Back Matter

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DIRECTIONS

The Medical College of Ohio is located between Arlington and Glendale Avenues east of Byrne Road.

From I-75 to I-475 Northbound or U.S. 23/475 Southbound:
Take Airport Hwy. exit (Route 2). Airport Highway east to Byrne Road; turn right to Arlington Avenue, left to MCO entrance.

From I-75 Southbound:
Use exit marked "Maumee/U.S. 25" to Anthony Wayne Trail; take Glendale Avenue west to MCO entrance.

From Ohio Turnpike, East or Westbound: Use exit 4; go north on Reynolds Road to Glendale Avenue; turn right on Glendale (approx. 1/2 mile). Turn left at MCO entrance.

To reach the Cardiac Catheterization Facilities:

Address:
Medical College of Ohio
3000 Arlington Avenue
Toledo, Ohio 43614

Telephone:
419-381-3697 or, 800-321-8383, ext. 3697
Official Announcement
For Members Only

Saturday, April 23, 1994
5:15 P.M.
Medical College of Ohio at Toledo
Dana Conference Center
Lucas

ANNUAL BUSINESS MEETING FOR
THE MEMBERSHIP:

There shall be an Annual Business Meeting for the membership of the Academy during the Annual Meeting. The business session shall be conducted in accordance with the most recently published edition of "Robert's Rules of Order". The order of procedure shall be as follows:

A. A Call to Order by the President.
B. A summary of the Minutes of the previous meeting shall be read by the Secretary.
C. Presentation of the report of the tellers of the election of officers and other positions.
D. Voting on any proposed amendments to the Constitution or By-Laws.
E. Business from the floor.
F. Adjournment.

PROPOSED AMENDMENTS TO THE CONSTITUTION OF THE OHIO ACADEMY OF SCIENCE (1) TO DEFINE THE TERMS OF SERVICE OF THE ACADEMY SECRETARY AND TREASURER, (2) TO CREATE THE OHIO ACADEMY OF SCIENCE DEVELOPMENT COUNCIL, AND (3) TO ENABLE THE ACADEMY GOVERNING COUNCIL, EXECUTIVE COMMITTEE AND OTHER COMMITTEES TO CONDUCT BUSINESS BY MAIL OR OTHER ELECTRONIC MEANS.

Text approved by the Governing Council on March 4, 1994 for consideration by the membership of The Ohio Academy of Science.

NOTE:

New wording is indicated by BOLD ALL CAPITALS; deleted wording is indicated by bold strikethroughs.

ARTICLE IV - OFFICERS

3. SECRETARY:

C. Term of Office: The term of office shall commence immediately upon election AND SHALL BE FOR THREE YEARS. In order to provide continuity in the affairs of the Academy, the Secretary SHALL automatically continue to serve as a member of the Executive Committee and Governing Council for a term of one year. The terms of the Secretary and Treasurer SHALL not terminate in the same calendar year.

4. TREASURER:

E. Term of Office: The term of office shall commence on the first of July following the date of election AND SHALL BE FOR THREE YEARS. Upon completion of the term, the Treasurer SHALL automatically continue to serve as a member of the Executive Committee and Governing Council for a term of one year. The terms of the Treasurer and the Secretary SHALL not terminate in the same calendar year.

ARTICLE V—COUNCILS

1. THE GOVERNING COUNCIL:

A. Membership: The Governing Council shall be composed of the President, President-elect, immediate Past President, Secretary, Treasurer, (when applicable, the outgoing Secretary or the outgoing Treasurer), Editor of The Ohio Journal of Science, Senior Academy Director, Junior Academy Director, Director of the Industrial and Business Council, CHAIRPERSON OF THE DEVELOPMENT COUNCIL, Secretary of The Ohio Academy of Science Foundation, Chief Executive Officer, Representatives to the American Association for the Advancement of Science, Representatives to the National Association of Academies of Science, Representative to the Executive Committee of the Ohio Biological Survey, Historian-Archivist, the at-large members of the Executive Committee, and the Chairpersons of all standing and temporary committees.

6. THE DEVELOPMENT COUNCIL

A. PURPOSE AND GOALS: THE PURPOSE OF THE DEVELOPMENT COUNCIL IS TO DEVELOP FINANCIAL SUPPORT FOR THE OHIO ACADEMY OF SCIENCE AND THEREBY FORWARD AND ENHANCE ITS MISSION BY: DEVELOPING AND IMPLEMENTING POLICIES AND PROCEDURES TO BE ADOPTED BY THE ACADEMY'S GOVERNING COUNCIL IN ORDER TO 1. IDENTIFY, 2. QUALIFY, 3. CULTIVATE, 4. SOLICIT, AND 5. RECOGNIZE DONORS.


