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WISCONSIN MAPPING BULLETIN

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TOPO COMMITTEE UPDATE

This is a brief, interim update to the report in the April '84 Wisconsin Mapping Bulletin. Much activity is underway between the Wisconsin Topographic Mapping Committee and the National Mapping Division (NMD) of the U.S. Geological Survey. The Committee anticipates a full report can be published in the October Bulletin.

1. With the cooperative funding from the State Cartographer's Office, the Wisconsin Geological and Natural History Survey has published a single sheet map index, Wisconsin Index to Topographic Maps. These indexes are available from the WG&NHS, M.A.P.S. Office, 1815 University Avenue, Madison, WI 53706, 608/263-7389. The single sheet USGS index was last updated in 1979 and won't be reprinted. The new booklet system of topographic map indexing as described in our January '84 Bulletin (page 2) has not as yet been released by the USGS, NMD.
2. During the next federal fiscal year (Oct. 84 - Sept. 85) the current Wisconsin cooperative funds will be allocated to complete planimetric base map coverage at 1:100,000-scale for all of Wisconsin. This will place Wisconsin in position for early cartographic digitization of this series by the Bureau of Census. As described in the January Bulletin (page 1), the Census plans to have the U.S. Geological Survey digitally record several map feature separations from this map series during 1985-87, in time for the 1990 census. The availability of base map coverage will allow early digitization. The USGS will then sell the digital files. This type of information is needed by the Wisconsin Dept. of Transportation. Purchase of Census-generated map files provides a significant cost savings over internal state digitization.

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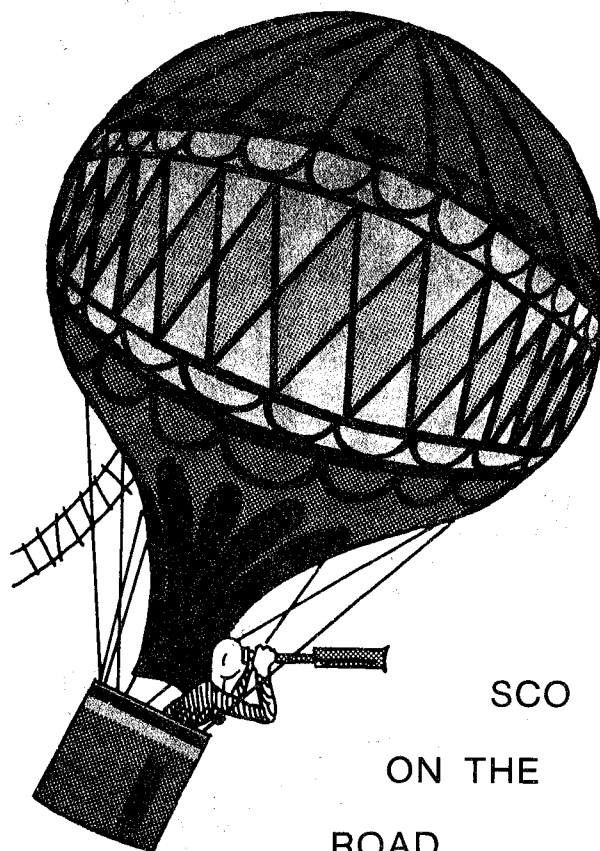
TOPO COMMITTEE UPDATE, continued

3. The Mid-Continent Mapping Center has generated two county-format, 1:100,000-scale topographic maps in Wisconsin. BROWN and FOND DU LAC have preliminary map proofs available. The Brown County map is currently part of a map exhibit displayed at the Heritage Festival Days in Green Bay. (The exhibit continues through Labor Day.) An Office questionnaire for public comment has generated significant feedback at the exhibit.

These county maps have contours identical in interval to the 7.5-minute topographic quads, in feet (english version). When review and comments are completed it is anticipated that the Wisconsin Topographic Mapping Committee will authorize a County Topographic Mapping Program on a cost-share basis with the U.S. Geological Survey.

4. Finally, the completion of the State's 7.5-minute topo quads is on schedule. The final date for complete, published coverage is expected in early 1985. As of June 21, 1984, Wisconsin is 91.5% complete, with 1056 quads out of a total of 1154 published. Only 98 more quads need to be received.

The LMIC System Notes newsletter from the Minnesota State Planning Agency (May 1984) said that Minnesota's last 7.5' topo quad was released to printing and they expect complete coverage by fall of this year. Congratulations to our neighboring state on that milestone.

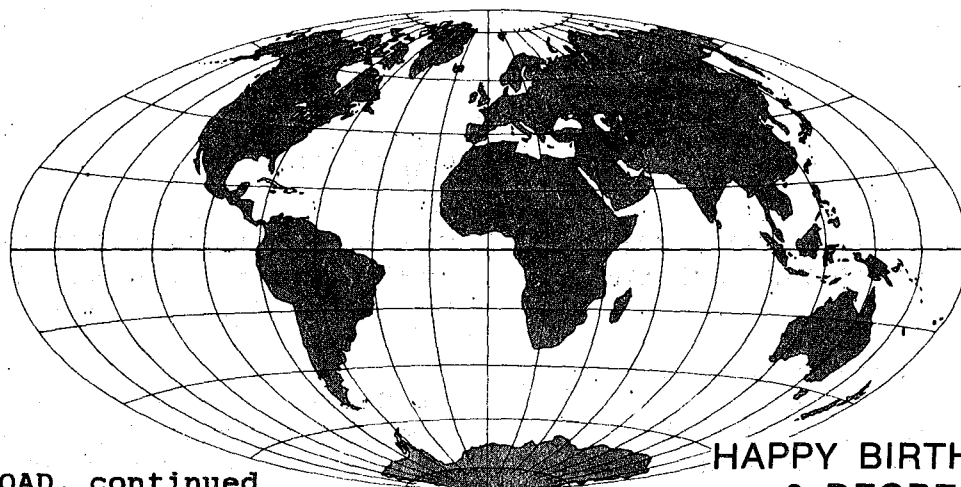


SCO
ON THE
ROAD

The Committee on State Cartography, the Board of Direction for the State Cartographer's Office, at its May 5, 1984 meeting recommended an increased level of internal state communications on all phases of Wisconsin cartography be initiated in fiscal year 1985. This is to primarily consist of briefings and displays held at intra-state conventions and meetings, along with visits to county and regional planning offices by the State Cartographer and his staff.

To further this program, the State Cartographer presented a display on mapping, aerial photography, surveying and Office publications at the UW-Extension conference, "American Indians in the North Central Area" held at UW-Stevens Point on July 9 and 10, 1984. Representatives from Illinois, Michigan, Minnesota and Wisconsin attended the conference. While primarily focusing on demographic and census information, the conference also held a section on "other data sources" and "data for planners" which had direct applications to maps and air photos. The UW-Extension officials considered the Office display a success and are considering inviting the SCO to other similar regional conferences.

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SCO ON THE ROAD, continued

HAPPY BIRTHDAY 0 DEGREE

The second scheduled Office display is set for the convention of the Wisconsin Real Property Listers Association in Eau Claire on September 19, 20 and 21, 1984. This is a statewide conference for all county/municipal tax listers or property description offices. In addition to the Office display on mapping, air photos, surveying and publications, the State Cartographer will participate on a panel on "Computerized Tax Mapping."

In the planning stage for mid-October is a "road show" version of the "State of the State's Cartography" first held in 1983 in Madison. The plan is to take a full blown briefing on the current state of all Wisconsin cartographic activities to a regional site and give a day-long presentation. The regional locations will allow county and regional officials to attend with about one hour's driving time and without requiring an overnight stay. The first such regional briefing is planned for the northeast portion of the state, in Antigo in mid-October. Local officials will receive a direct mail invitation with full particulars.

With this regional approach, the Office plans to cover the entire state in a two-year period. Also the Office is planning to have its display at many intra-state conferences and conventions, similar to that shown at the Wisconsin Towns Convention in La Crosse in October 1983. Interspersed with these briefings and displays will be direct visits to county and regional offices. Interested officials should contact Art Ziegler at 608/262-6852.

