

*THE OHIO JOURNAL OF SCIENCE* considers for publication submissions of the following nature:

1. Solicited Submissions - **Book Reviews, Research Reviews.**
2. Unsolicited Submissions - **Brief Notes, Research Reports.**

Solicited submissions will be requested by the editor or by a member of the editorial board. **Book Reviews** will be requested of individuals expert in the subject matter of the book to be reviewed. The approximate length will be 750 words, and the text will include a brief description of the subject matter addressed by the volume, its outstanding strong points, and any obvious weaknesses. **Research Reviews** will be requested to serve as extensive surveys of the literature of an area of science in which Academy members have an interest. In general, reviews will comprise five to ten printed pages. Organization and format of solicited material will be determined by the author(s) and the editorial staff.

Unsolicited submissions, in the form of presentations of quantitative or qualitative data pertinent to any of the sections of the Academy listed inside the front cover, will be considered for peer review. **Brief Notes** are manuscripts which will be published on less than two printed pages (i.e., less than six pages of typescript) and will contain no more than one piece of illustrative material (i.e., table, figure, or other illustrations). The editor will identify papers which meet these criteria as **Brief Notes** if not so categorized by authors. **Research Reports** are papers which will extend beyond two printed pages and which will contain two or more pieces of illustrative material. Regardless of the length of manuscript, unsolicited submissions should be organized according to the following format:

Page 1 - Title, Author(s), Affiliation(s), Abstract

Page 2 and the remainder - Body of the Paper in the order; Introduction, Materials and Methods, Results, Discussion, Acknowledgements, Literature Cited, Tables, Figure Legends, Figures.

**STYLE.** The general style of papers previously published by *THE OJS* should be employed, and can be determined by reading recent issues of *THE JOURNAL*. Manuscripts should be typewritten with wide margins on 21.6 x 27.9 cm (8.5 x 11 in) paper, and be double-spaced throughout including the title and abstract. The only words to be underlined are scientific names. Spell out numbers one through nine and use Arabic numerals above nine. Extensive quotations in the text should be typed slightly indented from the other text. Acceptable symbols and abbreviations for units of measurement should be used as given in the *CBE Style Manual*, 5th ed. (Council of Biology Editors, Inc., 9650 Rockville Pike, Bethesda, MD 20814). This volume is used for editorial decisions with regard to style. Primary text reference should use the International System of Units in all cases, with parenthetical reference to English units at the discretion of the author.

The following guidelines should be adhered to in the organization of the manuscript.

**TITLE, AUTHOR(S), AFFILIATION(S).** The first page of the manuscript should contain the title, author(s) name(s), the affiliation of the author(s) at the time the research was carried out, a shortened title (running head), and the abstract. The title must be typed in upper and lower case letters as it will appear when typeset. Name(s) of the author(s) should be typed in capital letters below the title. The address (department, institution, city, state, postal code, country if not USA) where the research was done should be typed below the name of the author. If more than one institution is to be credited, they should appear in the order of the authors' affiliation. If typed by word processor, copy **should not be justified**. Please use Elite (12 characters per inch) type. A running head of no more than 38 letters and spaces should be typed in capital letters between the address and the abstract.

**ABSTRACT.** The abstract should be a meaningful summary of the significant findings reported in the Brief Note or Research Report. It should be self-sufficient for the presentation of main conclusions and any new methods or procedures critical to the results of the study. The abstract should be brief (250 words or less) but should be written in complete sentences for purposes of comprehension and clarity. Phrases such as "is presented," "is explained," or "is discussed" should not be used. Abstracts from *THE JOURNAL* appear in major international abstracting publications, and may be the only contact that other scientists have with your work.

**MATERIALS AND METHODS.** This section should contain sufficient detail to allow the reader to attempt replication of the reported research. If reference is made by literature citation only to research methods devised by others, any unique modifications of the standard procedure should be explained. Any statistical methods used in the analysis of data should be described and documented.

**RESULTS.** The text of the results should be a descriptive narrative of the main findings, both positive and negative if the latter occurred, of the reported study. This section should not be simply a listing of the tabulated data in text form. Reference to tables and figures included in this section should be made parenthetically in the text.

**DISCUSSION.** This section should consist of the comparing and contrasting of data collected in the presented study with that previously reported in

the literature. A goal is to incorporate at least one literature citation and one reference to illustrative material from the Results section into each paragraph of discussion. Unless there are specific reasons to combine the two, as explained by the author in the letter of transmittal, Results and Discussion should be separate sections.

**ACKNOWLEDGEMENTS.** Colleagues and/or sources of financial support to whom thanks are due for assistance rendered in completion of the research or preparation of the manuscript should be recognized in this section rather than in the body of the text.

**LITERATURE CITED.** References to scientific literature should be arranged alphabetically by first author's last name according to the following examples.

*Journals:* Ackerman, B. 1985 Temporal march of the Chicago heat island. *J. Clim. Appl. Meteorol.* 24: 547-554.

*Books:* Schmidt, G. D. and L. S. Roberts 1977 *Foundations of Parasitology*. C. V. Mosby Co., St. Louis, MO.

