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WISCONSIN MAPPING BULLETIN

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Editor

Art Ziegler
State Cartographer

STATE
CARTOGRAPHER'S
OFFICE

144 Science Hall
Madison, WI 53706
608/262-3065

Est. 1973

MAPPING COMMITTEE

During the winter the Wisconsin Topographic Mapping Committee was quite busy planning and making decisions. The Committee is composed of Dr. Meredith (Buzz) Ostrom, State Geologist and chairperson; Dale Marsh, Dept. of Natural Resources; Tom Carlsen, Dept. of Transportation; Al Miller, Coastal Zone, Dept. of Administration; Al Vonderohe, Civil Engineering UW-Madison; and the State Cartographer.

With the imminent completion of the state's 7.5-minute topo quad program, the Committee is looking into or acting on the following:

1. suggesting an appropriate ceremony to the U.S. Geological Survey to mark the completion of the 7.5-minute series;
2. with that completion, discussing the possibility of an increased revision and update program for older 7.5-minute quads;
3. publishing an improved map index for the 7.5- and 15- minute topographic quads. The index will be published by instate resources and will emphasize our need for a single sheet index;
4. reviewing future topographic mapping programs with the U.S. Geological Survey to be entered into with cooperating state funding; and
5. reviewing the state's use of the increasing availability of U.S. Geological Survey digital map information.

As these initiatives develop, they will be announced in the Bulletin.

If the printing goes according to schedule, the new state index mentioned above should be available by July 1, 1984. The completion of all the state's 7.5-minute quads is still holding firm to an early 1985 date.

As a final note, the Brown County 1:100,000-scale, county-format map is in final review stage and should be printed by August-September of this year. This metric contour map was produced entirely with U.S. Geological Survey funds.

WISCONSIN GEOLOGICAL AND NATURAL HISTORY SURVEY

MAP SALES

1815 University Avenue
Madison, WI 53706
608/263-7389

U.S.G.S. TOPOGRAPHIC MAPS

1:24,000 (7½ minute).....\$2.25
1:62,500 (15 minute).....\$2.25
1:250,000.....\$3.25

U.S.G.S. ORTHOPHOTOQUADS.....\$1.00

U.S.G.S. STATE BASE MAPS

Black-and-White 1:1,000,000.....\$2.00
Topographic 1:500,000.....\$3.50
Shaded Relief 1:500,000.....\$3.50

Wisconsin Residents add 5% sales tax.

W.G.S. MAIL ORDER POSTAGE AND HANDLING CHARGES

| <u>No. of Maps</u> | <u>Folded in Envelope</u> | <u>Rolled in Map Tube</u> |
|--------------------|---------------------------|---------------------------|
| 1-4 | \$.50 | \$1.00 |
| 5 or more | \$1.00 | \$1.50 |

Postage is 3rd class mail.

The Wisconsin Geological Survey is the major sales agent for U.S. Geological Survey (U.S.G.S.) topographic maps. They distribute a free map index and a free list of their own publications and maps.

The A.H. Robinson Map Library at 310 Science Hall, UW-Madison houses two complete sets of U.S.G.S. topographic quadrangles for Wisconsin. One is for in-house use only; the other circulates for a two-week loan period. The Map Library also has U.S.G.S. topo quads for all the other states.

Several other University of Wisconsin libraries automatically receive U.S.G.S. maps for Wisconsin as depository items. They are Eau Claire, Green Bay, Parkside in Kenosha, La Crosse, Milwaukee, Oshkosh, Platteville, and Stevens Point. The libraries at Lawrence University and at Beloit College also have topo map collections. Public libraries may have incomplete sets. Milwaukee Public Library does maintain a complete Wisconsin collection.

The State Cartographer's Office brings you this information and neither sells nor loans any maps whatsoever. All our publications are distributed free of charge.

NEW U.S. GEOLOGICAL SURVEY PRODUCTION

These newly published (underlined below) 7½' topographic quadrangle maps (1:24,000) are listed by their location on the superseded 15' topographic map of the area. They are available from the Wisconsin Geological Survey, 1815 University Ave., Madison, WI 53706 608/263-7389. Topographic quadrangles are \$2.25 each, plus tax, postage and handling.

1 PATZAU 15' TOPO
 NE¼ Annicon Lake '75
 NW¼ Patzau '75
 SW¼ none
 SE¼ Empire Swamp '83

2 GRANTSBURG 15' TOPO
 NE¼ Monson Lake '82
 NW¼ Lake Clayton '82
 SW¼ none
 SE¼ Falun '82

3 WEBSTER 15' TOPO
 NE¼ Webster '82
 NW¼ Yellow Lake '82
 SW¼ Siren West '82
 SE¼ Siren East '82

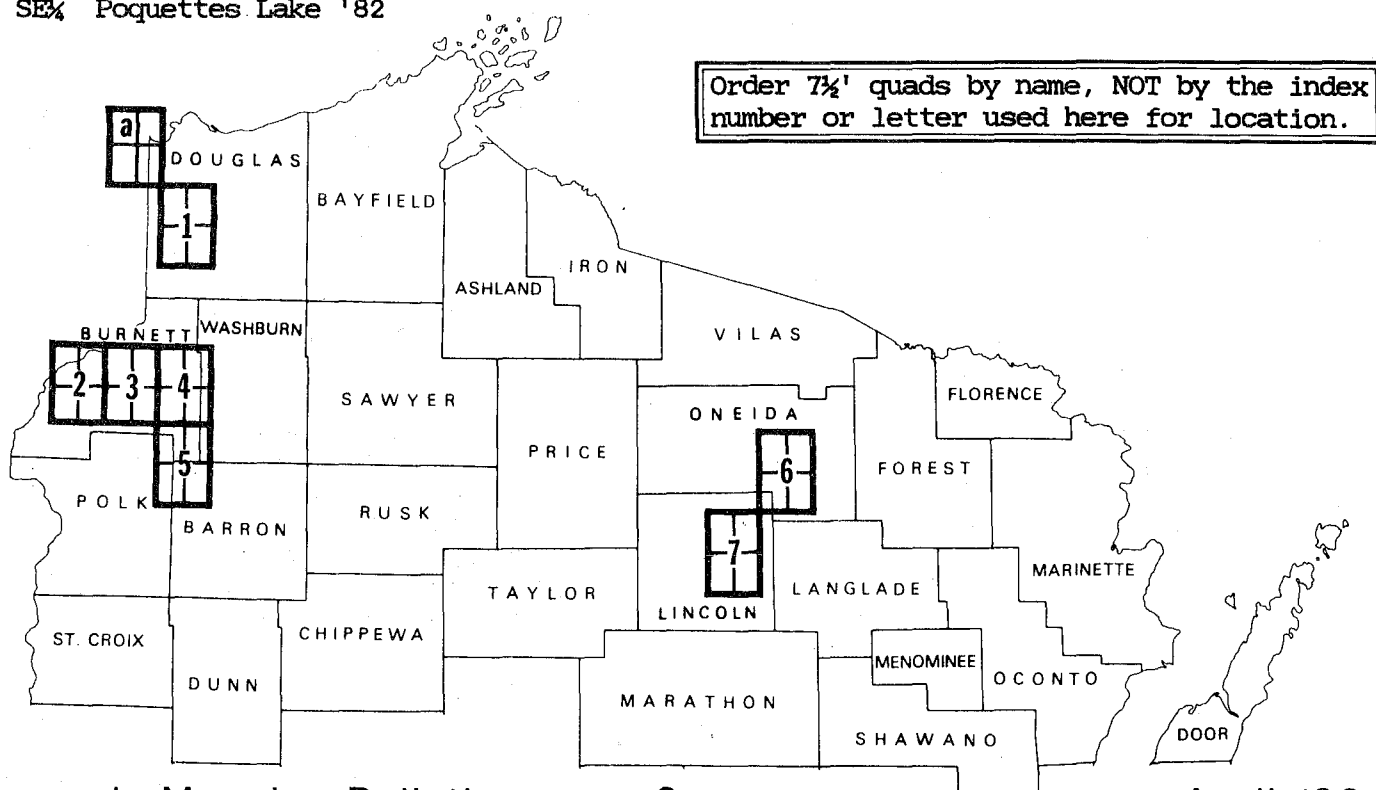
4 HERTEL 15' TOPO
 NE¼ McKenzie Lake '82
 NW¼ Birch Island Lake '83
 SW¼ none
 SE¼ Poquettes Lake '82