As schedules are firm, and as trips are completed, they will be reported in upcoming Bulletins.

The Prime Meridian of the World will soon be 100 years old. In October 1884, an international conference in Washington, DC formally endorsed the universal use of the "Meridian passing thru' the center of the transit instrument in Greenwich Observatory as zero longitude." Because London weather can be quite unpleasant in October, the Greenwich Observatory celebrated the birthday of Greenwich Mean Time (GMT) in June.

At the Greenwich Observatory near London it's possible to stand over a narrow bronze strip and have one foot in the East and the other in the West. The Zero Meridian marks the origin of the longitude system used to measure distance east and west in degrees, minutes, and seconds. Longitude lines run north and south through the poles, dividing the globe into 15° intervals or one-hour time zones.

Until the mid-1700's, sailors could only accurately determine latitude (distance north or south from the equator). Distance east and west (longitude) depended on knowing the difference in hours between two places at the same moment. Only the invention of a highly accurate clock capable of working aboard ship made the longitude determination possible.

Still countries kept their own local times. (At one point Wisconsin had 38 different local times.) Railway travel required uniform time keeping. The 1884 agreement standardized time and longitude.

source: The Capital Times, June 26, 1984; Robinson, et al. 1978. Elements of Cartography, p. 39-40.

GEOPOSITIONING AND LAND RECORDS

SURVEYING TECHNOLOGY: GEOPOSITIONING FOR MODERNIZED LAND RECORDS SYSTEMS

Currently, several alternative methods exist for geopositioning (the determination of a monumented point's geodetic position). Position may be expressed in terms of latitude and longitude or, more usefully for local applications, in (X, Y) state plane coordinates. Conventional methods include traversing, triangulation and trilateration. These are expensive ground surveying techniques that utilize precise theodolites and electronic distancing instruments, and require lines-of-sight between points by highly-skilled observers and technicians. A more recent development is the Doppler satellite survey using signals from the Navy Navigation Satellite System (Transit). The five satellites, in 600-mile-high orbits, provide one satellite pass over a ground point about every two hours. With data for 20-50 passes simultaneously collected at two points, relative positions accurate to 0.3 - 1.0 ft. may be obtained.

In November, 1983, a Doppler survey was conducted in Dane County as a cooperative effort of the Dane County Land Records Project and the U.S. Bureau of Land Management (BLM), with participation by a number of other organizations and individuals. Using four BLM satellite receivers, 15 new control stations were surveyed. Reduction and analysis of the collected data is in progress to evaluate the applicability of this technology to local geodetic network densification.

Other modern geopositioning technologies potentially suitable for this purpose include inertial surveying systems and precise analytical photogrammetry. There is also a promising new satellite Global Positioning System (GPS) now under development by the U.S. Department of Defense to replace the Transit system.

THE GLOBAL POSITIONING SYSTEM AND ITS IMPLICATIONS FOR LAND RECORDS MODERNIZATION

The Global Positioning System (GPS) consists of a constellation of navigation satellites, communication satellites, and a network of ground tracking stations. When fully operational (1988-1990), it will have 18 satellites in stable, 18,000-mile-high orbits such that at least four satellites will be above the horizon around the clock at any point on earth. Currently, there are six GPS satellites providing an eight-hour observing period each day. Second-order accuracy positions (1:50,000) can be obtained in two hours of observing time. When all eighteen satellites are in orbit, the observing time will be reduced to one half hour or less. A GPS receiver requires no line-of-sight between adjacent ground stations and can be operated by a single individual.

The effect of GPS on efforts to densify geodetic control will be profound, primarily because costs will plummet. In fact, they have already begun to do so. Research at the University of Wisconsin-Madison has led to development of cost modeling strategies and algorithms for evaluating costs of local control network densifications (Crossfield, 1984). The cost models were used in the following example.

A hypothetical 14 township area within south central Wisconsin was selected that had 12 existing first-order horizontal geodetic points with a 6.5 mile spacing. A precision of 1:20,000 was sought on fifteen new points with a 4.4 mile spacing. Cost and productivity data for 1983 were used to estimate the cost of this project by GPS and ground surveying methods. Projected costs by ground survey were \$26,180 + \$5,300. Projected 1983 GPS costs were \$10,200 + \$1,700 and 1988 GPS costs (assuming full satellite constellation) were \$3,700 + \$550. Thus, a 7 times reduction in cost

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GEOPOSITIONING AND LAND RECORDS, continued

is predicted by 1988. The same cost models have predicted that GPS may allow the determination of coordinates of individual property corners for as little as \$10 per point. (See related article below.)

Since state and local governments are primarily responsible for densifying local geodetic networks, it would be prudent for them to take an aggressive role in fostering early adoption of the developing GPS technology. It has been suggested that a county could greatly facilitate control densification by permanently placing a GPS receiver at a centrally-located geodetic control point (Counselman, 1982). An individual surveyor would need to purchase only one GPS receiver since all surveyors in the county could use this central control point receiver as the required reference unit for relative position measurements.

The cost figures above give us pause. For those who design and implement new land information systems, it may no longer be true that the greatest cost component lies within the required geodetic reference framework. For those who make measurements upon the land, the

tools and techniques are undergoing a revolution. For those who maintain, disseminate, or use land information, the current profusion of tasks are bound to be made fewer and simpler.

References:

Counselman, C. C. III, 1982, "The Macrometer (TM) Interferometric Surveyor," Proceedings of the International Symposium on Land Information at the Local Level, University of Maine-Orono.

Crossfield, J. K., 1984, "The Cost of Establishing Horizontal Geodetic Survey Control on Remonumented Public Land Survey Corners," Ph.D. dissertation, University of Wisconsin-Madison

(This is the last installment of an article by Prof. Alan Vonderohe and recent Ph.D. recipient James Crossfield, both of the UW-Madison Dept. of Civil and Environmental Engineering. Vonderohe and Crossfield are involved in the Dane County Land Records Project. Please refer to the April Bulletin for the initial article.)

GPS IN DANE COUNTY

The effort to modernize Dane County's land records received a boost from the latest in surveying equipment that uses a satellite system being developed by the Department of Defense. The Dane County Land Records Project contracted with Geo/Hydro Inc. to accurately map 10 to 12 marked points, called control points, that will be used to help produce an integrated land records system for the county. The records system will allow direct comparison of information on various maps and documents to make zoning and resource management easier. The project is a cooperative effort of the UW-Madison Departments of Landscape Architecture, Civil and Environmental Engineering, Agricultural Economics, and various federal, state and county agencies.