D. DUTIES:

(1) GOVERNING DOCUMENT: THE DEVELOPMENT COUNCIL SHALL PREPARE A GOVERNING DOCUMENT TO BE APPROVED BY THE EXECUTIVE COMMITTEE AND GOVERNING COUNCIL OF THE ACADEMY. THE DOCUMENT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING ITEMS:


B. STAFFING PLAN: THE STAFFING PLAN WILL DEFINE THE SKILLS AND QUALIFICATIONS REQUIRED OF THE PAID OR CONTRACT AGENT(S) SERVING AS THE PROFESSIONAL DEVELOPMENT OFFICER AND ANY SUPPORT STAFF. IT WILL CONTAIN JOB DESCRIPTIONS WITH CLEAR EXPECTATIONS.

continued on next page...
C. BUDGET: The budget will identify the source and process to raise or allocate start-up funds to cover staffing costs, equipment, fund raising supplies, and materials.

D. FUND MANAGEMENT: Each contribution collected shall be solely in the name of the Ohio Academy of Science, not later than two business days after receipt of each contribution the entire amount of the contribution shall be deposited initially in an account at a bank or other federally insured financial institution; the account shall be in the name of the Ohio Academy of Science. The Ohio Academy of Science shall have sole control of all withdrawals from the account. Only authorized individuals, whose names are on file with the financial institution, will be given the authority to withdraw any deposited funds from the account. All expenditures must clearly be in compliance with the donor's intent. When compliance is not clear the chair of the development council reserves the right to confer with the officers of the Ohio Academy of Science for approval.

E. RECRUITMENT PLAN: The recruitment plan for development council members will be developed in order to find the right people with the interest and willingness to serve on the development council and to solicit funds on behalf of the Academy. It will contain a job description with clear expectations and a succession plan to insure long term stability of the development efforts.

F. TABLE OF ORGANIZATION: The table of organization will establish standing sub-committees of the development council. At the discretion of the development council additional sub-committees may be established.

G. DONOR PROFILE SYSTEM: The donor profile system database will consist of a giving history to the Academy, donor interests, donor giving policies or preference, donor linkage to the Academy and other pertinent information for appropriate cultivation, solicitation and recognition of individuals, corporations, foundations, organizations and government entities.

(2) THREE YEAR PLAN: A three year plan, updated annually, shall be developed by the development council and submitted to the governing council for approval. The plan will be specific to the fund raising activities required to meet the budgets for each approved activity of the Academy.

(3) FEASIBILITY REVIEW: A funding feasibility review will be conducted by the development council prior to the final approval of the governing council of a final plan, program, project, or the program or project plan. The development council will be presented with an outline of the proposed activity and the anticipated costs and will recommend to the governing council the viability of funding of the project through the development council activities.

ARTICLE VI—COMMITTEES

1. EXECUTIVE COMMITTEE:

A Membership: All members of the Executive Committee shall be Members of the Academy. The membership of the Executive Committee shall consist of the President, President-elect, immediate Past President, Secretary, Treasurer, (when appropriate, either the outgoing Secretary or Treasurer), Director of the Senior Academy, Director of the Junior Academy, Editor of The Ohio Journal of Science, Director of the Industrial and Business Council, CHAIRPERSON OF THE DEVELOPMENT COUNCIL, and six at-large positions, two each from industry, government, and academia who are elected to two year staggered terms each by the membership.

ARTICLE X—RULES OF ORDER

1. All Councils, Committees and other deliberative bodies of The Ohio Academy of Science shall conduct their business according to the most recently published edition of "Robert's Rules of Order."

2. UNLESS DISCUSSION IS REQUESTED, WHICH MAY BE FACILITATED BY A CONFERENCE CALL, ANY ACTION WHICH CAN BE TAKEN OR AUTHORIZED AT A MEETING OF THE GOVERNING COUNCIL, EXECUTIVE COMMITTEE OR OTHER DELIBERATIVE BODIES AND COMMITTEES MAY BE TAKEN OR AUTHORIZED WITHOUT A MEETING BY APPROVAL OF TWO-THIRDS OF THE MEMBERS IN OFFICE BY TELEPHONE, FAX, OTHER ELECTRONIC MEANS, OR BY MAIL VOTE.