5 CUMBERLAND 15' TOPO
 NE¼ Timberland '82
 NW¼ Indian Creek '82
 SW¼ McKinley '82
 SE¼ none

6 RHINELANDER 15' TOPO
 NE¼ none
 NW¼ Rhinelanders '82
 SW¼ none
 SE¼ George Lake '82

7 TOMAHAWK 15' TOPO
 NE¼ Harrison '82
 NW¼ none
 SW¼ Irma '82
 SE¼ Bloomville '82

PHOTOREVISED 7½' QUADS
 a Esko '75, '83PR



STATE LINE BOUNDARY MARKERS

Rock County Surveyor Don Barnes recently ran into a bureaucratic quagmire when he sought to remonument a lost corner which fell on the border between Rock County, WI and Winnebago County, IL. While seeking proper authorization, Don found he had more than a local problem to deal with. It so happens that Wisconsin has adopted the Bureau of Land Management's Manual of Instructions for the Survey of the Public Lands of the United States (1973) for guidelines. Section 5-19 of the Manual requires an order of the United States Supreme Court or authorization of the adjoining states plus congressional approval to replace a lost state boundary monument. Wisconsin Attorney General Bronson LaFollette issued an opinion in October 1983 that such authorization would have to be secured before the lost boundary marker can be reset. In order to start the paperwork, Don contacted the Federal and State Supreme Courts, the BLM, the congressional representative, legal committees, private attorneys, and the Rock County Corporation Counsel. After conferring with these experts, Don still doesn't know what forms are required or how to submit them. The authorization issue is stalled for the time being.

The following excerpt will emphasize why there is a need to remonument original boundary markers. It comes from a letter dated January 29, 1833 to President Andrew Jackson written by John Messenger, Commissioner of the State of Illinois and Lucius Lyon, Commissioner on the part of the United States. Lyon had run the state boundary, starting from the fourth principal meridian, east to Lake Michigan. At the starting point there was a monument of stone about seven feet long, weighing about five tons, which was hewn at one end and set firmly in the ground at the high water mark. That was a fairly substantial monument. However, the comparable monument at Lake Michigan was considerably less durable. Lyon and Messenger write:

"At its intersection with the western shore of the lake, it was the intention of the commissioners to establish a

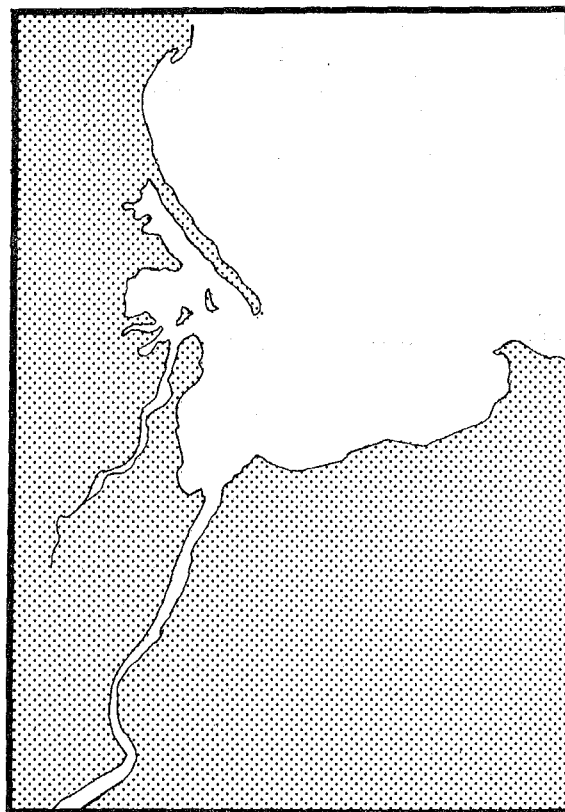
permanent stone monument similar to the one set up at the beginning of the line on the Mississippi; the scarcity, however, and the great expense of procuring stone, induced them to relinquish the idea, and to rely on such marks, artificial and natural, as they were enabled to make and to describe.

An oak post a foot square and nine feet long, was set firmly in the ground to the depth of five feet, in a small thicket of willows, about one chain from the water's edge. This post stands at the termination of the surveyed line, and from it a black oak tree, fifteen inches in diameter, bears south twenty degrees east, three hundred and sixty-one links distant; a black oak twelve inches in diameter, bears north forty-five and a half degrees west, one hundred and fifty-six links distant; a black oak twelve inches in diameter, bears north fourteen and a half degrees west, two hundred and thirty-one links distant; a black oak fifteen inches in diameter, bears north seventy-five degrees west, one hundred and seventy-two links distant; a black oak twelve inches in diameter, bears north one degree west, three hundred and eighty-four links distant; and a black oak ten inches in diameter, bears south thirty degrees east, two hundred and twenty-eight links distant.

The three first trees are marked with a notch in a blaze near the ground and facing the post, the three last are not blazed but have nails driven into them, out of sight, about three feet from the ground on the side nearest the post." (Report of the Secretary of the Treasury, 24th congress, 1st Session, 1835).

This was a major landmark establishing the termination of a state boundary. One can easily imagine the impermanence of the markers inbetween. However, resetting these intermediate markers with permanent monuments is no easy matter. Ask Don Barnes.

MAP CURIOSITY CORNER



Quickly, which one of these harbors is the city of Green Bay? If you choose the one on the left you're correct. But where is Green Bay's twin city located? (The answer is on the bottom of this page.)

BLM IN MILWAUKEE

Last December, former Secretary of the Interior James G. Watt announced the merger of the onshore minerals functions of the Minerals Management Service (MMS) (formerly the Conservation Division of the U.S. Geological Survey) into the Bureau of Land Management (BLM). That merger and the ensuing reorganization of the Bureau's Eastern States Office are now complete. Offshore minerals functions and the royalty management program for both onshore and offshore minerals remain in the MMS.

BLM's Eastern States Office (ESO) in Alexandria, Virginia, is responsible for BLM programs in the 31 states adjoining or east of the Mississippi River. As a

result of the recent organization, ESO has established two district offices, the Milwaukee District Office (Northern) in Wisconsin, and the Jackson District Office (Southeastern) in Mississippi. The Milwaukee District Office is a consolidation of the BLM's former Duluth Field Office and the MMS's former Indianapolis District Minerals Office. The district offices will administer land and realty functions and mineral development programs under ESO jurisdiction. In addition, the Milwaukee District Office will continue to administer its nonenergy minerals program in Missouri through an office located in Rolla, Missouri.

(continued on pg. 6)

Answer: Holy Toledo! It's in Ohio. The geographic look-alike is Toledo on Lake Erie.