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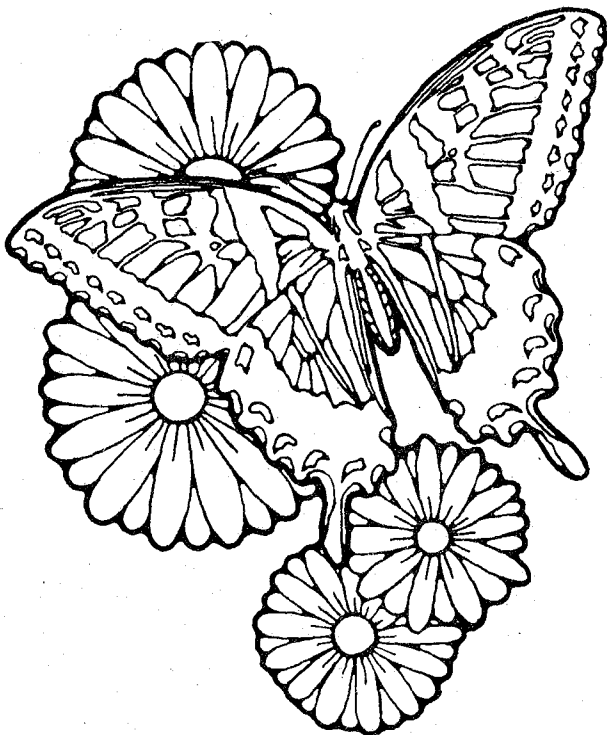
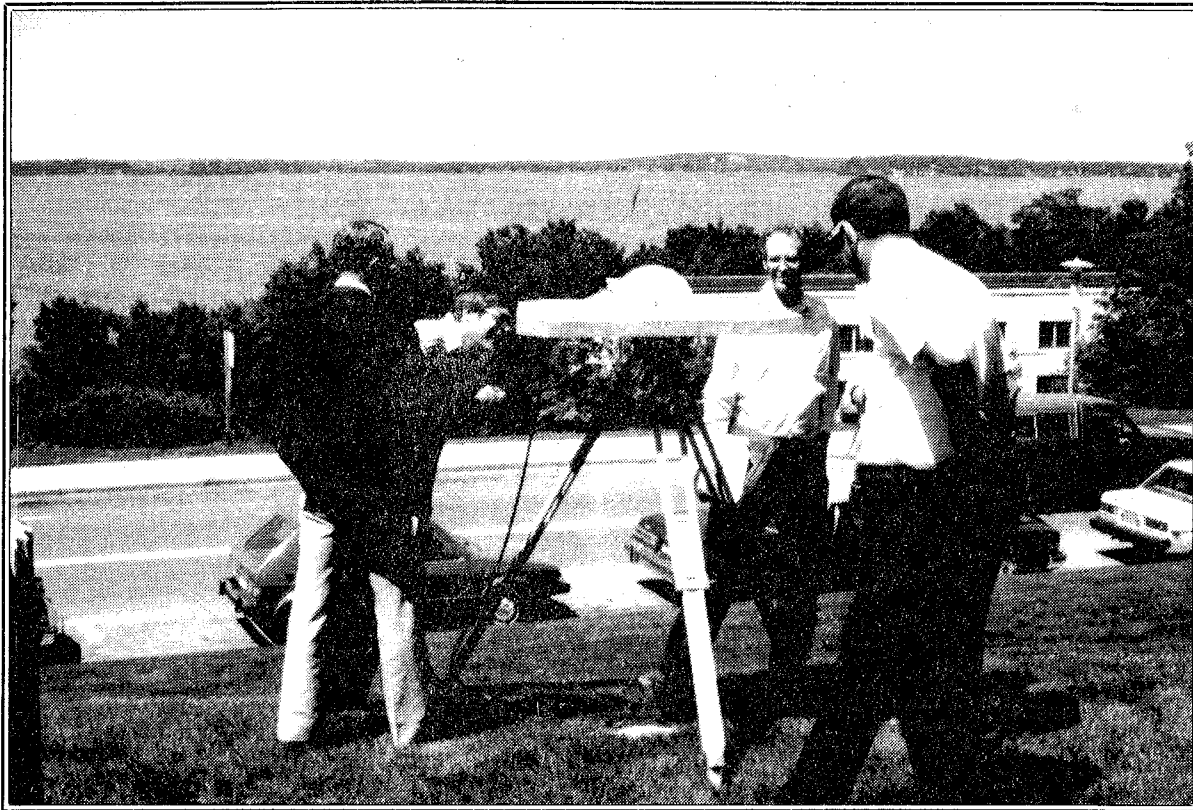


photo by Joseph Sonza-Novera



Geo/Hydro demonstration on Observatory Hill, UW-Madison

GPS IN DANE COUNTY, continued

Geo/Hydro uses a radio receiver capable of tapping into the Defense Department's new Global Positioning System (GPS) to find the location of a point faster and more accurately than older satellite systems. The system involves a constellation of 18 satellites, of which only six are now in orbit. It is intended to let military personnel, even foot soldiers with portable units, determine their positions almost immediately.

The satellites circle the earth at a height of about 12,000 miles, compared with the Navy's older Transit satellites whose orbits are only 600 miles high. The higher orbit is more stable and predictable, allowing positions on earth to be determined more accurately.

The satellites carry atomic clocks and send out coded time signals. The military can use these signals to measure the delay between when the

signal is sent and when it is received, and thus locate the receiver.

Without knowing the code, however, non-military users must use a technique called interferometry. This requires two receivers: one at a known position and another at the position to be mapped. By comparing the difference in signals at the two locations, and knowing the orbit of the satellites, the unknown position can be determined in two to three hours to within about an inch. The older satellite required three or four days per point and was less accurate.

Using the new system, control points can be established for less than \$900 per point, with costs expected to fall in the future. This compares with \$2,000 to \$3,000 by conventional ground survey. Satellite systems also can be used where ground surveying is difficult or impossible. (See related article on page 4.)

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GPS IN DANE COUNTY, continued

The Dane County Land Records Project is primarily intended to demonstrate the value of unified land records. Making the jumble of maps and documents in county files more consistent and compatible will allow better land-use planning and management of resources such as soils and wildlife habitat. But first, the project must test new surveying techniques that lower the cost of establishing control points.

Last fall the project tested the older Transit system. In addition, the Bureau of Land Management has agreed to provide another surveying system that operates like the inertial guidance systems used in many missiles and planes.

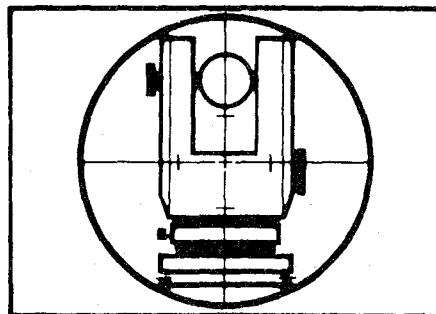
The current satellite survey is co-sponsored by the Wisconsin Department of Transportation, the Madison Area Surveyor's Council and the State Cartographer's Office as well as members of the Land Records Project. For more information contact Prof. David Mezera, Dept. of Civil and Environmental Engineering, UW-Madison, Madison, WI 53706, phone 608/262-4365.

MORTGAGE SURVEYS

The Wisconsin Examining Board of Architects, Professional Engineers, Designers and Land Surveyors frequently receives questions about agreements between a client and a land surveyor for waiving certain minimum standards for property surveys required by Chapter A-E 5, Wisconsin Administrative Code.

In responding to questions and reviewing complaints the Land Surveyor's Section of the Board has made observations about the rule.

1. A surveyor may not exclude work from the standards simply by calling the work an "inspection", "mortgage survey" or something else. The definition of "property survey" in s. A-E 5.02, Wis. Admin. Code is controlling.



2. To properly waive a minimum standard, a written agreement must be made between the surveyor and the client or employer. This agreement must be signed by the surveyor and the client or employer, describe both the work to be done and the minimum standards which the work will not meet.
3. If a map is prepared, the map must include a note which identifies the surveyor and client or employer, and state that an agreement has been made between the surveyor and client or employer, to exclude the survey work shown on the map from certain state minimum standards. The minimum standards not met must be described in plain language.
4. The preparation of a U.S. Public Land Survey Monument Record may not be waived.
5. The requirements of s. 59.60, Wis. Stats. may not be waived. This statute requires that a surveyor file a copy of a survey in the office of the county surveyor within 60 days after completing the survey.

The procedures for obtaining an effective waiver are important because failure to meet the minimum standards in Chapter A-E 5 may result in disciplinary action. Of course, the rule itself, s. A-E 5.01 (1) (b), is the best resource for determining whether requirements have been met.

Source: Wis. Dept. of Regulation and Licensing Regulatory Digest.

