3 per line).

Reprints are available only from the Allen Press and should be ordered (with payment) when the author receives the proof pages. Allen Press will not accept reprint orders after the paper is published.

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