

How to Get to Ohio Northern University

<http://www.onu.edu/Maps/>

From Toledo OH (1 hr 15 mins.) or Detroit MI (2.5 hrs.)
Take I-75 south to Mt. Cory/Ada exit; then State Route 235 south to Ada, Ohio.

From Cincinnati, OH (2.5 hrs.) Dayton, OH (1.5 hrs.)
Take I-75 north to Lima Ohio; then State Route 309 east to State Route 235 north to Ada, Ohio.

From Columbus, OH (1.5 hrs.)
Take I-270 northwest to US 33 west to Marysville, Ohio; then State Route 31 to Kenton, Ohio; then State Rt. 309 west 13 miles to the intersection of State Rt. 235; then State Rt. 235 north to Ada, Ohio.

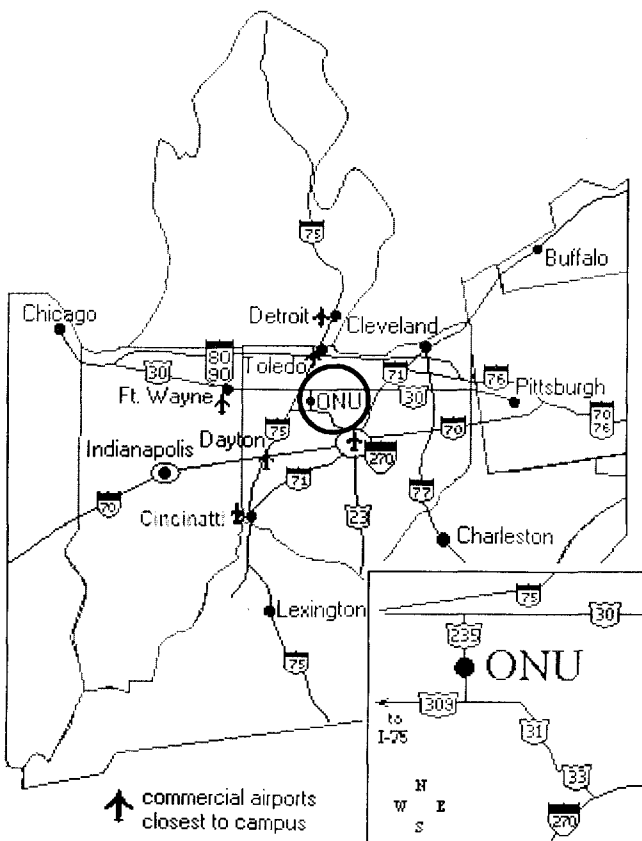
From East Cleveland (3 hrs.)
Take Route 271 south; then Route 71 north to Route 30; then Route 30 west to State Route 235; then State Route 235 south to Ada, Ohio.

From West Cleveland (2.5 hrs.)
Take the turnpike, Route 80, west to Route 53 south exit, follow Route 53 south to Route 6 west; then Route 6 west to I-75; then I-75 south to Mt. Cory/Ada exit; then State Route 235 south to Ada, Ohio.

From Fort Wayne, IN (1.5 hrs.)
Take US 30 east to State Route 235; then State Route 235 south to Ada, Ohio.

From Indianapolis, IN (3 hrs.)
Take I-70 east to Dayton, Ohio, then I-75 north to Lima, Ohio; then State Route 309 east to State Route 235 north to Ada, Ohio.

From Pittsburgh, PA (5 hrs.)
Take the Pennsylvania Turnpike (I-76) west to Ohio Turnpike (I-76) west; then I-76 west continuing through Akron, Ohio; then I-71 south; then US 30 west; then SR 235 south to Ada, Ohio.



THE OHIO ACADEMY OF SCIENCE ANNUAL MEETING Registration Form REGISTRATION FEES

109th Annual Meeting

March 31, April 1 & 2, 2000

Hosted by Ohio Northern University

Advance registration must be received by **March 22, 2000**

ALL authors, presenters and other attendees must register.