*Chapters:* Dancis, J. and H. Schneider 1975 *Physiology: Transfer and barrier function*. In: P. Gruenwald (ed.), *The Placenta and Its Maternal Supply Line*. University Park Press, Baltimore, MD. p. 98-124.

Abbreviation of journal titles should be supplied by the author, and should follow the *CBE Style Manual* form. References in the text are of the form **Patterson (1940)** or **(Patterson 1940)**; if more than two authors appear, the form should be **Patterson et al. (1940)**, with all authors listed in the Literature Cited section.

**TABLES.** Tables must be typed double-spaced, one table to a page, numbered consecutively, and placed in the manuscript after Literature Cited. Since tables must be individually typeset, consolidation of data into the smallest number of tables is encouraged. A horizontal double underline should be made beneath the title of the table, and single underlines should be made the width of the table below the column headings and at the bottom of the table. **Do not use vertical lines, and do not place horizontal lines in the interior of the table.** Footnotes should be used to clarify possible questions within the table, and should be noted by asterisks, daggers, or other symbols to avoid confusion with numerical data. General style of tables can be seen in recent issues of *THE JOURNAL*.

**FIGURE LEGENDS.** Each figure must have a complete legend even though the material is described in the text. The legends should not be placed on the figure, but should be typed in order, double-spaced, on a separate sheet which precedes the figures in the manuscript. Figures should be referred to parenthetically in the text, for example (**Fig. 1**).

**FIGURES.** All illustrations are referred to as "figures," and must be numbered consecutively. Figures may be photographs, or hand- or computer-generated line drawings in black ink. For the sake of economy, closely related illustrations should be grouped and mounted close together on white cardboard for reproduction as a single unit; however, line drawings and photographs should not be grouped together or combined in a single figure. Each figure, or collection of figures in a plate, should be identified along the top edge with name of author(s) and figure number, and on the back with name of author(s) and manuscript title. Illustrations other than those generated by the author must bear permission for use and credit to the originator. **ORIGINAL ART WORK WILL NOT BE RETURNED UNLESS SPECIFICALLY REQUESTED AT TIME OF SUBMISSION. THE AUTHOR MUST SUPPLY A STAMPED SELF-ADDRESSED ENVELOPE FOR RETURN.** The size and proportions of each illustration or group of illustrations should be suitable for reduction to the width and length of the printed page (17.8 x 24.1 cm; 7 x 9.5 in). Care should be taken to minimize the space occupied by any figure, and excessive white space should be avoided. Line drawings should not exceed 20 x 25 cm (8 x 10 in). If carefully drawn, figures need be no more than 33% larger than the size desired in print. Lettering should be done of a size to ensure that it can be read after reduction. On maps and other illustrations where original size is a concern, a graphic scale should be incorporated into the figure. Besides the original art work for each illustration, two photocopies of each should be submitted to avoid delay in the review process.

**FOOTNOTES.** Text footnotes should not be used with the following exceptions. A footnote to the title will be added editorially to state the dates of manuscript submission and revision. A footnote to name(s) of author(s) may be used to indicate a present address different from that at which the research was done, or to indicate the author to whom inquiries should be directed. All other material or comments must be incorporated into the text. In no case should literature citations be inserted as footnotes. They must be listed in the Literature Cited section. Footnotes to tables are permissible, and are encouraged to promote clarity.

Attention to the above instructions will minimize the need for revision and editorial correction, and will shorten the time from submission to publication. Any questions which are not answered by these instructions, by examining papers in recent issues of *THE JOURNAL*, or by the *CBE Style Manual*, 5th ed., should be addressed to the editor.

# The Ohio Junior Academy of Science

**Dr. Lois A. Cook, Director**  
The Ohio Junior Academy of Science  
1020 Hampshire Road  
Dayton, OH 45419  
(513) 299-7098

**Mr. David Weaner**  
Assistant Director, Jr. Academy  
Westerville North HS  
950 Smothers Road  
Westerville, OH 43081  
Phone (614) 895-6060

**State Science Day and Buckeye  
Science & Engineering Fair**  
**Ohio Wesleyan University**  
April 17, 1993

**Dr. Michael Grote**  
State Science Day Director  
Ohio Wesleyan University  
Department of Education  
Delaware, OH 43015  
(614) 368-3561

**Dr. Karl Schwenk**  
Director  
Buckeye Science & Engineering Fair  
Tuscarawas Valley HS  
RD #1 P.O. Box 92  
Zoarville, OH 44656  
(216) 859-2421

**District 1 Defiance College**  
April 3, 1993

**Dr. James R. Frey**  
The Defiance College  
Natural Systems Studies  
Department  
Defiance, OH 43512  
(419) 784-4010, Ext. 428