The new district office became operational on October 3, 1983. Most contacts involving ESO programs should be made with it. The district manager is Chuck Steele. Write to him at BLM, Milwaukee District Office, P.O. Box 631, Milwaukee, WI 53201 or call 414/291-4401.

As a rule, only in a small number of instances will it be necessary to deal directly with ESO headquarters in Virginia. These instances include submitting a mineral lease application (with the exception of Simultaneous Oil and Gas lease applications, which must be mailed directly to BLM's Wyoming State Office, in Cheyenne) and requesting land title research or a copy of Federal land patents, plats or other such records. Contact G. Curtis Jones, Jr., Eastern States Director at BLM, Eastern States Office, 350 S. Pickett Street, Alexandria, VA 22304, phone 703/235-2833.

ELUSIVE MAP POSTCARDS

The Arthur H. Robinson Map Library and the State Cartographer's Office hope to put together a display showing the United States as portrayed on map postcards. To complete this "map" we need postcards of:

| | |
|---------------|---------------|
| Alabama | North Dakota |
| Alaska | Ohio |
| Arkansas | Oklahoma |
| Conneticut | Oregon |
| Delaware | Pennsylvania |
| Idaho | Rhode Island |
| Indiana | Vermont |
| Kentucky | Virginia |
| Maine | West Virginia |
| Maryland | Wyoming |
| Massachusetts | |

If you, dear Reader, live in one of these states or visit there, please keep your eye out for a state map postcard. All we can offer you is our gratitude.

CART LAB NEWS

This information comes to the WMB from Jim Hilliard, Associate Director of the University of Wisconsin Cartographic Lab (UWCL). For more information contact Jim at 385 Science Hall, Madison, WI 53706, 608/262-1363.

SECTIONAL MAPPING SYSTEM

The UWCL has developed software for an inexpensive computer-assisted mapping system. This system, developed for Dodge County, Wisconsin, utilizes computing facilities at the UWCL and the Madison Academic Computing Center (MACC) to transform and plot mapping data received from the county. Interested persons should contact Howard Mead at 608/262-1386.

CAM 5 ON VAX

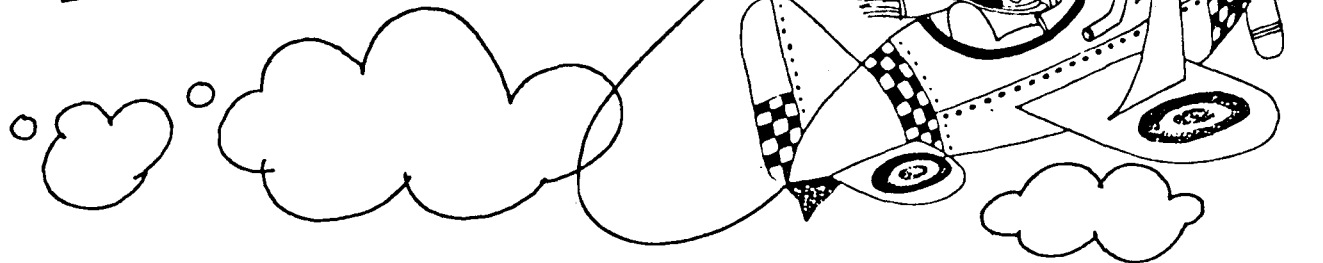
The UWCL has brought the new CAM 5 mapping package up on the MACC Vax 11780 VMS computer. Written for the U.S. Geological Survey, the package is capable of creating 20 map projections and can perform coordinate transformations between latitude, longitude, state plane, UTM and digitizer coordinate systems. Those interested in obtaining or using this set of programs should contact Jim Hilliard at 608/262-1363.

ASHLAND COUNTY RECREATION MAP

The Ashland County Recreation Map being completed at UWCL is an accurate, multi-purpose graphic of this beautiful outdoor area in northern Wisconsin. The map employs an easily-understood, recreation-use pictorial symbol system for locating major points of interest, and of sporting, exploring, and relaxing areas. Those interested in obtaining the full-color map when released should contact Dennis Van Hoof, 201 2nd Street West, Ashland, WI 54806, 715/682-2395.



PUBLICATIONS OF INTEREST



PRECAMBRIAN GEOLOGY OF MARATHON COUNTY

The Wisconsin Geological and Natural History Survey announces the release of Information Circular 45, Precambrian Geology of Marathon County, Wisconsin, by Gene L. LaBerge and Paul E. Myers. The 88-page report contains 63 illustrations and is accompanied by two folded 1:100,000-scale maps of the county: (1) Bedrock Geology of Marathon County, Wisconsin, 38" by 38", is full color; (2) Aeromagnetics of Marathon County, Wisconsin, 40" x 30" is black and white. This publication is the result of geological mapping conducted during the summers of 1969 through 1976 and provides a comprehensive summary of the geology of Marathon County. The package cost for maps, text and appendices is \$8.00. The maps may be purchased separately (see New Maps). Prices do not include 5% Wisconsin residence sales tax. Shipping and handling costs are \$1.70 in WI, \$1.80 in IL, MI, MN, IN and IA, and \$2.20 for all other states and Canada. Orders may be placed with M.A.P.S. Office, Wis. Geological and Natural History Survey, 1815 University Avenue, Madison, WI 53706. You may call the M.A.P.S. Office 608/263-7389 for more information.

1983 NORTH AMERICAN DATUM

The American Association for Geodetic Surveying has issued its Monograph No. 2, The North American Datum of 1983. It features a collection of papers describing the planning and implementation of the readjustment of the North American horizontal network. The soft cover book is 8½" x 11", 56 pages, with illustrations. It's available from the American Congress on Surveying and Mapping, 210 Little Falls Street, Falls Church, VA 22046 for \$5.50.

MAPS/GRAPHICS FOR THE VISUALLY HANDICAPPED

Last spring the Association of American Geographers (AAG) held a symposium on this topic which drew people from around the world. The symposium's research papers, commentary and summary discussions are now available as the Proceedings of the First International Symposium on Maps and Graphics for the Visually Handicapped. Prof. Joseph Wiedel, Geography, University of Maryland-College Park, edited the paperback volume. It's available for \$9.00 (\$10.00 foreign) from the AAG, 1710 16th Street N.W., Washington, D.C. 20009.

CARTOGRAPHIC INVENTORY REPORT

The State Cartographer's Office has completed its cartographic inventory project and has issued a 23-page report. Wendy Ormont prepared a summary of the project's history, budget, and travel itinerary. Samples of the National Cartographic Information Center's output show how the data are recorded. A limited number of reports are available. For a free copy, call or write the SCO at 144 Science Hall, Madison, WI 53706, phone 608/262-3065.

It is generally agreed that efforts to modernize land records at the local level are highly dependent upon an adequate geodetic control network, a system of monumented points, distributed on the surface of the earth, whose mathematical positions are precisely known. Such a framework is necessary to insure spatial integrity and provide a reference system for the integration of a multitude of land records.

A vast store of information concerning land exists in this country at the county level. However, that information is typically in various spatially disjointed, unrelated records such as paper files, map products, and nonmathematical computer databases. Examples are deeds, mortgages, building permits, topographic maps, subdivision plats, soil and wetland maps, and tax listers' files. Without a common spatial reference system it is impossible to bring this information together to support more efficient land-use planning, resource management, property boundary location, engineering planning and construction, land valuation, and the like.