ALL MEETING ATTENDEES: Access to sessions by name tag only. Name tag, information packet and receipt will be available at the meeting. Please return the completed registration form along with the appropriate fees to the address printed below.

STUDENTS, SPOUSES, OR RELATIVES: To promote and encourage participation of undergraduates, pre-college students, non-science spouses or relatives, a special discount schedule has been approved. **All students, non-science spouses or relatives must register using a separate form.** This registration does not include membership or meals which must be paid separately.

	After March	22nd
Spouse or relative of first author	\$15	\$20

***Discounted Rates for students who are not first author:**
(Does not include membership)

1-4 from same institution	\$15	\$20
5-10 from same institution	\$10	\$20
11 or more from same institution	\$8	\$20

Please use a SEPARATE REGISTRATION FORM for each person.

Copy this form as needed.

PLEASE PRINT OR TYPE Circle: Ms. Mrs. Mr. Dr.

NAME _____
FIRST MIDDLE LAST

JOB TITLE _____

SCHOOL, ORGANIZATION, AGENCY, INSTITUTION, OR EMPLOYER _____

IS THE FOLLOWING A HOME ADDRESS? Yes No

Students MUST use home, dorm or apartment address.

ADDRESS _____

CITY _____

STATE _____ ZIP _____ COUNTY _____

WORK PHONE (_____) _____

HOME PHONE (_____) _____

FAX (_____) _____

Email _____

MAIL FORM WITH PAYMENT TO:

The Ohio Academy of Science
 PO Box 12519
 Columbus OH 43212-0519
 FAX 614/488-2228

**PRE-REGISTRATION DEADLINE:
 March 22, 2000**

Please check appropriate categories. One fee covers **ALL THREE DAYS**. Payment must be **received** by March 22, 2000 to avoid higher rates. On-site registration will be accepted at the higher rate by credit card or check ONLY. **First authors** have pre-paid registration when submitting their abstracts and **DO NOT NEED to return this form unless they need meals**. First authors are already registered for the meeting.

	After March	22nd
CURRENT MEMBER REGISTRATION RATE		
<input type="checkbox"/> Professional	\$55	\$60
<input type="checkbox"/> Retired	\$30	\$35
<input type="checkbox"/> Student	\$15	\$20

NON-MEMBER PROFESSIONAL AND RETIRED REGISTRATION RATE		
Includes membership		
<input type="checkbox"/> Professional	\$120	\$125
<input type="checkbox"/> Retired with Journal	\$60	\$65
<input type="checkbox"/> Retired without Journal	\$45	\$50

NON-MEMBER PRE-COLLEGE AND COLLEGE STUDENT RATE		
Includes membership		
<input type="checkbox"/> College Student with Journal	\$45	\$50
<input type="checkbox"/> Student (17 & under) with Journal	\$45	\$50
<input type="checkbox"/> Student (17 & under) w/o Journal	\$30	\$35

Does Not Include membership		
<input type="checkbox"/> Pre-college student	\$15	\$20
<input type="checkbox"/> College student	\$15	\$20
<input type="checkbox"/> 5-10 students each	\$10	\$20
<input type="checkbox"/> 11 or more students each	\$8	\$20

*See table at left for more information.

NON-SCIENCE SPOUSE OR RELATIVE OF A FIRST AUTHOR		
<input type="checkbox"/> Spouse or relative	\$15	\$20

Please use a separate form for each.

MEALS (ONLY by preregistration)		
<input type="checkbox"/> Friday Dinner	\$16	N.A.
<input type="checkbox"/> Saturday Lunch (\$6.50)		pay at the door

WORKSHOPS (INCLUDED IN REGISTRATION FEE)		
<input type="checkbox"/> Microbial Discovery		Fri, March 31st
<input type="checkbox"/> Teaching Science Process Skills		Sat, April 1st
<input type="checkbox"/> Writing Theses & Dissertations		Sat, April 1st

SUNDAY FIELD TRIPS		
<input type="checkbox"/> Geology	\$ 5	N.A.
<input type="checkbox"/> Plant Science	\$ 5	N.A.