**Mr. James Short**  
Gorham Fayette HS  
N. Eagle Street  
Fayette OH 43521  
(419) 237-2114

**District 2 University of Toledo**  
March 13, 1993

**Dr. Charlene Czerniak**  
University of Toledo  
College of Education  
Toledo, OH 43606-3390  
(419) 537-2094

**Ms. Dolores Kurek**  
Lourdes College  
6832 Convent Blvd.  
Sylvania, OH 43560-2898  
(419) 885-3211

**District 3 OSU Marion**  
April 3, 1993

**Dr. Randy Leite**  
OSU Marion  
1465 Mt. Vernon Avenue  
Marion, OH 43302-5685  
(614) 389-2361

**Ms. Carol White**  
Baker Middle School  
400 Pennsylvania Avenue  
Marion, OH 43302  
(614) 389-6362

**District 4 Ashland University**  
March 27, 1993

**Dr. Duncan Jamieson**  
Dean of Sciences  
Ashland University  
Ashland, OH 44805  
(419) 289-5260

**Mr. Jeff Steele**  
Mapleton High School  
635 County Rd. 801 Rt. 3  
Ashland, OH 44805  
(419) 945-2188



**District 11 Miami University Oxford  
Campus**  
March 27, 1993

**Mrs. Lois Daniel**  
Miami University  
College of Arts and Sciences  
Oxford, OH 45056  
(513) 529-1859

**Mr. Ed Corley**  
Eaton HS  
P.O. Box 191  
Eldorado OH 45321  
(513) 456-1141

**District 12 Ohio University**  
March 27, 1993

**Dr. James Y. Tong**  
Ohio University  
Department of Chemistry  
Athens, OH 45701-2979  
(614) 593-1738

**Mr. Bill Bahr**  
206 Greer Rd.  
Bidwell, OH 45614-9998  
(614) 446-2642  
(614) 593-1738

**District 13 Walsh College**  
March 27, 1993

**Dr. Michael Dunphy**  
Walsh College - Biology Department  
220 Easton St. NW  
North Canton, OH 44720  
(216) 499-7090

**Dr. Jane Hazen**  
Stark County Schools  
7800 Columbus Road, N.E.  
Canton, OH 44641  
(216) 453-7711

**District 14 Shawnee State Univ.**  
April 3, 1993

**Mr. David Todd**  
Shawnee State University  
940 Second St.  
Portsmouth, OH 45662  
(614) 354-3205

**Ms. Sherlyene Rice**  
Clay High School  
Rt. 6 Box 10A  
Portsmouth, OH 45662  
(614) 354-6644

**District 15 Youngstown State Univ.**  
April 3, 1993

**Dr. Daryl Mincey**  
Youngstown State University  
Chemistry Department  
Youngstown, OH 44555-0001  
(216) 742-3663

**Dr. Thomas J. Stellers**  
Mahoning County Schools  
2801 Market Street  
Youngstown, OH 44407-1693  
(216) 788-2481

**District 16 Belmont Technical College**  
April 3, 1993

**Mr. Marshal Piccin**  
Belmont Technical College  
120 Fox-Shannon Place  
St. Clairsville, OH 43950  
(614) 695-9500

**Mr. Wayne Shirbush**  
Beallsville High School  
52682 Ohio Avenue  
Beallsville, OH 43716  
(614) 926-1302

**The Ohio Academy of Science**  
1500 West Third Ave. Suite 223  
Columbus, OH 43212-2817  
Phone or FAX (614) 488-2228

## District Science Days

**District 5 University of Akron**  
April 3, 1993

**Dr. Martha Kory**  
University of Akron  
Department of Biology  
Akron, OH 44325-3908  
(216) 972-7154

**Ms. Toni Miller**  
Springfield HS  
721 Northwood Dr.  
Uniontown, OH 44685  
(216) 896-2533

**District 6 Ohio Northern Univ.**  
March 27, 1993

**Professor Terry Keiser**  
Ohio Northern University  
Department of Biology  
Ada, OH 45810-1599  
(419) 772-2327 or 2325

**Mr. Spencer E. Reames**  
Benjamin Logan HS  
555 Newell St. Apt. 41  
Bellefontaine, OH 43311  
(513) 468-7333

**District 7 Columbus State Community  
College**  
March 23, 1993

**Mr. Jeffrey Woodson**  
Columbus State Community College  
550 E. Spring St.  
Columbus, OH 43215-1609  
(614) 227-5014

**Mr. Richard Phillips**  
Big Walnut HS  
P.O. Box 5001  
Sunbury OH 43074-5001  
(614) 965-3766

**District 8 Denison University**  
March 27, 1993

**Dr. George Gilbert**  
Denison University  
Department of Chemistry  
Granville, OH 43023-0603  
(614) 587-6492

**Ms. Janis Clayton**  
Licking County Schools  
20 South Second Street  
Newark, OH 43055  
(614) 349-6000

**District 9 Marietta College**  
March 27, 1993

**Dr. David Cress**  
Marietta College  
Dept. of Petroleum Engineering  
Marietta, OH 45750  
(614) 374-4780

**Mr. Steve Mencer**  
Meadowbrook MS  
58607 Marietta Rd.  
Byesville OH 43723  
(614) 685-2561

**District 10 Wright State Univ.**  
March 27, 1993

**Dr. Lois Cook**  
Professor of Chemistry  
Wright State University  
College of Science & Mathematics  
Dayton, OH 45435  
(513) 873-3611

**Mr. James Yeager**  
North High School  
701 East Home Road  
Springfield, OH 45503  
(513) 322-6504