

# HOOSIER SURVEYOR

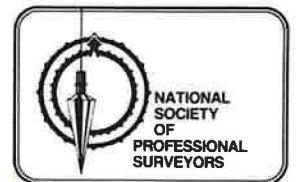


QUARTERLY PUBLICATION OF THE  
INDIANA SOCIETY OF  
PROFESSIONAL LAND SURVEYORS, INC.

VOLUME 17  
NUMBER 3  
WINTER 1991



AFFILIATED WITH THE  
AMERICAN CONGRESS ON  
SURVEYING & MAPPING



*F. R. Hassler*  
SUPERINTENDENT  
*Superintendent of the U. S. Coast Survey*

FIGURE 24.—Ferdinand Rudolph Hassler (1770–1843), first Superintendent of the U.S. Coast Survey and presumed inventor of the Polyconic projection. As a result of his promotion of its use, it became the projection exclusively used for USGS topographic quadrangles for about 70 years.

## Map Projections— A Working Manual

By JOHN P. SNYDER

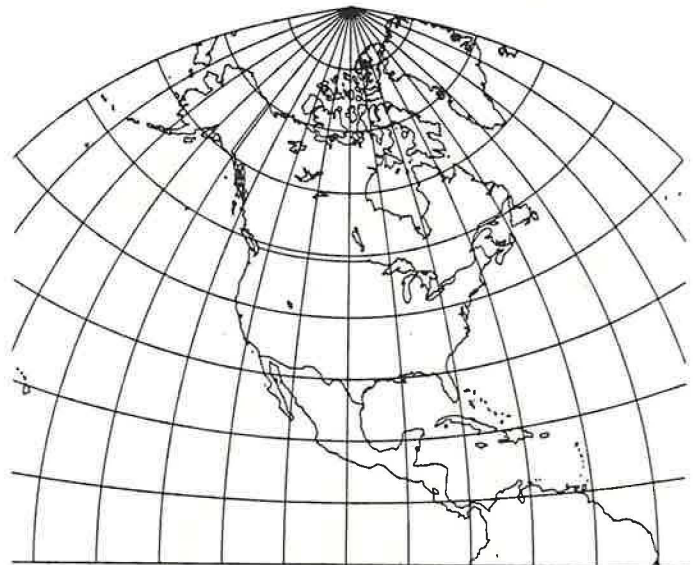


FIGURE 25.—North America on a Polyconic projection grid, central meridian long. 100° W., using a 10° interval. The parallels are arcs of circles which are not concentric, but have radii equal to the radius of curvature of the parallel at the Earth's surface. The meridians are complex curves formed by connecting points marked off along the parallels at their true distances. Used by the USGS for topographic quadrangle maps.



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# HOOSIER SURVEYOR

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### EDITOR'S NOTE

Deadlines for copy for various planned issues of the HOOSIER SURVEYOR are as follows: Winter Issue - December 31; Spring Issue - March 31; Summer Issue - June 30; Fall Issue September 30.

The HOOSIER SURVEYOR is published quarterly by the INDIANA SOCIETY OF PROFESSIONAL LAND SURVEYORS, to inform land surveyors and related professions, government officials, educational institutions, libraries, contractors, suppliers, and associated businesses and industries about land surveying affairs.

Articles and columns appearing in this publication do not necessarily reflect the viewpoints of ISPLS or the Hoosier Surveyors staff, but are published as a service to its members, the general public and for the betterment of the surveying profession. No responsibility is assumed for quotes or deletions as to its contents.

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## PRESIDENT'S THOUGHTS

by Ross Holloway, ISPLS President, Martinsville, IN

Dear Fellow Surveyors,

I consider it a honor to represent you as the president of your society for 1991. I feel the coming year will yield many advances for the professional surveyor in Indiana. It is my belief that this year ISPLS has an excellent chance of obtaining the long sought goal of a separate board of registration.