MEMBERSHIP RENEWAL		
<input type="checkbox"/> Family	\$75	
<input type="checkbox"/> Regular Member	\$65	
<input type="checkbox"/> Retired Member w/OJS	\$30	
<input type="checkbox"/> College Student	\$30	
<input type="checkbox"/> Student (Age 17 & under) w/OJS	\$30	
<input type="checkbox"/> Retired Member w/o OJS	\$15	
<input type="checkbox"/> Student (Age 17 & under) w/o OJS	\$15	

TOTAL ENCLOSED \$ _____

METHOD OF PAYMENT

NO REFUNDS AFTER March 24, 2000.

Return checks subject to a \$15.00 return fee.

Only registrations paid by Purchase Order, VISA, or MasterCard will be accepted by FAX at 614/488-2228.

- Confirms a FAXed registration
- Check enclosed payable to **The Ohio Academy of Science**
- Purchase order enclosed (A \$2.00 processing fee will be added)
- Charge my credit card (A \$2.00 processing fee will be added)

VISA

 MASTERCARD

Card Number

Exp. Date / /

Signature _____

REGISTRATION POLICIES
The Ohio Academy of Science
109th Annual Meeting

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5-10 from same institution	\$10	\$20
11 or more from same institution	\$8	\$20

**Please use a SEPARATE REGISTRATION FORM
for each person.**

Copy the form on the reverse side as needed.

Author's Instructions for Preparation of Manuscripts

The Ohio Journal of Science considers for publication solicited **Book Reviews** and **Research Reviews**, and unsolicited **Brief Notes** and **Research Reports**. Solicited submissions will be requested by the editor or member of the editorial board. Book reviews will be requested of experts in the subject matter of the book to be reviewed. 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.

Unsolicited submissions, in the form of presentations of quantitative or qualitative data pertinent to any of the divisions of the Academy listed inside the front cover, will be considered for peer review. Brief notes are manuscripts that are less than 2 printed pages (approximately 6 typed pages) and contain no more than one table, figure or other type of illustration. The editor will identify papers which meet these criteria as Brief Notes if not already categorized as such by the author. Research Reports are those papers which are longer than 2 pages or contain more than one illustration.

All manuscripts will be organized as follows:

Page 1 - Title, Author(s), Running Head, Abstract

Page 2 and remainder - Introduction, Materials and Methods, Results, Discussion, Acknowledgments, Literature Cited, Tables, Figure Legends, Figures.

STYLE. *The CBE Manual for Authors, Editors, and Publishers*, 6th ed. is used for editorial decisions with regard to style. Manuscripts should be typewritten using 1 inch margins on 8.5 x 11 inch paper. Text should be left-justified using elite print (twelve characters per inch). Three copies should be submitted. Manuscript should be double-spaced throughout, including the title and abstract. Arabic numerals should be used in preference to words when the number designates anything that can be counted or measured (7 samples, 43 species). One exception to this use is that numerals are not used to begin a sentence (Twenty-one species were found in . . .). The 2nd exception is when 2 numeric expressions are adjacent in a sentence. The number easiest to express in words should be spelled out and the other left in numeric form (The sections were divided into eight + acre plots.).

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) should appear below the name of the author(s). If more than one institution is to be credited, they should appear in the order of the authors' affiliation. A running head of not more than 38 letters and spaces should be typed in capital letters between the address and the abstract.

ABSTRACT. The abstract should summarize the main conclusions and any new methods or procedures critical to the results of the study. It should be 250 words or fewer.

INTRODUCTION. The introduction should describe the knowledge that gave rise to the question examined by, or the hypothesis posed for the research.

MATERIALS AND METHODS. This section should describe the research design, the methods and materials used in the research (subjects, their selection, equipment, laboratory or field procedures), and how the findings were analyzed.

RESULTS. The text of the results should be a descriptive narrative of the main findings, of the reported study. This section should not list 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 compare and contrast the data collected in the presented study with that previously reported in the literature. Unless there are specific reasons to combine the two, as explained by the author in the letter of transmittal, Results and Discussion should be two separate sections.