The first geodetic control surveys were performed in the early 1800's by the United States Coast and Geodetic Survey (U.S.C. & G.S.) to support the development of sorely needed nautical charts for the harbor of New York. Those surveys established the precise mathematical (geodetic) positions of a few permanently monumented points on the ground (our first geodetic control network). As this country grew, so did that framework until, today, it extends throughout the United States. The most singular problem associated with this framework is that the density of the monumented points is far too sparse to adequately support local needs. For example, in Dane County, Wisconsin the average spacing between points is twelve miles. As a result, very few surveys and related land information are referenced to the geodetic network. A highly desirable spacing in Public Land Survey States is the half-mile interval between section and quarter section corners. (National Research Council, 1982)

In the recent past, the National Geodetic Survey (formerly U.S.C. & G.S.) has cooperated with several local governments to densify the geodetic frameworks in those jurisdictions. Presently, the densification and maintenance of geodetic control networks are becoming, more and more, the responsibilities of the states and counties. In the past, the costs of obtaining adequate geodetic control have been prohibitive for most purposes. As a consequence, there is a dearth of modern land information systems and our present day society continues to struggle with an archaic land records system developed to satisfy 18th century needs.

National Research Council, 1982, Modernization of the Public Land Survey System, National Academy Press, Washington, D.C.

**This is the first section of an article by Prof. Alan Vonderohe and Ph.D. candidate James Crossfield, both of the U.W.-Madison Dept. of Civil and Environmental Engineering. In July, they'll present an overview of current surveying technology and explain the implications of the new satellite Global Positioning System for land records modernization.

NEW MAPS

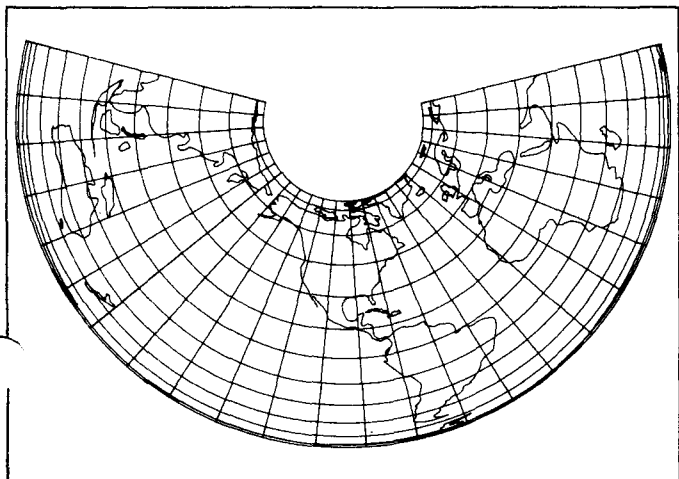
The following Miscellaneous Field Studies (MF) maps are available from the Eastern Distribution Branch, U.S. Geological Survey, 1200 South Eads Street, Arlington, VA 22202.

MF-1583. Geologic, aeromagnetic, and mineral resource potential maps of the Whisker Lake Wilderness, FLORENCE County, Wisconsin, by K. J. Schulz. 1983. Latitude about 45°55' to 46°, longitude about 88°25' to 88°30'. Sheet 26 by 30 inches. \$1.40.

MF-1592. Geologic and aeromagnetic maps and mineral resource potential survey of the Blackjack Springs Wilderness, VILAS County, Wisconsin, by K. J. Schulz. 1983. Latitude 45°55' to about 46°, longitude about 89°02'30" to 89°07'30". Sheet 24 by 26 inches. \$1.40.

MARATHON COUNTY

The Wisconsin Geological and Natural History Survey prepared two 1:100,000-scale maps to accompany the new Information Circular No. 45, Precambrian Geology of Marathon County, Wisconsin (see Publications of Interest). They are: Bedrock Geology of Marathon County, in color, Map Number 83-5 for \$4.00 and Aeromagnetism of Marathon County, black-and-white, Map Number 83-6 for \$2.00. These prices don't include 5% Wisconsin sales tax or shipping and handling of \$.50 folded or \$1.00 rolled. Available from Map Sales, Wisconsin Geological Survey, 1815 University Ave., Madison, WI 53706, phone 608/263-7389.



ANTIQUÉ MAP EXHIBIT, June 17 - July 31

The Green Bay Heritage Festival marking the 350th anniversary of the arrival of Jean Nicolet is a celebration of discovery. Of course that includes maps! Mark Steuer of the Green Bay/Brown County Planning Commission has organized a map exhibit to compliment the festival's accent on history. The exhibit spans the period beginning with the maps of 17th century French explorers to state-of-the-art satellite imagery. A display of antique and modern surveying instruments will accompany the exhibit. Appropriately, the new Neville Public Museum will house this part of the Festival. For more information about the map exhibit, contact Mark at 414/497-6046. For general information about the Heritage Festival, write or call the Festival Committee at P.O. Box 1411, Green Bay, WI 54305, phone 414/432-0251.

GEOGRAPHIC INFORMATION ANALYSIS

June 15-16

A workshop focusing on the fundamental operations used in computer-aided map analysis. For more information contact Philip Swain, School of Electrical Engineering, Purdue University, West Lafayette, IN 47907, phone 317/494-3443.

NEW MAP SEPARATES PRICES

The U.S. Geological Survey, National Mapping Program increased the price of map separates and composites on April 1st. (The last price increase took place in 1981.) The new schedule employs a uniform pricing method based on Mapping Center costs. They developed the prices based on the following charges:

1. A film charge based on film size.
2. A color group charge for each color group ordered rather than the number of exposures.
3. A charge for order preparation, handling, and mailing.

AVAILABLE COLOR GROUPS - AS PRINTED ON THE STANDARD MAP

BLACK Includes grid and projection, lettering and culture.

BLUE Rivers, streams, and other water features. Water tint is optional.

PURPLE All new map features determined from unverified interpretation of aerial photography. (Water tint and/or urban-area tint are optional.)

BROWN Contours, supplemental contours, and contour numbers.

RED Road classification fill, fence lines, and land lines. Urban-area tint is optional.

GREEN Vegetational ground cover; woodland, scrub, and orchard.

BATHYMETRY (Offshore underwater contours done by the National Ocean Survey.)

SEPARATE AND COMPOSITE PRICES FOR 7.5- AND 15-MINUTE MAPS

| | |
|--|-------|
| Single film copy of any color group..... | \$36 |
| Two color group film composite..... | \$45 |
| Three color group film composite..... | \$54 |
| Planimetric composite (w/o contours & green tint)..... | \$63 |
| Topographic composite..... | \$72 |
| Topographic/bathymetric composite..... | \$108 |

SEPARATE AND COMPOSITE PRICES FOR 1:250,000-SCALE MAPS

| | |
|--|-------|
| Single film copy of any color group..... | \$40 |
| Two color group film composite..... | \$49 |
| Planimetric composite..... | \$67 |
| Topographic composite..... | \$76 |
| Complete composite..... | \$85 |
| Topographic/bathymetric composite..... | \$112 |

OTHER

Continuous tone orthophotoquad on photographic paper...\$20

The above prices are those of the most commonly ordered products. For more information please check with Claude Summers, U.S.G.S. Mid-Continent Mapping Center, 1400 Independence Road, Rolla, MO 65401, phone 314/341-0854.

UW-MADISON EXCELLENCE

In mid-March, the North American Institute for the Modernization of Land Data Systems (MOLDS) designated UW-Madison as a "Center of Excellence in Land Information Systems". Also designated were the University of New Brunswick at Fredericton and the University of Maine at Orono (conditional).