A bill has been introduced in the legislature (H.B. 1679, see position paper page 3), on behalf of ISPLS, which will separate the board of registration. If passed this bill would provide one board for land surveyors and another for engineers. I would like to thank all those who has given unselfishly of there time in drafting and shepherding this bill. However, the support of every surveyor is needed to assure success in this matter. I urge each of you to contact your representative and admonish to him or her to vote for House Bill 1679. Passage of this legislation will enable the registered land surveyor to better serve the people of Indiana and herald in a new age of professionalism as we approach the twenty-first century.

Another goal which appears to be reaching fruition is the revisions to the Indiana Minimum Survey Standards, more commonly known as "Rule 13". Many people have been working long-hard hours over the past two years to see that the revised rule will meet the needs of the public, registered surveyor, government and utilities. Some of the changes have been dramatic, such as the addition of a section on route surveying and monumentation. The Board of Registration, in a public hearing on January 24, received what I thought were many good and constructive comments. I applaud the Board of Registration, Wes Day, ISPLS Standards Committee Chairman, Steve Hull of Indiana Department of Transportation, and all the other individuals who have worked so hard and dedicated so much of themselves to this effort.

Lastly, as we enter a new year with all the opportunities and rewards it may bring I don't want to forget where we have come from. I would like to thank Art Haase and his surveying students, Vincennes University and the members of the Southwest Chapter of ISPLS for a **GREAT** convention. Those who didn't attend this convention missed a golden opportunity for improving themselves professionally, as well as missing the latest in surveying instruments, equipment, software, etc. Also, the entertainment and activities this year were



fantastic. Last year, Roger Woodfill and the various committees gave a tremendous amount of time and effort, performed a lot of ground work, and have laid the foundation for achieving the goals of this society in 1991; for this I salute you.

\* \* \* \* \*

### LAND SURVEYING CERTIFICATES AWARDED

The Indiana State Board of Registration held the certificate presentation for Professional Engineers and Land Surveyors on Friday, November 16, 1990. The ceremonies were held at the Ramada Downtown, 501 West Washington Street, Indianapolis. The following land surveyors were awarded with certificates:

Frank Ballintyn  
Louis J. Bergman  
David R. Blankenbeker  
Jeffory W. Darling  
Sam G. Haldiman  
Hans C. Hofer  
Valdis Lapsins  
Dennis D. Olmstead  
William E. Pettitt  
John E. Porter  
Steven A. Sherwood  
Philip O. Tapp

Congratulation to all of you!

## ISPLS POSITION PAPER

on the Indiana Board of Registration for Professional  
Engineers and Land Surveyors

Neither the Indiana public nor the 12,419 professional engineers or the 1192 registered land surveyors (1990 figures) are being treated fairly under the current statutes concerning registration for Engineers and Land Surveyors.

### 1. MANY CURRENT LAND SURVEYS DO NOT MEET THE MINIMUM TECHNICAL REQUIREMENTS SET OUT IN INDIANA ADMINISTRATIVE CODE!

It is well-known throughout the State in both the Engineering and Land Surveying communities that the Registration Board and Consumer Protection Agency have not been a threat to incompetent practice. The public is defrauded and often placed in danger as a result. The only complaint against a practicing land surveyor to reach a Board hearing in the past five years took over five years to reach the hearing stage. Due to the past history of failure to enforce the law, many engineers and land surveyors will not even report a violation because they expect no action to be taken.

### 2. THE QUALIFICATIONS OF MANY RECENT LAND SURVEYOR REGISTRANTS HAVE NOT BEEN ADEQUATELY DETERMINED NOR TESTED!

Considered as a whole, the current Board may well be the fairest and best qualified board in history, but in spite of its most diligent efforts, present administrative responsibilities allow little or no time for the development and administration of an appropriate land surveyor professional examination. In the past, there has not even been time for adequate review of applications to sit for the land surveying or engineering professional examinations.