ACKNOWLEDGMENTS. 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 using the Name/Year (N-Y) method as described in the *CBE Manual*.

Journals
Author(s). Year. Article title. *Journal title* volume number (issue number): inclusive pages.

Thomison JB. 1988. Uniform requirements for manuscripts. *South Med J* 81(8):947-52.

Form of citation: (Thomison 1988)

Books
Author(s). Year. Title. Place of publication: publisher name. Number of pages.

Voet D, Voet JG. 1990. Biochemistry. New York: J Wiley. 1223 p.

Form of citation: (Voet and Voet 1990)

Multiple author citation: (Steiner and others 1992)

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.

FIGURES. All illustrations are referred to as "Figures" and must be numbered consecutively. Figures may be photographs, hand-drawn or computer generated drawings in black ink. Each figure should be identified along the top edge with the name of the 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(s) must bear permission for use and credit to the originator. ORIGINAL ARTWORK WILL NOT BE RETURNED UNLESS SPECIFICALLY REQUESTED AT TIME OF SUBMISSION. Each figure must have a complete legend. The legend 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). The size and proportion of each illustration should be suitable for reduction. Excessive white space should be avoided. Illustrations will be reduced to one column width (3 and 3/8 inches) or two column width (7 inches) at the discretion of the editor. 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.

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 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. Literature Cited should not be inserted as footnotes. 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, or by consulting the *CBE Manual for Authors, Editors, and Publishers*, 6th Edition, should be addressed to the editor.

Dr. Thomas W. Schmidlin, Editor,
The Ohio Journal of Science
Dept. of Geography
Kent State University, Kent OH 44242-0001

Phone 330/672-4632 FAX 330/672-4304,
[Email: tschmidl@kent.edu](mailto:tschmidl@kent.edu)

STONE LABORATORY SUMMER COURSES 2000

UPPER-LEVEL TERM COURSES

*Courses meet three days a week
for approximately five weeks*

Designed for undergraduate and graduate students in biological sciences, education, and natural resources; professional biologists and ecologists; and biology and general science teachers.

- Aquatic Entomology
- Experimental Aquatic Ecology & Research
- Field Zoology
- Fish Ecology
- Higher Aquatic Plants
- Limnology

COURSES FOR EDUCATORS

Classes meet daily for one week

Designed for classroom teachers, non-formal educators, and education majors (senior rank by summer 2000).

- Geologic Setting of Lake Erie
- Global Change Education
- Insect Biology for Teachers
- Marine & Aquatic Education: Tropical Studies
- Marine Biology for Teachers
- National Curricula for Water Education (3 Sundays)
- Ornithology for Teachers
- Principles of Oceanography for Science Teachers
- Project Exploration Seminar for Teachers

INTRODUCTORY COURSES

Classes meet daily for one week

Open to college and select high school students.

- Aquatic Biology
- Field-Based Oceanography
- Insect Biology
- Local Flora
- Study of Birds

Students enrolled at Ohio state-assisted colleges and universities may be able to enroll in Stone Laboratory courses through their home institutions. Stone Laboratory also offers scholarships and employment opportunities.

FOR INFORMATION

F. T. Stone Laboratory
The Ohio State University
1314 Kinnear Road
Columbus, OH 43212-1194
614/292-8949, Fax 614/292-4364
www.sg.ohio-state.edu

A HANDS-ON SCIENCE EXPERIENCE



Sea Grant
Ohio Sea Grant College Program

THE OHIO STATE UNIVERSITY

**REQUEST APPLICATION MATERIALS ON-LINE AT
WWW.SG.OHIO-STATE.EDU**

Stone Laboratory, The Ohio State University's north coast campus, is the Lake Erie research and teaching laboratory for the Ohio Sea Grant College Program. Located on the 6.5-acre Gibraltar Island in Put-in-Bay harbor, this facility is the oldest freshwater biological field station and research laboratory in the United States. Since its establishment in 1895, both students and professional biologists have conducted significant research focusing on the ecology of Lake Erie and the Great Lakes region.