This designation is the result of the coordinated efforts of the College of Engineering's Department of Civil and Environmental Engineering, the College of Letters and Sciences' Department of Geography (Cartography), the College of

Agriculture and Life Sciences' Department of Landscape Architecture and the Institute for Environmental Studies. Cooperators include the U.S.D.A.'s Economic Research Service, the Wisconsin Geological Survey, the State Cartographer's Office, and the History of Cartography Project. Several excellent facilities support these efforts: the Arthur H. Robinson Map Library, the Computer Graphics and Land Information Facility in the School of Natural Resources, the Environmental Remote Sensing Center, the Cartographic Lab, and the Madison Academic Computing Center.

NACIS IV Call For Papers

The North American Cartographic Information Society (NACIS) is meeting in Pittsburgh, October 18-20, 1984. The NACIS Program Committee invites papers on various aspects of cartographic information, and, in particular, those papers which relate to the theme of this year's meeting -- CARTOGRAPHIC INFORMATION SHARING. Some subsidiary topics include:

Cartographic Information Policy
Regional Information Centers
Digital Cartographic Data
Sources and Standards
Shared Cataloging of Map Media
Map Libraries and High Technology

Multi-Purpose Cadastres
Cartographic Information Networks
Implications of Geo-Processing Systems
Map Preservation
Cartographic Education
Cartography in Management and Planning

Those persons interested in presenting a paper should submit the title and an abstract, not to exceed 300 words, no later than August 1, 1984. Presentation time for selected papers will be limited to 20 minutes.

The Program Committee also encourages you to consider a poster session as a means of displaying some aspect of your on-going work, especially that of public agencies. Proposals for poster displays will also be accepted through August 1, 1984. Please include the title and summary of the poster display, and the approximate dimensions of display space required.

Papers and poster displays will be chosen according to relevant content, interest, and punctuality. Abstracts and proposals should include: author's name, address, telephone number, professional affiliation, and position. Please send abstracts and proposals to:

John D. Stephens
NACIS Program Chairman
Department of Geography & Regional Planning
Indiana University of Pennsylvania
Indiana, PA 15705
phone 412/357-2251

POINTS AND LINES

*The State Cartographer's Office announces the publication of two more county cartographic catalogs: IRON and DODGE. This brings the total number of county catalogs to 32. FLORENCE County will be available in mid-summer.

*Emeritus Professor Arthur Robinson (UW-Madison, Geography) has been selected to receive an honorary doctor of science degree from Ohio State University for "his extraordinary accomplishments" that "have marked him as the dean of cartography in North America if not the western world". Prof. Robinson is responsible for the establishment of the State Cartographer's Office.

*The phone number listed last January for Steve Fix of the DNR Wetlands Inventory is incorrect. His correct number is 608/266-0053. The error is attributed to computer gremlins.

*The bill to make railroad tracks landmarks which can't be disturbed without proper county notification has passed both state legislative houses. Assembly Bill 467 now awaits the Governor's signature.

*The mailing list update has been very successful in purging our file of out-of-date and incorrect addresses. Non-respondents will have another chance to stay on our list if they answer our second mailing. The July Bulletin will only go to those who've contacted us. The Editor sincerely thanks everyone for their responses and comments.

*The Wisconsin Geological & Natural History Survey will soon release the following:

Madison Area Lakes Map - scale 1:24,000. This long awaited, totally revised map will be available in late May or early June. It incorporates new lake bottom data.

A Voyager's Guide to the Lower Wisconsin River is a field trip guide-book to aid the naturalist and outdoors person. Look for it in early June.

THE STATE
CARTOGRAPHER'S OFFICE
ISSUES THE WISCONSIN
MAPPING BULLETIN IN
JANUARY, APRIL, JULY
AND OCTOBER. IT IS
DISTRIBUTED FREE OF CHARGE
ON REQUEST.

THE EDITOR WELCOMES
NEWS ON COMPLETED
OR ONGOING PROJECTS,
PUBLISHED MAPS OR
REPORTS, AND
CONFERENCES/WORKSHOPS. LOCAL
AND REGIONAL INFORMATION IS
ESPECIALLY REQUESTED.

PLEASE SEND ALL COMMENTS,
CORRECTIONS, AND NEWS
ITEMS TO:

CHRISTINE REINHARD,

STATE
CARTOGRAPHER'S
OFFICE,

144 SCIENCE HALL
MADISON, WI 53706,
608/262-3065.

WISCONSIN MAPPING BULLETIN SUPPLEMENT

Diane Chung

Thomas Lillesand

Christine Reinhard, Editor



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STATUS OF REMOTE SENSING COMMERCIALIZATION

On January 3, 1984 the U.S. Department of Commerce issued a request for proposals (RFP) from American firms for commercial operation of the land remote sensing satellites. Proposals were due March 19th. A total of seven firms or joint ventures submitted proposals.

The companies that bid were:

- *Earth Observing Satellite Co., a joint venture of RCA Corp. and Hughes Aircraft Co. of El Segundo, Calif., with Computer Sciences Corp. of Silver Spring as a subcontractor,
- *Space America Corp. of Bethesda, a joint venture of Aeros Data Corp., American Science and Technology, Space Services International of Houston, with BDM Corp. of McLean and Bendix Corp. of Columbia as major subcontractors,
- *A joint-venture of Fairchild Corp., TRW Corp. and Eastman Kodak Corp.,
- *Space Access Corp. of Marina Del Ray, Calif.,
- *Miltop Corp. in Melville, N.Y.,
- *Geospectra Corp. of Ann Arbor, Mich., and,
- *Milton A. Schultz of Williston, N.D.

Although the Commerce Department is evaluating the proposals, the Secretary can't sign a contract until authorizing legislation is enacted. The House of Representatives passed a remote sensing commercialization bill, H.R. 5155, by a voice vote on April 9. The Senate Commerce, Science and Transportation Committee began consideration of its bill, S.2292, on April 10, but came to no resolution. The bill will be considered in committee again on May 8.

Pending before the committee are some 6 amendments to be offered by Sen. Hollings (D-SC) and about 10 by Sen. Pressler (R-SD). Before the committee adjourned on April 10, it adopted a Hollings amendment to authorize a government launched Landsat 6 if the RFP process does not produce an acceptable commercial proposal.

Dr. Tom Lillesand has been actively involved in this issue on behalf of the American Society of Photogrammetry (ASP). Among other concerns, ASP has focused on a provision in both the RFP and H.R. 5155 which provides for Multi-Spectral Scanner technology as the "baseline" required of potential commercial operators. ASP has suggested that such a proposal would not be responsive, given current experience with the higher resolution Thematic Mapper.

ASP's position that a baseline requirement "functionally equivalent to TM-like data" be substituted is supported by the Geosat Committee, a group of about 100 oil and mineral companies. The Secretary of Commerce's Civil Land Remote Sensing Advisory Committee, a panel representing non-federal Landsat users who have been advising the Secretary on the commercialization process since 1982, also supports this viewpoint.

ASP's efforts to amend the bill have met resistance from the Congressional Committee staff and certain bidders who would not meet the TM technical requirement. When reporting H.R. 5155 to the full House of Representatives, the Science and Technology Committee did, however, include language in its written report which ASP was instrumental in encouraging. The report language states: (continued)

Commercialization, cont.

"The committee realized that the baseline level of technology required by this bill may not be the highest level of resolution currently available. However, MSS equivalent data was chosen as the baseline to maximize the exiting commercial market potential. The committee encourages future commercial operators to utilize systems with improved technologies, such as the Thematic Mapper, when the market projections for such data are sufficient to reasonably assure the commercial viability of the improved technology data."