### 3. PROFESSIONALS NEED TO BE JUDGED BY THEIR PEERS!

Adequate policing of the engineering and land surveying professions must be handled by those who understand the technical aspects of these professions. Valid complaints filed with the Consumer Protection Agency and Registration Board have - in good faith - been frequently mishandled and even dismissed due to a lack of technical understanding of the relevant issues. Land surveyors and engineers do not have a problem with being regulated, just the opposite is true! It is the lack of regulation they find appalling and unacceptable.

### THE BOARD LACKS THE TIME TO PERFORM STATUTORY DUTIES ADEQUATELY.

By its own admission the board now spends about 60% of its time on land surveying issues,

although there are over 1000% more Professional Engineers than Professional Land Surveyors in the State of Indiana. Lack of time to carefully review applications, investigate references, and develop and administer an appropriate licensing exam is resulting in persons being licensed to practice Land Surveying who cannot even write a correct legal description or perform an accurate survey.

### WHAT ABOUT COST?

Reliable estimates by informed sources indicate that separate Engineering and Land Surveying Boards would cost the state an additional \$28,000 each year. This additional cost amounts to less than \$3 per registered engineer and land surveyor each year. The membership of the Indiana Society of Professional Land Surveyors has gone on record supporting substantial increases in registration fees to support separate boards and increased enforcement of the Registration Act and Board administrative rules.

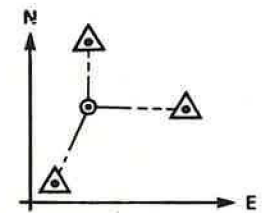



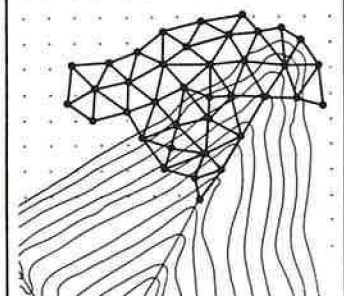





### Background

Separate licensure for Land Surveyors was established in Indiana in the early 1960's. At that time, it was logical for the resulting board of registration to be combined because most land surveyors came from a civil engineering background. Since then, however, the two professions have diverged technically and the practice of each has grown exponentially more specialized. In today's world, with high property values, increased concern with complicated subterranean and aerial rights and the need for highly accurate geographic locations related to, for example, expensive water-front properties, environmental concerns, mapping programs such as the Indianapolis IMAGIS project, and flood hazard and wetlands maps, the practice of Land Surveying can no longer be considered the step-child of engineering. The issues and regulation of both professions demands the full attention of board members who are wholly familiar with the issues and professional practice they are charged with regulating. The ultimate goal of licensure, which is to protect the life, health and property of the public, cannot be otherwise achieved.

We ask the Legislature, the Governor, and the Engineering and Land Surveying communities to support legislation in the 1990-91 legislative session which would establish separate Boards of Registration.

Contact the Indiana Society of Professional Land Surveyors at (317)687-8859 for additional information. 12/19/90

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## PAST PRESIDENT'S REPORT

by Roger Woodfill, Lawrenceburg, IN

For a number of years, it has been the policy of the Indiana Society of Professional Land Surveyors to invite presidents of our sister societies in the four contiguous states to our annual convention. The 1991 meeting held in Vincennes was the first meeting to my knowledge where all four society presidents were able to attend our meeting. The value of these interstate relations is hard to quantify, but all the affiliates do it. I filled in for President Holloway at the February 7-9, 1991 Kentucky Association of Professional Surveyors convention in Owensboro, Kentucky.

The technical sessions started with a report of the GIS system in the Louisville area. It was followed by a panel discussion of a "loan closing team" (an appraiser, a banker, a broker, a lawyer and a surveyor). My notes include the following phrases:

- 1) "the appraiser never gets enough data"
- 2) "the purpose of a survey is to delete the survey exception on the title policy"
- 3) "don't certify to the absence of any underground utility"
- 4) "mortgage inspection is not a survey"
- 5) "title people want guaranteed access"
- 6) "think of ALTA Table 3 as a shopping list"

Where have I heard this stuff before? After lunch we received a motivational talk about some business practices. It was called "team building", and one tip I remember is to emphasize the "project" instead of a job or career. We learned that things work out better if we prepare a vision statement, avoid personal accusations, and give all ideas a fair hearing.