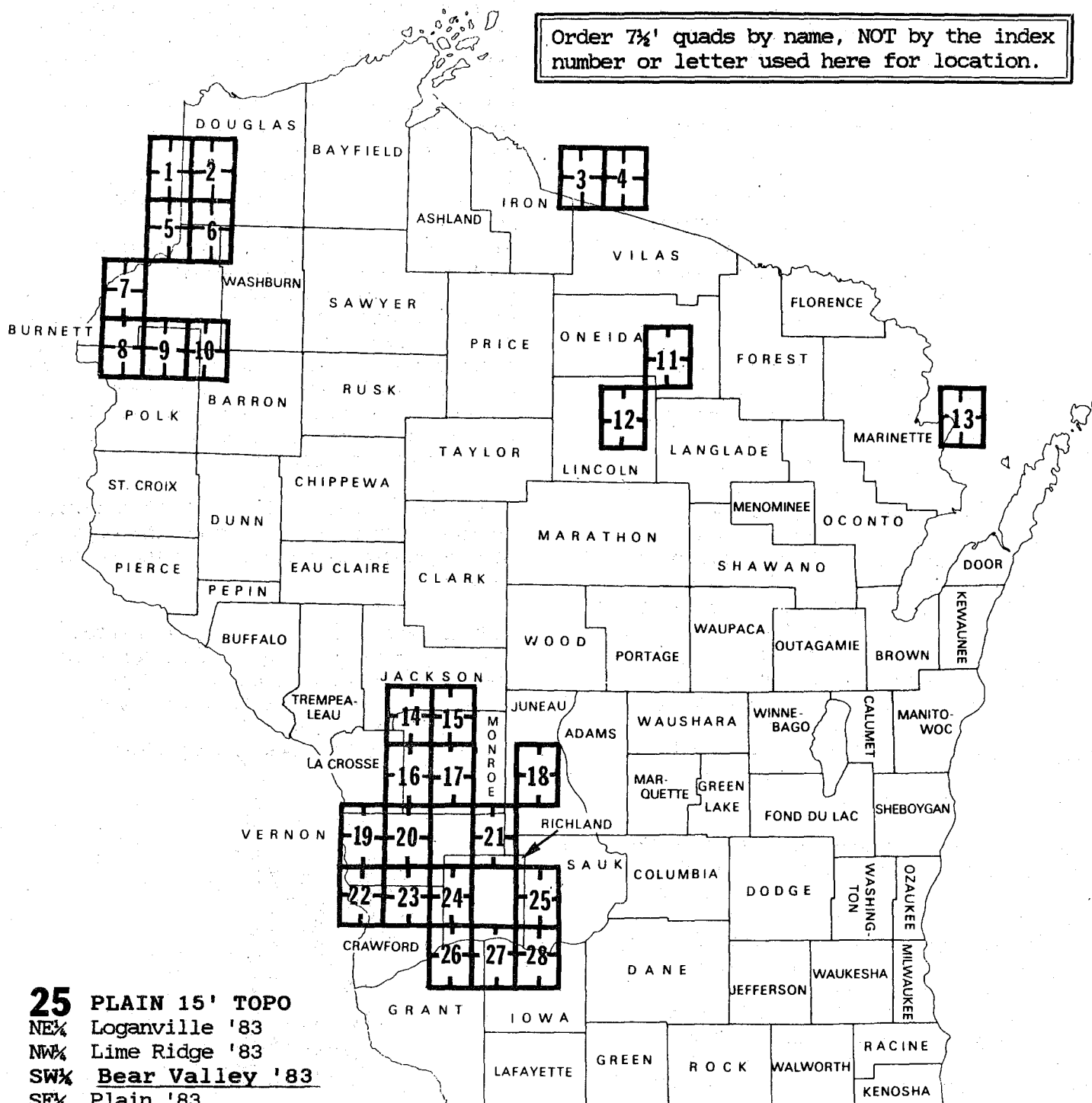
NEW U.S. GEOLOGICAL SURVEY PRODUCTION

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 HOLYOKE 15' TOPO NE¼ Foxboro '75 NW¼ none SW¼ none SE¼ <u>Black Lake '83</u>	9 FREDERIC 15' TOPO NE¼ <u>Clam Falls '83</u> NW¼ <u>Frederic '83</u> SW¼ <u>Luck '83</u> SE¼ <u>Big Round Lake '83</u>	17 TOMAH 15' TOPO NE¼ <u>Tomah '83</u> NW¼ <u>City Rock '83</u> SW¼ <u>St. Marys '83</u> SE¼ <u>Wilton '83</u>
2 PATZAU 15' TOPO NE¼ Amnicon Lake '75 NW¼ Patzau '75 SW¼ <u>Moose Junction '83</u> SE¼ Empire Swamp '83	10 CUMBERLAND 15' TOPO NE¼ Timberland '82 NW¼ Indian Creek '82 SW¼ McKinley '82 SE¼ <u>Cumberland '82</u>	18 MAUSTON 15' TOPO NE¼ <u>Kelly '83</u> NW¼ none SW¼ none SE¼ <u>Mauston '83</u>
3 WAKEFIELD 15' TOPO NE¼ none NW¼ none SW¼ Chaney Lake '82 SE¼ <u>Harris Lake '82</u>	11 RHINELANDER 15' TOPO NE¼ <u>Moen Lake '82</u> NW¼ Rhinelander '82 SW¼ <u>Lake Julia '82</u> SE¼ George Lake '82	19 STODDARD 15' TOPO NE¼ <u>Coon Valley '83</u> NW¼ <u>Stoddard '83</u> SW¼ <u>Genoa '83</u> SE¼ <u>Newton '83</u>
4 MARENISCO 15' TOPO NE¼ none NW¼ none SW¼ <u>Stateline Lake '82</u> SE¼ none	12 TOMAHAWK 15' TOPO NE¼ Harrison '82 NW¼ <u>Tomahawk '82</u> SW¼ Irma '82 SE¼ Bloomville '82	20 VIROQUA 15' TOPO NE¼ <u>Westby '83</u> NW¼ Esofea '83 SW¼ <u>Viroqua '83</u> SE¼ <u>Avalanche '83</u>
5 DANBURY 15' TOPO NE¼ <u>Cloverton '83</u> NW¼ none SW¼ <u>Danbury West '83</u> SE¼ <u>Danbury East '83</u>	13 STEPHENSEN 15' TOPO NE¼ none NW¼ <u>Swanson, MI '82</u> SW¼ McAllister '82 SE¼ none	21 HILLSBORO 15' TOPO NE¼ none NW¼ <u>Trippville '83</u> SW¼ none SE¼ none
6 WEBB LAKE 15' TOPO NE¼ <u>Scovils Lake '83</u> NW¼ <u>Dairyland '83</u> SW¼ <u>Webb Lake '83</u> SE¼ <u>Frog Lake '83</u>	14 MELROSE 15' TOPO NE¼ none NW¼ none SW¼ none SE¼ <u>Cataract '83</u>	22 FERRYVILLE 15' TOPO NE¼ <u>Retreat '83</u> NW¼ <u>De Soto '83</u> SW¼ none SE¼ <u>Ferryville '83</u>
7 GRANTSBURG 15' TOPO NE¼ Monson Lake '82 NW¼ Lake Clayton '82 SW¼ <u>Grantsburg '82</u> SE¼ Falun '82	15 MILLSTON 15' TOPO NE¼ <u>Warrens West '83</u> NW¼ <u>Millston '83</u> SW¼ <u>Alderwood Lake '83</u> SE¼ <u>Tunnel City '83</u>	23 GAYS MILLS 15' TOPO NE¼ <u>Readstown '83</u> NW¼ Rising Sun '83 SW¼ Mt. Sterling '83 SE¼ Gays Mills '83
8 MILLTOWN 15' TOPO NE¼ <u>Trade Lake '83</u> NW¼ <u>Trade River '83</u> SW¼ <u>Cushing '83</u> SE¼ <u>Milltown '83</u>	16 SPARTA 15' TOPO NE¼ <u>Sparta '83</u> NW¼ <u>Bangor '83</u> SW¼ <u>Middle Ridge '83</u> SE¼ <u>Melvina '83</u>	24 BOAZ 15' TOPO NE¼ <u>Sabin '83</u> NW¼ <u>Sugar Grove '83</u> SW¼ <u>Mt. Zion '83</u> SE¼ <u>Boaz '83</u>

NEW U.S. GEOLOGICAL SURVEY PRODUCTION

Order 7½' quads by name, NOT by the index number or letter used here for location.