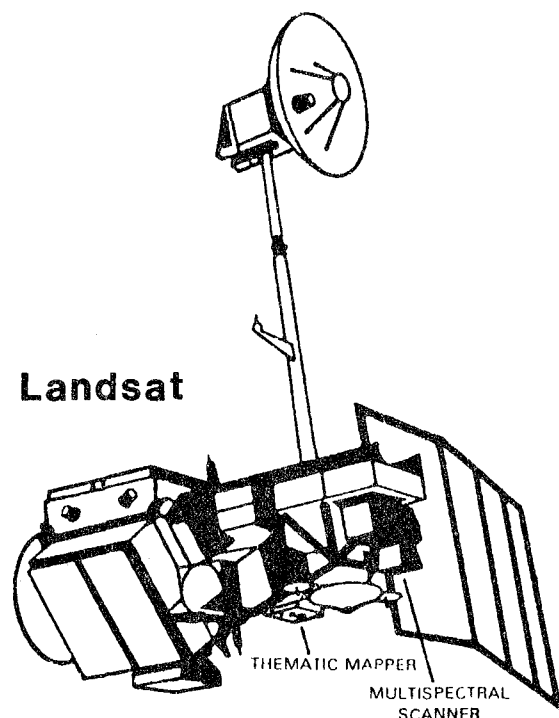
It is interesting to note that there is a major inconsistency in the legislation. On one hand, the bill advocates "market driven" decisions affecting the commercial operator, as evidenced by the above passage. On the other hand, the legislation authorizes up to \$10 million in loans, guarantees or other financial benefits to assist the commercial operator. With a \$10 million government subsidy (1) the process will hardly be "market driven" and (2) the government should dictate the highest level of technology currently available.

S.2292, in its current draft form, is silent on the data requirements issue. It does, however, establish bid evaluation criteria for the Secretary. Those criteria include "quantities and qualities of the data to be generated by the recommended system" and "the contractor's ability to advance remote sensing technology and maintain the technological leadership of the United States in remote sensing."

The current draft of S.2292 does include two specific amendments suggested by ASP. Those improvements are that (1) there will be continued remote sensing research and development both by NASA and NOAA (Dept. of Commerce), "in cooperation with other public and private research entities, including private industry, universities, State and local governments, foreign governments and international organizations" in both exploratory R&D and applications, and (2) there will be research in remote sensing applications

related to "monitoring of the Earth and its environment, and the development of technologies for such monitoring."

The following is a probable scenario of what will happen next. The Source Evaluation Board (SEB) in the Commerce Department is currently evaluating the proposals. A recommendation will be forwarded to the Secretary by the end of May. The Senate Commerce Committee will resume consideration of S. 2292 on May 8. Full Senate action must follow, probably late May to early June, and differences with the House bill must be reconciled. The earliest possible date of enactment of legislation is June. In the meantime, the SEB's recommendation will be evaluated by the Secretary of Commerce and he will make an announcement in early June. The contract is not expected to be signed before the end of this fiscal year (FY '84 ends Sept. 30), but may be finalized before the end of the calendar year. (source: American Society of Photogrammetry in the Washington Post.)



MICROCOMPUTER-BASED DIGITAL IMAGE PROCESSING

A CASE STUDY IN INDONESIA

The Institut Pertanian Bogor (IPB) in Indonesia and the Environmental Remote Sensing Center at the University of Wisconsin-Madison (UW) are engaged in a cooperative project for remote sensing curriculum and laboratory development. The project is intended to serve as a model for international cooperative work between institutions of higher education. A personnel exchange program for this project began with visits to IPB by a UW professor and graduate student. Counterparts to the UW team were chosen from the IPB Remote Sensing Group to establish one-to-one as well as team-to-team working relationships.

One of the first tasks of the team was to decide on a computer system for digital image processing at IPB. The primary criteria for the system were that it be reliable, serviceable and that there be no critical links. The team decided to use IBM-PC/XT

microcomputers as the primary processing

unit. Four IBM-PC/XT microcomputers are networked to a 160 MB disk drive, an 800/1600 BPI tape drive, a video camera and a graphics terminal via an IBM-PC that acts as a service computer.

Technology transfer began with two IPB staff members visiting UW for the 83/84 academic year for training in remote sensing and for participation in setting up the IBM-based digital image processing system. By the end of the 83/84 academic year, the IPB staff members will have participated in every phase of hardware and software development for the digital image processing system, thus facilitating a smooth transfer of technology.

Two-thirds of the system will be transferred to IPB at the end of the 83/84 academic year with one-third of the system to remain at the UW for the life of the project. This strategy provides the basis for the continuing cooperative program in two ways. For

future exchange between IPB and UW, personnel from IPB can work on the same system at UW as at IPB, and, further development of the system can occur simultaneously at both institutions in the years following the initial transfer. (source: Proceedings 1984, American Society of Photogrammetry, Washington, D.C.)



LANDSAT 5 LAUNCH

A new satellite transmitting the best earth resource data yet is now in orbit 430 miles above the planet.

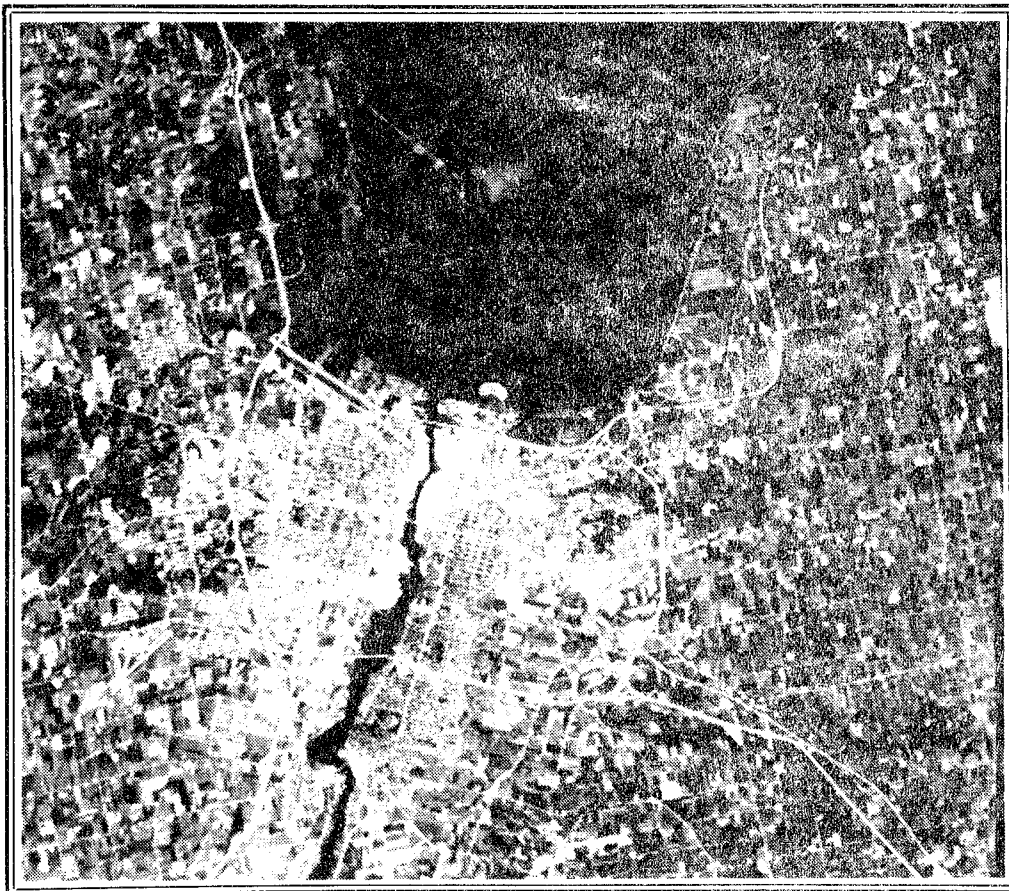
The \$250 million Landsat 5 was launched March 1, 1984 from Vandenberg Air Force Base in California. It was a perfect launch.