Students earn college credit through classroom, laboratory, and field studies, while gaining a comprehensive background in freshwater systems and information on the unique environmental attributes of Lake Erie. At Stone Laboratory, participants will:

- Examine the ecosystem around Stone Laboratory with leaders in science who bring classroom concepts to life.
- Improve research skills with practical, hands-on experience in a living laboratory.
- Earn college credit while still in high school.
- Enhance teaching skills in environmental sciences.
- Live, study, and work on an island for one to 11 weeks.
- Get to know professors personally in small classes (12 to 20 people).
- Prepare for college, graduate school, a future career, and life.

OTHER USES OF STONE LABORATORY

Custom-designed aquatic science workshops/field trips are offered from mid-April through October. Science teachers who teach 4th grade classes and higher are encouraged to bring their students to Stone Laboratory for one to two days of field study. Stone Laboratory can provide laboratories, research boats, field equipment, and experienced field ecologists for such groups.

Conference and retreat facilities are available from mid-April through October. The isolated, informal atmosphere on the island makes it ideal for these programs.

Research facilities at Stone Laboratory are available year round.

A RESOLUTION
BY THE OHIO ACADEMY OF SCIENCE

**RESEARCH EXPERIENCE REQUIRED
FOR EDUCATION OF
SECONDARY SCHOOL SCIENCE TEACHERS**

WHEREAS, the improvement of science education and the enhancement of society's understanding and appreciation of science in order to create a more informed citizenry are responsibilities of The Ohio Academy of Science (OAS); and

WHEREAS, scientific knowledge is gained through a deductive and intuitive method of investigation based on continuous experimentation, observation, and measurement inspiring evolving explanations of natural phenomena, among educators and those they influence; and

WHEREAS, the ability to accurately teach science and the nature of scientific knowledge is obtained not only by being aware of the nature of science, but by gaining further awareness of research fundamentals through experience; and

WHEREAS, many science educators in Ohio's secondary schools do not have research experience, and therefore may not be able to adequately teach students about the fundamentals of science and of the scientific process; and

WHEREAS, we expect music teachers to have firsthand knowledge of those instruments they teach and coaches to have playing experience in their respective sports; and

WHEREAS, while classroom based study and inquiry may provide a familiarization with the basic instruments of scientific endeavor, meaningful scientific research experiences that foster a greater appreciation and understanding of principles through hands-on experience can be found throughout society in the form of corporate and governmental studies and investigations; and

WHEREAS, to the Academy, a research experience means a continuous, multi-week immersion into the given field. This may take the form of an internship or employment in an academic, governmental or industrial environment dedicated to research. This may include laboratory, product development, manufacturing, or supervised field work where the primary objective is to acquire new information or knowledge so as to test a hypothesis and/or solve a business, governmental, or industrial problem or need.

THEREFORE, BE IT RESOLVED, that the Academy asserts that in order to improve science education, secondary school science educators need to have meaningful research experiences in order to more completely and accurately teach students about the nature and practice of science. To this end the public will be better prepared to understand science and scientific issues in a society where science is increasingly playing larger roles in our daily lives; and

BE IT FURTHER RESOLVED THAT, the OAS believes certification requirements for science educators should be revised to require meaningful research experiences, and that colleges and universities should require students pursuing degrees in science education to obtain this research experience for the completion of their degree program.

ANNOUNCEMENT

The Ohio Academy of Science

is pleased to announce

that TOM RUMER

will deliver the after dinner address on

Friday, March 31, 2000

at Ohio Northern University, Ada.

Unearthing the Land

The Story of Ohio's Scioto Marsh

by TOM RUMER

See <http://www.uakron.edu/uapress/rumer.html>

"The Scioto Marsh is an enlightening exhibit of the alteration of a locale—the devitalizing of native flora so that the nutrient swamp floor could be used for agriculture. Here is the why and the what happened relating to this typical American phenomenon. It is a view of change—resolute, quaintly emblematic in its nineteenth century stages, model of replication across the width and breadth of our nation. And, as a former agricultural bonanza, the marsh has affected the lives of generations of people, just as the people have affected the marsh.