25 PLAIN 15' TOPO
 NE¼ Loganville '83
 NW¼ Lime Ridge '83
 SW¼ Bear Valley '83
 SE¼ Plain '83

26 BOSCOBEL 15' TOPO
 NE¼ Blue River '83
 NW¼ Boscobel '83
 SW¼ Long Hollow '83
 SE¼ Castle Rock '83

27 MUSCODA 15' TOPO
 NE¼ Avoca '83
 NW¼ Muscoda '83
 SW¼ Highland West '83
 SE¼ Highland East '83

28 SPRING GREEN 15' TOPO
 NE¼ Spring Green '83
 NW¼ Lone Rock '83
 SW¼ Clyde '83
 SE¼ Pleasant Ridge '83

ACSM ON NOAA A-76 CHARTING STUDY

Plans to study potential contracting out of National Oceanic and Atmospheric Association's (NOAA) nautical and aeronautical charting solely on the basis of price comparisons came under fire in comments the American Congress on Surveying and Mapping (ACSM) submitted to key congressional committees. ACSM said the federal government's Office of Management and Budget (OMB) Circular A-76 is not a valid tool for decisions on whether to contract out professional services currently done "in house" by government agencies, as the circular fails to factor the quality of services provided by the government versus the capabilities of private firms.

"Every American taxpayer deserves the assurance that his or her tax dollars are being spent in a most efficient and economical manner. In that light, we enthusiastically support the intent of OMB Circular A-76. When determining efficiency and economy in government, however, cost should not be the sole criteria. We believe the application of Circular A-76 to professional services must also consider the technical quality of the services provided. This is especially true of the classes of professional services provided by our members, such as mapping and charting, surveying, geodesy and engineering design," the ACSM letter to the Senate Commerce and House Merchant Marine and Fisheries Committees said.

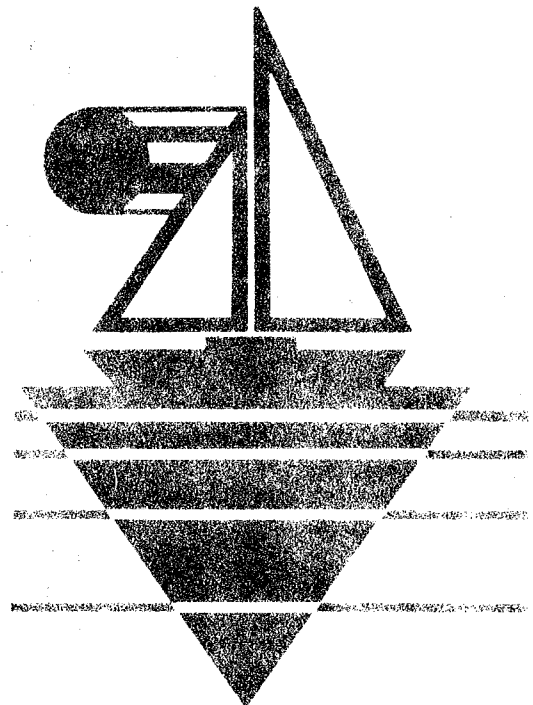
There is some "inconsistency between OMB Circular A-76 and existing law" ACSM noted. In particular, the "Brooks Bill" provides for procurement of firms to provide services "of an architectural or engineering nature...on the basis of demonstrated competence and qualifications" not price, while A-76 simply compares the cost of in-house versus contracting services, with no regard to competence and qualifications. ACSM suggested that an A-76 study "consider a comparison of quality, not just cost, when evaluating professional services like surveying and mapping."

The society also suggested that any study on mapping/charting contracting be made of the component parts of the services, rather than taken as a whole. Some parts of the chart making process are "commercial activities" eligible for contracting while others are "inherently governmental" which should remain within the government's control and operation. Services ACSM recommended for possible contracting are data acquisition (photogrammetry and land, hydrographic and geodetic surveying) and scribing, negative engraving, printing and distribution. Services suggested for continued governmental operation were data and source evaluation, data selection and data base management, and final review. Due to "considerable difference of opinion within the cartographic community and between government agencies," a recommendation on whether to contract compilation of charts was not offered.

The Senate panel will soon hold hearings on the contracting out issue and ACSM has requested permission to testify in person.

ACSM's letter to Congress was drafted with input from its Government Affairs Committee, its American Cartographic Association Executive Committee and several ACSM officers.

source: ACSM News, July 1984



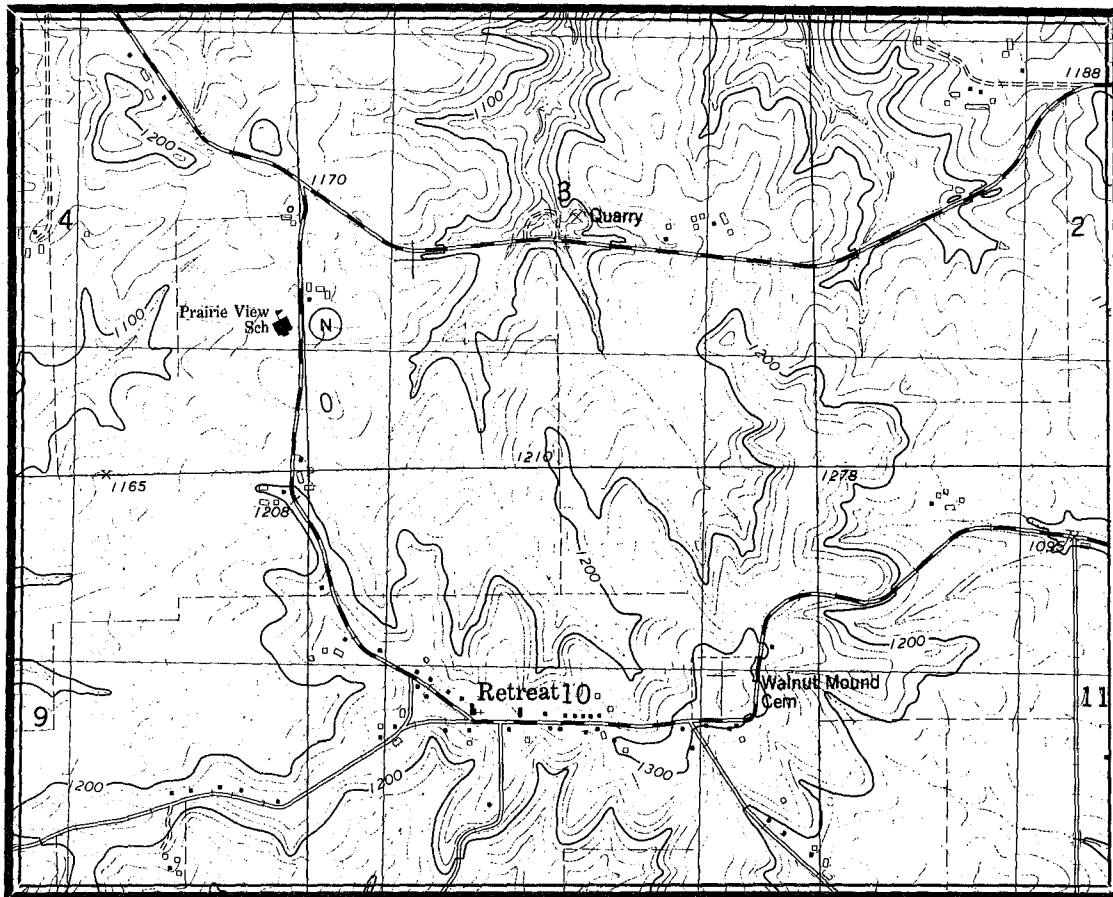
NEW TOPO HIGHLIGHT

RETREAT WISCONSIN?????

You have all heard of "Escape to Wisconsin". Did you know you could actually Retreat to Wisconsin?