The mission, originally scheduled for July 1985, was moved forward because of problems the Landsat 4 satellite began experiencing last year. Landsat 4 has sent back a wealth of information, but its problems have prevented it from meeting its full potential.

Once positioned over the proper Worldwide Reference System ground track, Landsat 5 will collect routine data over the United States. Landsat 4 will be used for special acquisitions.

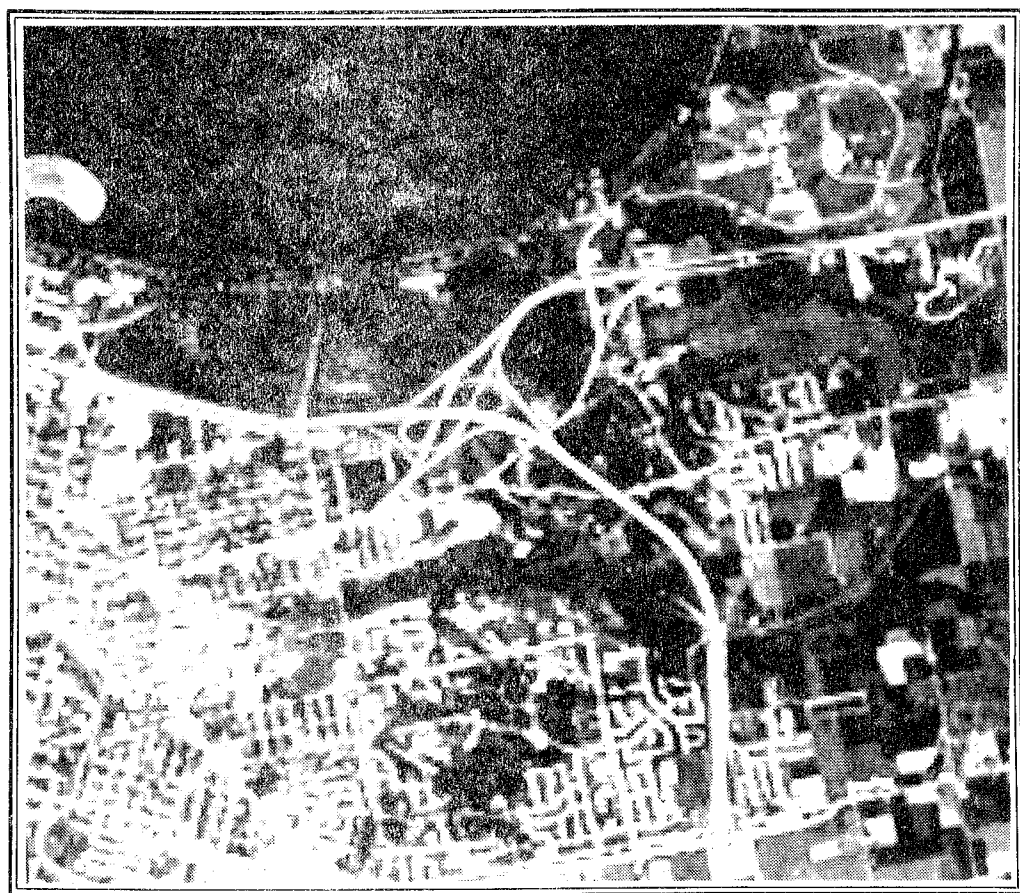
Officials said the problems with Landsat 4, associated with cables connecting the craft's four solar panels to the main body of the satellite, have been remedied on Landsat 5.

In 1986, there may be a mission to retrieve and repair Landsat 4. Parts of the satellite, which scientists fear will die by October, could be reused on future missions.



TM, Band 3, Sept. 1982

same scene, 2x enlargement



(Editor's Note: The image quality here poorly represents the high resolution of the computer monitor display.)

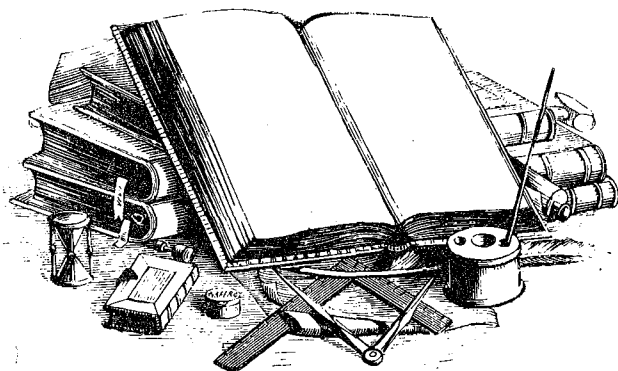
FAVORITE REMOTE SENSING TEXT

A book written by two Institute for Environmental Studies (IES) professors is used as a text in more than 100 colleges and universities and appears to have established itself as the basic text in its field.

That book is Remote Sensing and Image Interpretation, first published in 1979 by John Wiley & Sons, Inc. Thomas Lillesand and Ralph Kiefer are the authors.

Lillesand directs the IES Environmental Remote Sensing Center (ERSC) and is a professor of environmental studies, forestry, and civil and environmental engineering. Kiefer is chair of the IES Environmental Monitoring Graduate Program and a professor of civil and environmental engineering and environmental studies.

Her books have come out on specific aspects of remote sensing, but no other text covers the subject as comprehensively, according to Kiefer. He adds that, despite rapid technological advancements in the field, Remote Sensing and Image Interpretation is still quite current. Nevertheless, he and Lillesand have promised the publisher that they will update the book in the next year or two.



Kiefer says the book took two years to write and another year to publish. He recalls spending innumerable hours on the telephone at the time because his co-author Lillesand hadn't yet joined the UW-Madison faculty; he was a professor at the State University of New York in Syracuse and later at the University of Minnesota.

The book brought Lillesand and Kiefer the American Society of Photogrammetry's Alan Gordon Memorial Award in 1980. The Society gives the award each year to an individual (or in this case, two people) who "contribute to significant achievements in remote sensing and photographic interpretation."
(source: IES Newsletter)

SATELLITE IMAGE BASED MAPS

A Satellite Based Mapping Interest Group was recently formed at the University of Wisconsin-Madison. Members of this group include personnel from the Environmental Remote Sensing Center, the State Cartographer's Office and the UW Cartographic Lab. They are currently investigating the prospects of publishing experimental image-based maps of selected areas in Wisconsin. These maps will use high-resolution Landsat Thematic Mapper images as the source material.

The pictures on the facing page are examples of Thematic Mapper images that have been obtained over Wisconsin. The figures show portions of the Green Bay area at two different scales as depicted on an interactive computer display. These images illustrate the improvement in spatial detail observable from Thematic Mapper data (30m resolution) vs. Multispectral Scanner data (80m resolution).