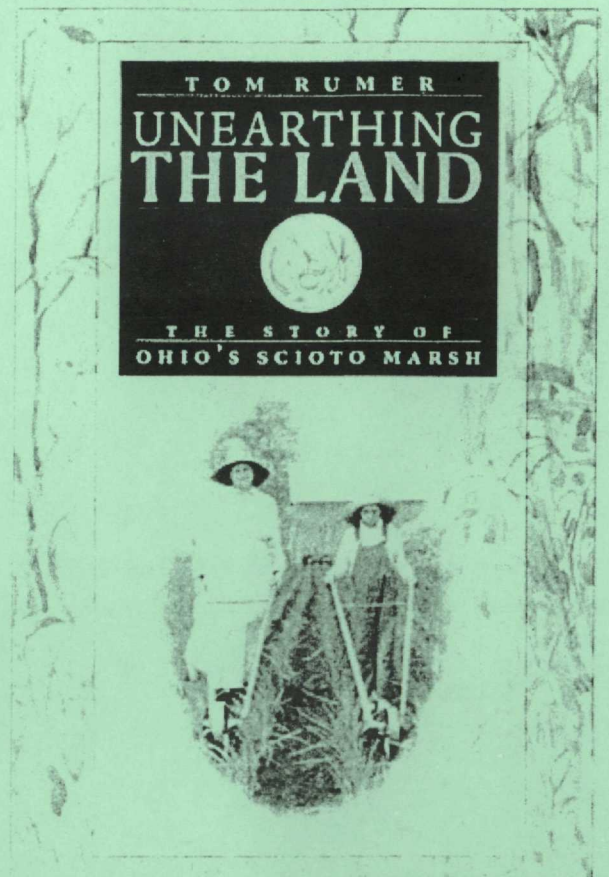
We are, in regard to our many natural environments, in the post-maintenance epoch and, if we are going to have a modicum of quality to our lives and that of our children and grandchildren, we must behave as preservers and restorers, and consumers a distant second."

-Thomas Rumer, from *Unearthing the Land*

The Scioto Marsh in Hardin County, Ohio, was once an immense swamp, teeming with vegetation and wildlife. It was drained in the 1880s to grow vegetables, most notably onions. For decades, hundreds of workers crawled across the fields, hunched over half-mile rows of onions, potatoes, and other crops grown on the tabletop-flat fields of black muck in the 18,000-acre basin.

A much-publicized labor strike erupted during the broiling, violent summer of 1934, breaking the monotony of field work for that season. But the marsh had already begun showing the signs of exploitation—the rich organic soil was evaporating in astounding, incalculable tonnage. Once as deep as a tall pioneer, the muck was now little more than a foot thick.

Unearthing the Land is a century's view of former natural diversity altered by the "progress" of



agriculture. Here, in typically American fashion, are the people who migrated to this place to work, many seeking a better life than offered by the Kentucky coal mines; here, too, are the few who prospered. And here, within the modern context of environmental concerns, is the story of nature's will to retain primal tendencies which still haunt today's fields of carrots and grain crops.

Modern themes of national importance play throughout the story of the Scioto Marsh. From prehistory to the present, the marsh is a compelling backdrop for considering today's essential concerns about land use and environmental responsibility.

Thomas A. Rumer, a native of Kenton, Ohio, is a freelance writer and public historian for the Carmel Clay Historical Association. He received his BS and MA degrees in history and English from Ball State University and his MLS from Indiana University. He has published five books, including *This Emigrating Company: The 1844 Oregon Trail Journal of Jacob Hunter* and *The American Legion: An Official History*. His work has also appeared in *Indianapolis Monthly* and *Indiana Magazine of History*.

See the website above for a sample chapter from *Unearthing the Land*

Cloth 1-884836-51-8; \$39.95 • Paper 1-884836-52-6; \$22.95
Illustrations, maps, bibliography, index