There is a Retreat, Wisconsin; it's an unincorporated village. It's also the name of a recently published U.S. Geological Survey 7.5 minute topo quad. Have you any idea where it is? Hint: It's only 10 miles from Romance.

The map shows the topo quad detail.



Answer:
Retreat is located in southwestern Vernon County, in the Town of Sterling. In addition to its rather unusual name, the village is located astride a 1300+ foot high ridge. Quite a lofty view for Retreat.

NEW MAPS

CUNNING

RUNNING



Cunning running is what orienteering enthusiasts call their sport.

Orienteering involves using maps and a compass to find the fastest route to premarked points through often difficult countryside. The first person to return with proof of finding the points wins the contest.

Orienteering teaches people map reading skills, environmental problem solving and how to use a compass. It demands direct involvement with terrain, making even familiar surroundings appear fresh and challenging.

Maria Miller and her husband, Charles Worringham, recently organized the Madison Orienteering Club. The Club has a permanent course set up on the far west side of the UW campus. Bruce Blasch, head of the UW Waisman Center's mobility training project, is adapting orienteering maps so that blind, developmentally disabled and wheelchair-bound people can orienteer.

The Club is now recognized by the U.S. Orienteering Federation and can compete nationally. Members have developed a good map for Governor Dodge State Park. They've scheduled several meets. On July 29th there was Street Orienteering; on August 4th they met for Memory Training at Picnic Point. Tentative meets include Compass and Map Skills Workshop on August 25th and Night Orienteering on September 22nd. Cross country ski orienteering will take place this winter. Contact Miller and Worringham at 608/233-9030, 508F Eagle Heights, Madison, WI 53705.

GREEN BAY 1:250,000

The U.S. Geological Survey recently published the Green Bay 1:250,000 topographic map. The edition date is 1982. The former date was 1967. The sheet measures approximately 22 x 32 inches. The contour interval is 50 feet. Available from the Wisconsin Geological Survey, 1815 University Ave., Madison, WI 53706 for \$3.25.

The RACINE sheet is being printed and will be available soon. The ESCANABA sheet is expected in March 1985.

QUATERNARY GEOLOGIC MAPS

The following three maps are part of the U.S. Geological Survey's quaternary geological atlas of the United States. All are edited and integrated by G.M. Richmond and D.S. Fullerton. Their scale is 1:1,000,000 (1 inch = about 16 miles) and they sell for \$3.30 each. Order from the Eastern Distribution Branch, U.S. Geological Survey, 1200 South Eads Street, Arlington, VA 22202.

Quaternary geologic map of the Chicago 4° by 6° Quadrangle, United States. State compilations by J.A. Lineback, N.K. Bleuer, D.M. Mickelson, W.R. Farrand, and R.P. Goldthwait. 1983. Lat. 40° to 44°, long. 84° to 90°. Sheet 29 by 54 inches. Order number I-1420 (NK-16).

Quaternary geologic map of the Minneapolis 4° by 6° Quadrangle, United States. State compilations by J.E. Geobel, D.M. Mickelson, W.R. Farrand, Lee Clayton, J.C. Knox, Adam Cachow, H.C. Hobbs, and M.S. Walton, Jr. 1983. Lat. 44° to 48°, long. 90° to 96°. Sheet 29 by 46 inches. Order number I-1420 (NL-15).

Quaternary geologic map of the Lake Superior 4° by 6° Quadrangle, United States and Canada. State and province compilations by W.R. Farrand, D.M. Mickelson, W.R. Cowan, and J.E. Geobel. 1984. Lat. 44° to 48°, long. 84° to 90°. Sheet 29 by 41 inches. Order number I-1420 (NL-16).

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KENOSHA AND WAUKESHA COUNTIES MAP ON

The 1983 July Bulletin (pages 6 and 7) described in detail the Southeastern Wisconsin Regional Planning Commission's mapping program in Kenosha and Waukesha Counties. At the end of the 1984 program Kenosha County will have large-scale topographic maps for 215 square miles, or 77%, of the total county. A total of 1,015 section corners, or 84%, will be on the State Plane Coordinate System.

Similarly, Waukesha County will have large-scale topographic maps for 256 square miles, or 44% of the total county

area. A total of 1,377 section corners, 54%, will be on the State Plane Coordinate System.

The maps have a 1 inch equals 200 feet scale with 2-foot contour intervals. They are prepared photogrammetrically to meet National Map Accuracy standards. The maps and survey control provide foundations for the eventual creation of modern automated land record systems. For more information contact SEWRPC, P.O. Box 769, Old Courthouse, Waukesha, WI 53187, phone 414/547-6721.

NEW MAPS, continued

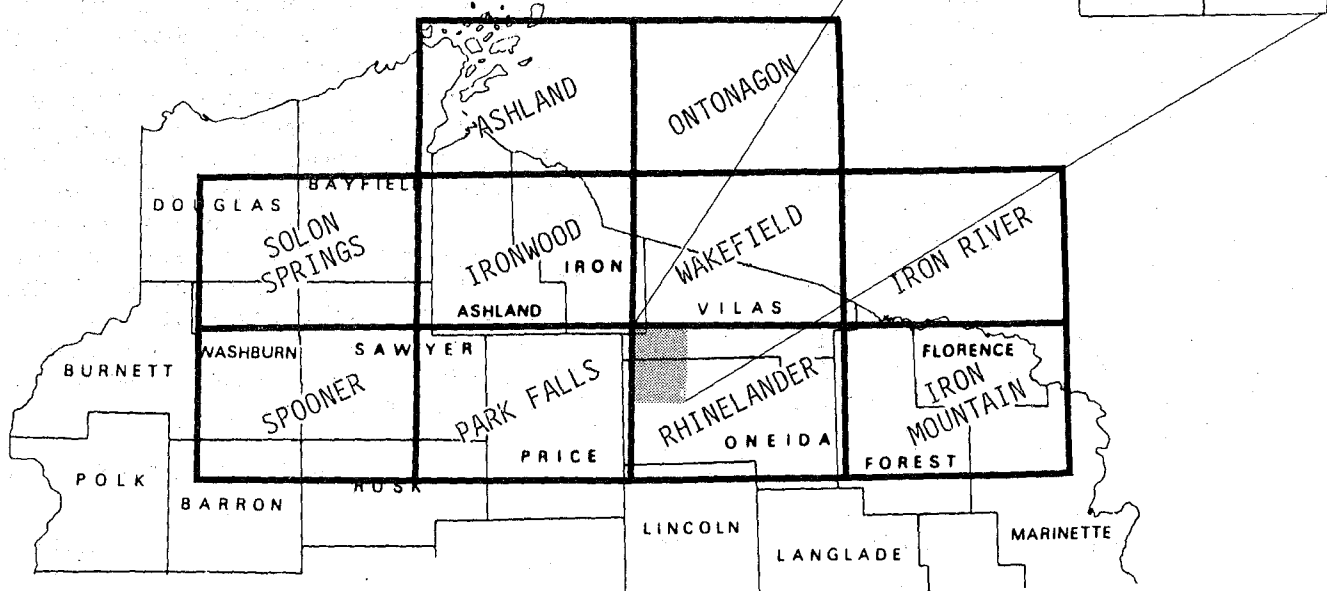
NORTHERN LAKES AREA

Art Dorwin in Minocqua has produced several unique maps of the northern part of the state, the area most frequented by vacationers. He has used recent U.S. Geological Survey 1:100,000-scale maps as a base for his own series. His ten maps don't have the U.S.G.S. green woodland tint but he shows the road network in red which highlights it considerably. They have a "paste line" so that north/south maps can easily be joined together. The maps (indexed below) sell for \$2.00 each.

Minocqua is a favorite spot for tourists so Dorwin has produced a 15' quadrangle at the 7½' scale of 1:24,000 (see below). The entire map consists of a north and south half

which can again be joined together at a "paste line." The halves can be purchased individually for \$3.00 (\$6.00 for the entire area).

All maps can be laminated for an additional \$2.00 per sheet. Direct your orders to Art Dorwin Map Store, 304 Oneida Street, Minocqua, WI 54548, phone 715/356-6851.