COMING EVENTS

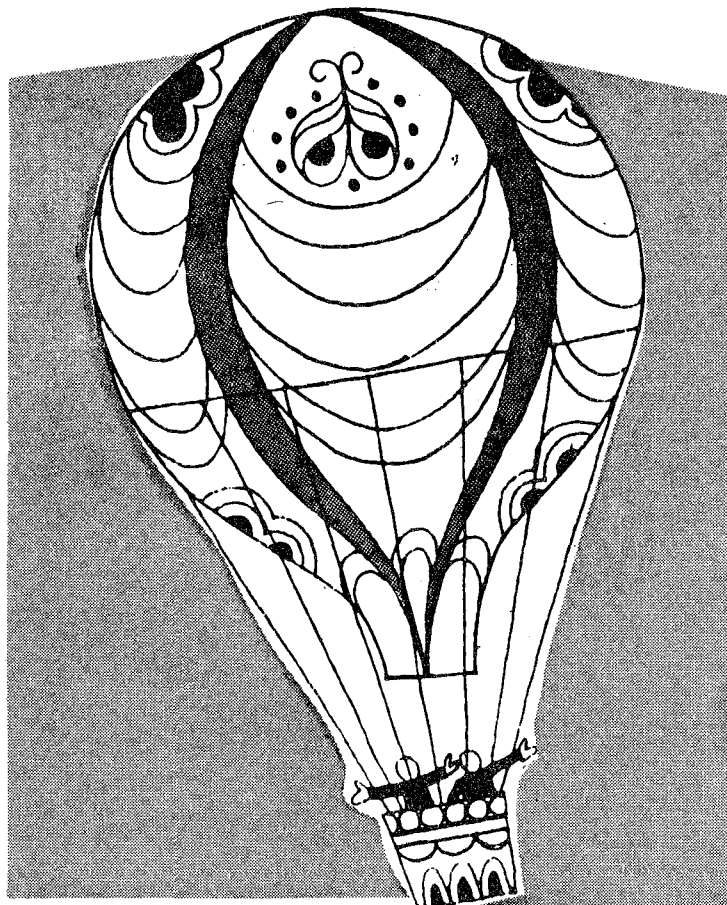
SPATIAL INFORMATION TECHNOLOGIES FOR REMOTE SENSING TODAY AND TOMORROW

October 2-4

The 9th William T. Pecora Memorial
Remote Sensing Symposium, Sioux Falls,
SD. For more information contact
William L. Alford, Code 933,
NASA/GSFC, Greenbelt, MD 20771, phone
301/344-6276.

MACHINE PROCESSING OF REMOTELY SENSED DATA, June 12-14

With special emphasis on thematic
mapper data and geographic information
systems. The 10th international
symposium sponsored by the Laboratory
for Applications of Remote Sensing,
Purdue University. For more
information contact the Continuing
Education Business Office, 110 Stewart
Center, Purdue University, West
LaFayette, IN 47907.



NEW MAPS

LANDSAT WISCONSIN

A page-size, color mosaic of Landsat imagery for the state is available. The high quality, "false color" photographic print shows only the state, with a title.

| <u>size</u> | <u>price</u> | <u>add'l copies same scene</u> | <u>postage and handling</u> |
|-------------|--------------|--------------------------------|-----------------------------|
| 8" x 10" | \$25.00 | \$10.00 | \$5.00 |
| 20" x 24" | \$75.00 | \$40.00 | \$7.50 |

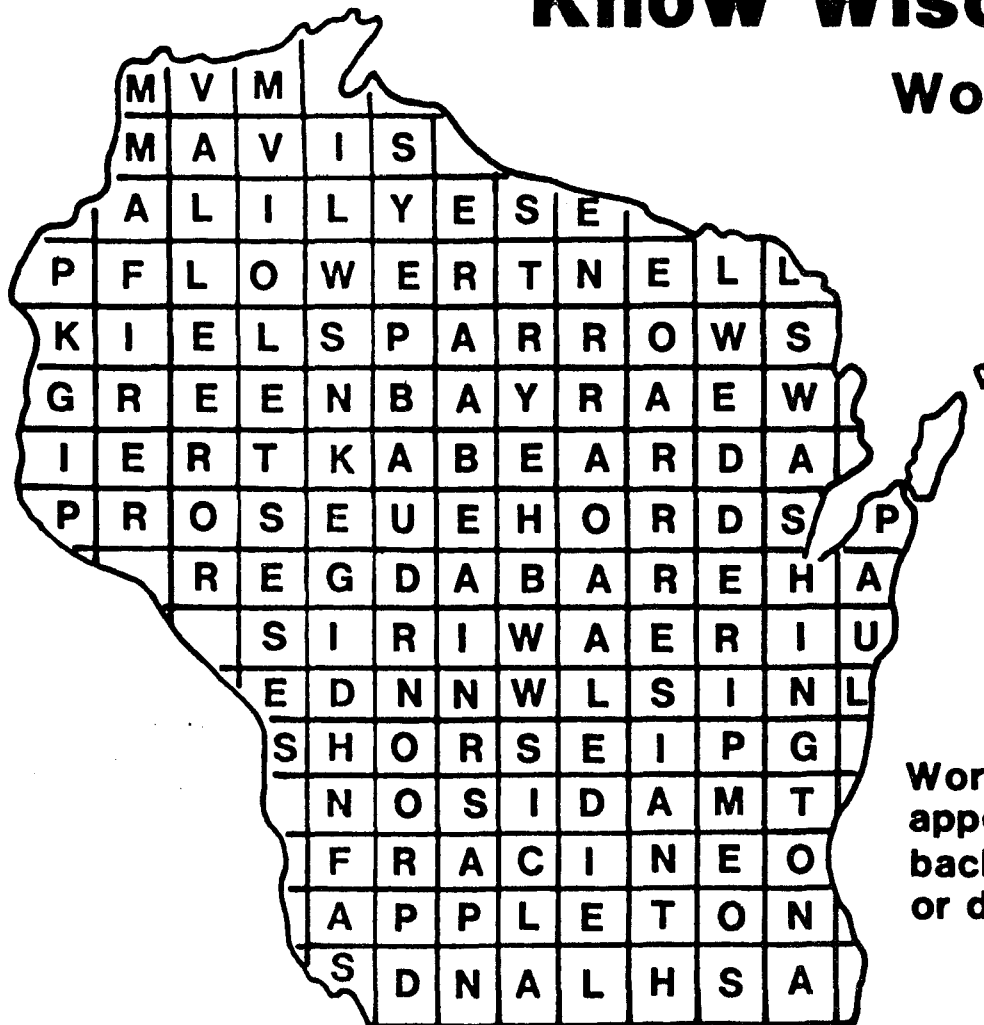
Mosaics of the other states and the entire United States are available also. Contact the National Air Survey Center Corp., Lab Services, 4321 Baltimore Ave., Bladensburg, MD 20710, phone 301/927-7177.

WASHINGTON, D.C. AND VICINITY

This is a multicolored, experimental edition using Landsat Thematic Mapper imagery. NASA processed the original TM data into computer compatible form. Then the EROS Data Center geometrically fitted the data to ground control and converted it from digital to image form. The 1:100,000-scale satellite image map sells for \$5.00 per copy, plus a \$1.00 handling charge on orders less than \$10.00. The map is 36" x 49" and is shipped rolled. Order from the U.S. Geological Survey, Eastern Distribution Branch, 1200 South Eads Street, Arlington, VA 22202.

Know Wisconsin

Word Game



Words may appear forward , backward, up, down or diagonally

Do you know the state...

Animal
Bird
Capitol
Flower
Largest City
Motto
Nickname
Oldest City

For answers, turn page upside down

Animal: Deer
Bird: Robin
Capitol: Madison
Flower: Violet
Largest City: Milwaukee
Motto: Forward
Nickname: Badger
Oldest City: Green Bay

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