- END OF PROPOSED AMENDMENTS -
# 103rd Annual Meeting - Registration Form

The Ohio Academy of Science  
April 22-24, 1994 – Hosted by Medical College of Ohio, Toledo

**Advance registration must be received by April 13, 1994.**

**ALL presenters and other participants must register.** Access to sessions by name tag only. Name tags and information packet will be available at Meeting Registration Desk. Please return the completed registration form along with the appropriate fees to the address printed below. A confirmation and receipt for pre-registration received by April 13 will be mailed to the address listed below. Those registered after April 13 will be able to pick up their receipt at the Meeting Registration Desk.

**PLEASE PRINT OR TYPE.** Please use a separate form for each registration. COPY this form as needed.

Circle; Ms. Mrs. Mr. Dr.  
NAME  
SCHOOL or EMPLOYER  
ADDRESS  
TITLE  
Social Security Number  
Is this a home address? Yes No  
CITY  
STATE  
ZIP  
HOME PHONE (  )  
WORK PHONE (  )  
FAX (  )

**REGISTRATION FEES:** Please fill in the amount. One fee covers ALL THREE DAYS. To avoid higher rates, advance registration and payment must be received by April 13, 1994. On-site registration will be accepted at the higher rate.

<table>
<thead>
<tr>
<th>Member of The Ohio Academy of Science</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Registration</td>
<td>$30 ($35 after April 13, 1994)</td>
</tr>
<tr>
<td>Student Registration</td>
<td>$15 ($20 after April 13, 1994)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-Member - includes membership for FIRST TIME members only.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional Registration</td>
<td>$70 ($75 after April 13, 1994)</td>
</tr>
<tr>
<td>Student Registration</td>
<td>$30 ($35 after April 13, 1994)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RENEWAL of Membership in The Ohio Academy of Science</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>$15</td>
</tr>
<tr>
<td>Professional</td>
<td>$50</td>
</tr>
<tr>
<td>Family</td>
<td>$60</td>
</tr>
</tbody>
</table>

**MEALS** (available ONLY by preregistration. N.A. after April 13, 1994)  
- Friday, April 22 Dinner  $20.00  
- Saturday, April 23 Banquet  $20.00  

**TOTAL ENCLOSED**  

**WHICH OF THE FOLLOWING WILL YOU ATTEND?**

- FRIDAY, April 23, 1994  
  - Geology Symp.  
  - Tour of Sun Oil Co. Refinery

- SATURDAY, April 23, 1994  
  - Technical Section paper and poster presentations  
  - All-Academy Lecture  
  - Internet Workshop (Advance registration required)

- SUNDAY, April 24, 1994  
  - Geology Field Trip

**METHOD OF PAYMENT:** Phone and FAX registrations will be accepted if Purchase Order, MasterCard, or VISA are used. NO REFUNDS AFTER April 20, 1994.

- Checks must be payable to Medical College of Ohio - CCE  
- Charge my credit card.  
  - VISA  
  - MASTERCARD

Card Number  
Exp. Date

Cardholder signature

**MAIL FORM WITH PAYMENT TO:**

Center for Continuing Education  
Medical College of Ohio  
OAS Annual Meeting Registration  
P.O. Box 10008  
Toledo OH 43699

Phone (419) 381-4237  
FAX (419) 381-4025

Advance Registration Deadline: April 13, 1994
PRELIMINARY

CALL FOR PAPERS

104th Annual Meeting -- April 28-30, 1995

The Ohio Academy of Science

To be held at

Otterbein College,
Columbus,
and Co-hosted by

Ross Products Division of Abbott Laboratories,

Columbus

Poster and Podium Presentations on Saturday, April 29, 1995

Abstract deadline: Postmarked by December 1, 1994

For additional abstract forms
or further information call or write:

The Ohio Academy of Science
P.O. Box 12519
Columbus, OH 43212-0519
Phone or FAX (614) 488-2228
AUTHOR'S INSTRUCTIONS FOR PREPARATION OF MANUSCRIPTS FOR PUBLICATION IN THE OHIO JOURNAL OF SCIENCE

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 in a given 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 material 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 the author. 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 OHIO JOURNAL OF SCIENCE should be employed, and can be determined by reading recent issues of THE OHIO JOURNAL OF SCIENCE. 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, 950 Broadway, Bethesda, MD 20814). This volume may be used as a guide 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 should be typed in upper and lowercase letters. The title 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 be arranged alphabetically by first author's last name. 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 explained," "is discussed," and "is not discussed" should not be used. Abstracts from THE OHIO JOURNAL OF SCIENCE should appear in major international abstracting publications, and may be the only contact that other scientists have with your work.