GEOGRAPHIC NAMES INFORMATION SYSTEMS

The Geographic Names Information System (GNIS) is an automated data system developed by the U.S. Geological Survey (USGS) to standardize and disseminate information on geographic names. GNIS provides primary information for all known places, features, and areas in the United States identified by a proper name. The information in the system can be manipulated to meet varied needs. You can incorporate information from GNIS into your own data base for special applications.

GNIS is composed of five separate data bases. Each of these data bases provides different, but related, information on names for the 50 States, the District of Columbia, and the territories in the United States.

The National Geographic Names Data Base

The National Geographic Names Data Base is the primary and largest data base in GNIS. This data base contains computer files on more than 2 million place names and features in the United States--from towns, schools, reservoirs, and parks to streams, valleys, springs, and ridges. Each State file contains the names found on its USGS topographic maps. Many State and territory files currently contain information from a variety of other sources such as the National Ocean Service and the U.S. Forest Service.

For each geographic name listed in the data base, there are 15 descriptive elements such as the official name, type of feature, location of the feature (by county), geographic coordinates, and the name of the topographic map which shows the location of the feature. Federal status, elevation, size, bibliographic reference, and variant names are also included. A variant name is any other, former or current name or spelling of the official name. In addition, population statistics are now being added.

The National Geographic Names Data Base information is useful in locating the names of cultural and natural features.

For example, if you want to know where Rhinelander in Wisconsin is located, the data base can quickly provide the county and geographic coordinates. If your request is more involved, it may require a specialized search. The information in this data base is used for local transportation planning, regional planning, product marketing, site selection and analysis, emergency preparedness, genealogical research, and solving problems requiring the use and analysis of geographic names.

Information from the data base is available as computer printouts, on microfiche, or on magnetic tapes. Specialized searches are done upon request; results are usually provided as computer printouts or on magnetic tapes, but spiral-bound books or microfiche can also be obtained. An interactive or online version, which facilitates retrieval, arrangement, manipulation, and analysis of information, is available for use at the USGS NCIC Headquarters office, the Mid-Continent Mapping Center's NCIC office, and the GNIS Manager's office.

The product you purchase will be categorized either as Phase I or Phase II data. The difference is in the amount of editing and the quantity of information. Phase I data contain only names found on USGS topographic maps, and the data are edited by comparing the computer file with the accumulated records of the U.S. Board on Geographic Names (BGN). This edit compares names, on a one-to-one basis. Corrections and other information such as variant names and BGN data are added. Phase II data contain, in addition to the information from Phase I, the names of features not recorded on topographic maps, together with specific types of features excluded from compilation during Phase I such as historical and variant names, names from other sources including maps, charts, texts, and historical sources. Phase I data are currently available for all States, but Phase II data are only available for some States. (Wisconsin only has Phase I data.)

(continued on next page)

GEOGRAPHIC NAMES INFORMATION SYSTEMS, continued

A formal publication titled The National Gazetteer of the United States of America, published as U.S. Geological Survey Professional Paper 1200, is presently available for a few selected States (not yet available for Wisconsin). Completion of the Gazetteer is expected in the next five to eight years. The National Gazetteer is a compendium of place, feature, and area names, published on a State-by-State basis. In addition to the information contained in the National Geographic Names Data Base, the Gazetteer includes a glossary of terms and abbreviations, a map of counties in that particular State, and an alphabetical listing of USGS topographic maps of the State. Also included are names of features from other historical and pertinent sources. Variant names are listed and cross-referenced to their official names.

The USGS Topographic Map Names Data Base

The USGS Topographic Map Names Data Base contains descriptive information and the official names of each published or planned individual 7.5- x 7.5-minute topographic map area in the USGS 1:24,000-scale or 1:25,000-scale topographic map series. The data base includes current and historical names of the map, geographic coordinates of the southeast corner, map scale, name of the State, and other descriptive information. If a 1:24,000-scale or 1:25,000-scale map is not published, then the name of the appropriate, next smaller scale map, which includes that area, is referenced. The data base also contains a file with similar information for all 1:250,000- and 1:100,000-scale topographic maps.

GENERIC DATA BASE

The Generic Data Base provides information on every generic feature found in compiling the National Geographic Names Data Base. There are a total of 63 broad categories of feature types to facilitate searching and retrieving information about related

features. For example, the generic term stream is used for all rivers, creeks, brooks, branches, runs, and so on.

About 1,100 types of features have been cross-referenced to these 63 broad categories. The Generic Data Base defines these feature types and describes unusual generics. An unusual generic may be a distinctive word or use of a word; for example, the word slough is used in different geographic areas to convey different meanings. The Generic Data Base provides the location, application, and reason for unusual application of these generics. This data base is also the GNIS bibliographic information depository, and it contains complete annotated entries for source materials other than USGS topographic maps utilized in the compilation of the National Geographic Names Data Base, a reference for abbreviations used on topographic maps, and definitions of cartographic, geographic, and linguistic terms.

The National Atlas Data Base

The National Atlas Data Base contains information about the geographic names in the USGS National Atlas of the United States of America. Available information includes name, type of feature, reference to the location of the feature on the maps in the National Atlas (by State), geographic coordinates, National Atlas page number, 1980 population statistics, and the name of the State or county in which the feature is located.

This data base is the basis for a condensed version of The National Gazetteer of the United States of America, to be published in late 1984.

(to be continued in October)



DIGITAL TERRAIN MAPS

The State Cartographer's Office recently learned that 133 1-degree x 1-degree arc-second digital terrain data files are being added to the Defense Mapping Agency's database. This is integral to U.S. Geological Survey 1:250,000-scale Digital Elevation Models. The addition of these Digital Terrain Tapes will complete the coverage in the arc-second data base for the conterminous United States. These data should be in the database by October 1984.

The "arc-second" data really refers to the 3-arc second intervals or spacing between data points in both Longitude (Delta-X) and Latitude (Delta-Y) gathered from the 1:250,000-scale U.S.G.S. topographic series maps. The data are interpolated from contours, ridgelines and drains on this series at the "3 arc-second" interval.

With the exception of Alaska, the following characteristics are valid:

Data consists of a regular array of elevations placed on the geographic coordinate system.

The unit of coverage is 1° X 1°, ($\frac{1}{2}$ of a 1:250,000-scale map), with profiles coincident with the edges of the map. The data are divided into East Half and West Half to accomodate the 1 x 2 degree format of the 1:250,000-scale map.

Data are organized as profiles ascending northward, with the origin at the SW corner of the map.

Data are stored as profiles in which the spacing of elevations along and between each profile is 3 arc-seconds.

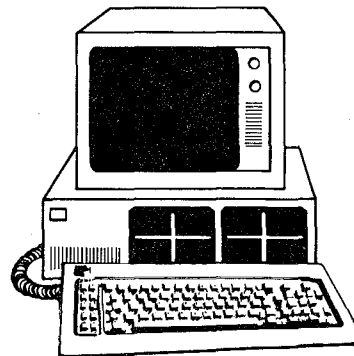
The data comprise an array of 1,201 profiles with 1,201 elevations per profile.

Note: 3 arc-seconds, North/South is about 90 meters. The 3 arc-seconds East/West varies from about 90 meters at the equator to 60 meters at 50 degrees Latitude.

ALASKA -- (exceptions) North-South spacing between elevations in Alaska is 3 arc-seconds, but profile spacing in Alaska varies from 4 arc-seconds to 12 arc-seconds because of the convergence of the meridians.

As of April 1, 1984 all but the SW corner of Wisconsin had coverage. For more information on digital data and the availability of digital cartographic data, contact Marty Moreland (phone 314/341-0857) at the NCIC, Mid-Continent Mapping Center, U.S.G.S., 1400 Independence Road, Rolla, MO 65401.