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 explained," "is discussed," and "is not discussed" should not be used. Abstracts from THE OHIO JOURNAL OF SCIENCE should 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 to a procedure already employed in 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. Collaborative or/and source 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.


Abbreviation of journal titles should be supplied by the author, and should follow the CBE Style Manual, 5th ed. (Council of Biology Editors, 950 Broadway, Bethesda, MD 20814). Abbreviation of journal titles should be supplied by the author, and should follow the CBE Style Manual, 5th ed. (Council of Biology Editors, 950 Broadway, Bethesda, MD 20814). Abbreviation of journal titles should be supplied by the author, and should follow the CBE Style Manual, 5th ed. (Council of Biology Editors, 950 Broadway, Bethesda, MD 20814). Abbreviation of journal titles should be supplied by the author, and should follow the CBE Style Manual, 5th ed. (Council of Biology Editors, 950 Broadway, Bethesda, MD 20814). Abbreviation of journal titles should be supplied by the author, and should follow the CBE Style Manual, 5th ed. (Council of Biology Editors, 950 Broadway, Bethesda, MD 20814). Abbreviation of journal titles should be supplied by the author, and should follow the CBE Style Manual, 5th ed. (Council of Biology Editors, 950 Broadway, Bethesda, MD 20814). Abbreviation of journal titles should be supplied by the author, and should follow the CBE Style Manual, 5th ed. (Council of Biology Editors, 950 Broadway, Bethesda, MD 20814).
# 103rd Annual Meeting

## The Ohio Academy of Science

**Hosted by**

The Medical College of Ohio

**Toledo**

**April 22-23-24, 1994**

### General Schedule

#### Friday, April 22, 1994

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 AM - 3:00 PM</td>
<td>Registration in the Dana Conference Center</td>
</tr>
<tr>
<td>9:00 AM - 11:30 AM</td>
<td>Tour of Sun Oil Company Refinery</td>
</tr>
<tr>
<td>9:00 AM - noon</td>
<td>Geology Symposium</td>
</tr>
<tr>
<td>12:00 noon</td>
<td>Lunch (on your own)</td>
</tr>
<tr>
<td>1:30 PM - 5:00 PM</td>
<td>Geology Symposium</td>
</tr>
<tr>
<td>2:00 - 5:00 PM</td>
<td>Ohio Academy of Science Governing Council Meeting</td>
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<tr>
<td>3:00 - 5:00 PM</td>
<td>OBS Executive Committee Meeting</td>
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<tr>
<td>5:00 - 6:00 PM</td>
<td>Reception</td>
</tr>
<tr>
<td>6:00 PM</td>
<td>Joint Dinner of Ohio Academy of Science and Ohio Biological Survey</td>
</tr>
<tr>
<td>8:00 PM</td>
<td>Ohio Biological Survey Advisory Committee</td>
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#### Saturday, April 23, 1994

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:00 AM - 3:00 PM</td>
<td>Registration in Dana Conference Center</td>
</tr>
<tr>
<td>8:00 AM - 9:00 AM</td>
<td>Past Presidents Breakfast</td>
</tr>
<tr>
<td>9:00 AM - 11:00 AM</td>
<td>Morning poster and podium presentations</td>
</tr>
<tr>
<td>9:00 AM - 11:00 AM</td>
<td>Environmental Symposium</td>
</tr>
<tr>
<td>9:00 AM - 10:00 AM</td>
<td>Internet Workshop</td>
</tr>
<tr>
<td>11:15 AM</td>
<td>ALL ACADEMY LECTURE by Dr. Roger C. Bone, MCO President</td>
</tr>
<tr>
<td>12:00 noon</td>
<td>Lunch (on your own)</td>
</tr>
<tr>
<td>1:30 PM - 5:00 PM</td>
<td>Afternoon poster and podium presentations</td>
</tr>
<tr>
<td>5:15 PM</td>
<td>Annual Business Session for Members Only</td>
</tr>
<tr>
<td>5:30 - 6:30 PM</td>
<td>Reception</td>
</tr>
<tr>
<td>6:30 PM</td>
<td>Banquet and Awards Ceremony</td>
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</tbody>
</table>

#### Sunday, April 24, 1994

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 AM - noon</td>
<td>Geology Field Trip to Esrock Materials, Inc. quarry.</td>
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</table>