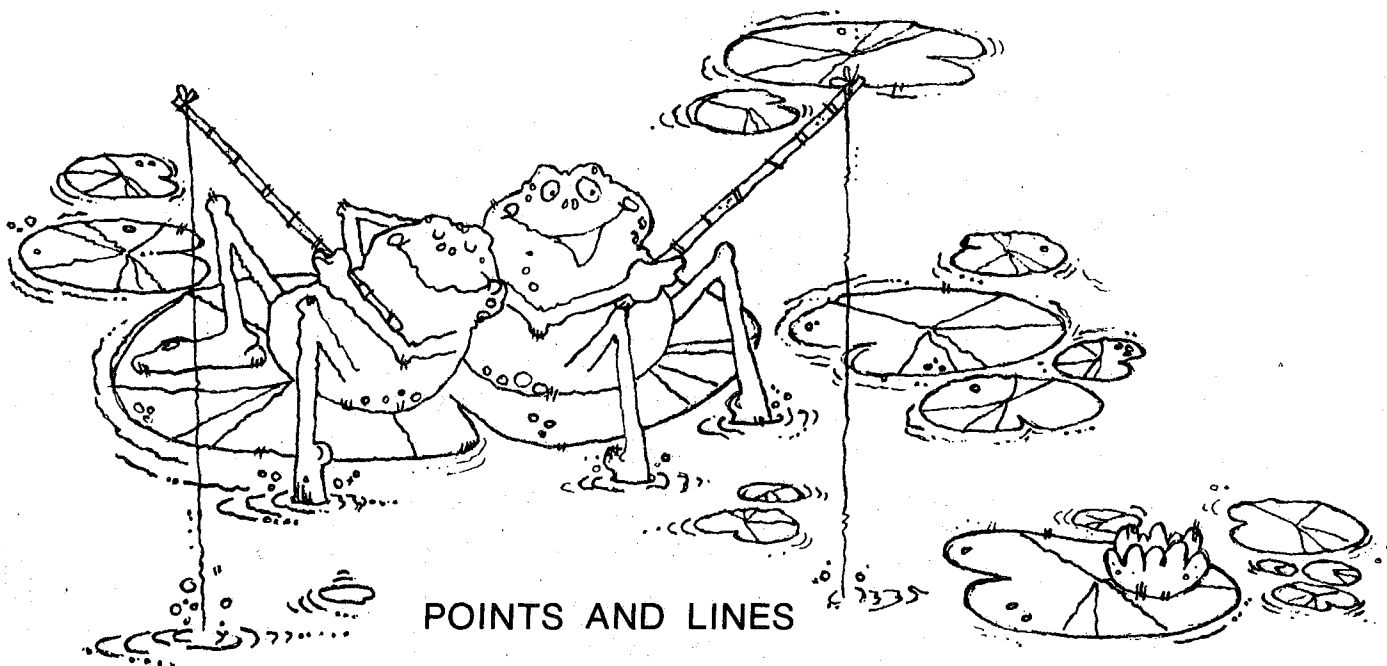
Source: NCIC Rocky Mountain Affiliate Network



PUBLICATIONS OF INTEREST

Application of digital mapping technology to the display of hydrologic information; a proof-of-concept test in the Fox-Wolf Basin, Wisconsin. By G.K. Moore, L.B. Batten, G.J. Allord, and C.J. Robinove. 1983. 124 pages. U.S. Geological Survey, Water-Resources Investigations Report WRI 83-4142. Microfiche \$3.50; paper copy \$25.50 from Open-File Services Section, Western Distribution Branch, U.S.G.S., Box 25425, Federal Center, Denver, CO 80225, phone 303/234-5888.

Historical Atlas and Chronology of County Boundaries, 1788-1980. By The Newberry Library. 1984. Five volumes (Wisconsin is in volume 3) approx. 1000 maps. \$595.00 from G.K. Hall, 70 Lincoln St., Boston, MA 02111, phone toll free 1-800/343-2806.



POINTS AND LINES

HERE'S FLORENCE

Our 33rd county cartographic catalog, FLORENCE County, is now available. MENOMINEE County is in its final edit stage and will go to the printer at the end of the summer. All publications are sent free of charge. Call or write Brenda at the State Cartographer's Office for your copy.

NEW CATALOG PRODUCTION STAFF

Martin (Marty) Balikov replaced Gretchen Coles on July 1st as county catalog assistant editor. Gretchen is wrapping up her Masters Degree in cartography and then moving out into the world of maps and graphic design. During her two years as assistant editor, Gretchen was instrumental in improving the "look" of the catalog series.

Marty is currently working on a joint Masters Degree in environmental monitoring and cartography. We're looking forward to his fresh input.

The Office's student part-time staff now includes Marty, Mark, Marvin and Mark. Try saying that fast three times. We also have two Carols. For balance we have Rachael, Randy and Larry.

MAILING LIST CLEANUP

Thank you everyone for responding to our mailing list update request. By all standards it was a huge success with almost an 80% return. Brenda now has you on our own automated mail system. This eliminates trudging across campus to the computer center.

POSTCARD RESPONSE

Several kind readers sent in postcards in response to our search for 21 elusive state map postcards. Special thanks go to Steve Vogel, Sid Witiuk, Alberta and Cliff Wood, Al Stevens, Joel Morrison, Joanne Perry, Laurie Boyer, Cambell Craddock, Bill McCall, Steve Shivers, Paul Stout, Larry Kramer, Eric Haupt, and Mrs. E.A. Yorde. We are still missing Alabama, Connecticut, Rhode Island, and Vermont. This fall the UW-Madison Arthur Robinson Map Library will feature a map of the United States made up of state map postcards.

DANE COUNTY RPC

The Dane County Regional Planning Commission is back in the City-County Building after extensive building remodelling. It resumes its former address: 523 City-County Building, Madison, WI 53709. Its general office phone is 608/266-4137; Charles Montemayor, Director, is at 608/266-9106.

NACIS

The North American Cartographic Information Society is holding its 4th annual conference in Pittsburg on October 17-20. (This is a change in dates.) The theme is Cartographic Information Sharing. Noted cartographer Norman Thrower will be the featured speaker. For a preliminary program and registration information contact Dr. John Stephens, Dept. of Geography and Regional Planning, Indiana University, Indiana, PA 15705.

(continued on next page)

POINTS AND LINES, continued

CENSUS PLANNING

As we draw nearer to the 1990 census, the Census Bureau wants to hear our views about census maps and the geographic areas for which census data are tabulated. They are scheduling conferences to discuss census geography and other relevant issues. For more information about the National Geographic Areas Conference or the upcoming regional geographic conferences, contact Virgelaine Davis, Geography Division, Bureau of the Census, Washington, D.C. 20233, phone 301/763-2364.

WETLANDS MAPS

The Department of Natural Resources' Wisconsin Wetlands Inventory completed its mapping program on June 29, 1984. A total of 1,720 maps show the location and type of wetlands existing in the state as of 1978-79. The maps still require public review. For more information on the program, contact Steve Fix, DNR Wetlands Inventory, 101 S. Webster, Madison, WI 53702, phone 608/266-0053. Maps can be purchased from the Wisconsin Geological Survey, 1815 University Ave., Madison, WI 53706, phone 608/263-7389.


MY CAR THE MAP

For drivers who find it exasperating to fold and unfold road maps, Buick this fall will introduce an electronic map display as an option on its Riviera. Drivers will be able to buy cassettes that contain electronic maps. When a cassette is inserted into the front-seat console, the map will appear on a TV-like screen on the dashboard. Still in the planning stages is a map display that will pinpoint the location of the car by bouncing signals off a navigation satellite.

Source: TIME, July 16, 1984

OCTOBER

The October issue of the Bulletin will include news from the Wisconsin Geological Survey and the UW-Madison Cartographic Lab. Prof. Tom Lillesand and Diane Chung will also be back with the Remote Sensing Broadcast.

An outline map of the state of Wisconsin, showing its characteristic shape with the Keweenaw Peninsula at the tip of Lake Michigan. The map is positioned on the right side of the page, with text columns to its left and right.

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