The final session the first day was on easements, and we went over terminology similar to that used in the Robillard workshop last summer. Dennis Branson presented that part of the program. He said that surveyors are held to a national standard - not a local or state standard. He also indicated that most utilities will release blanket easements if you will furnish them a specific easement.

The next morning KAPS held their general membership meeting. There are 213 members of the society of which 154 are registered members; and their concerns are similar to ours. They started awarding c.e.u.'s with Owensboro meeting. Discussions lead to the following consensus that we should investigate:

- 1) The Federal Trade Commission was reviewing various state codes of ethics for

something that might cause restraint of trade.

- 2) Kentucky students can enter East Tennessee State University surveying program at "in-state" tuition because a "common market" agreement is in place between the states. They would receive a BSCET degree with a major in surveying.

\* \* \* \* \*

## NSPS GOVERNOR'S REPORT

In order to "get up to speed" as Indiana's Governor to NSPS I attended a joint meeting of Area 3 and Area 4 NSPS governors, February 9th in Owensboro, Kentucky. As you know Indiana is actually within Area 5; but the governors were very cordial. On a couple occasions, they allowed me to address the group after governors and state society presidents had commented. Their agenda was full, and eight states were officially represented.

Three statements made about the ACSM Headquarters Building that seemed to be accepted as fact, but not known to me, are as follows:

- 1) Not all the money received from the sale of our old building was applied to the purchase of the new headquarters.
- 2) ASPRS did not join with ACSM in the purchase of the new headquarters.
- 3) There are restrictive covenants with the new building allowing sales only to similar groups.

They discussed the ACSM-NSPS relationship, NSPS Incorporation, NSPS budget, and the NSPS organizational structure; trying to reach a consensus on a proper course of action. The attitude seemed (to me) to be "very concerned" about ACSM spending above its income. Obligations to the Mining Conference was noted as a separate item, and I was permitted to preview my proposal to expand the Trig-Star program.

I had to leave before the meeting adjourned, but it certainly was informative.

Roger Woodfill  
1991 NSPS Governor

# ISPLS GENERAL MEMBERSHIP MEETING MINUTES

Vincennes, Indiana  
by Douglas K. Herendeen, Secretary

Minutes of the 1991 ISPLS General Membership Business meeting Friday, January 18, 1991, Vincennes, Indiana.

The Thirty-Ninth annual meeting of the General Membership of the Indiana Society of Professional Land Surveyors, Inc. was called to order at 9:00 am, Friday, January 18, 1991 at the Executive Inn by President Roger Woodfill.

Members and visitors signed the attendance sheet. Addendum "A"

Minutes of the 1990 Annual Meeting were approved as submitted in the Convention Booklet. Motion passed.

The Treasurer's Report was approved as submitted in the Convention Booklet. Motion passed.

## Staff Report by Dianne Bennett

We are in the second year of a three year lease. The lease expires on November 30, 1992. Since the installation of the fax machine we have received 985 transmissions. We now offer Master Card and Visa. For the past year more of the work for the Hoosier Surveyor has been prepared at headquarters. The bookkeeping for the annual convention is now being done at headquarters. There are plans for a 1991 roster. It should be out the first of March.

## STANDING COMMITTEES:

### Chapter Report

Randy Sexton gave this report. He reported that all Chapters were active. There appears to be an interest in the Columbus area to start a Chapter. A meeting will be set soon to decide on a name and geographical area to serve. Perry Cloyd is the person to contact for this Chapter.

Randy presented the Sam Hanna award from the Fort Wayne Grand Wayne Hilton to ISPLS. This was accepted by Roger Woodfill and will be housed in the office of ISPLS.

Scott Zeigler, the Purdue Student Chapter Vice Chairman stated there was an additional report in the convention packet. He stated that this Chapter met every month, the next meeting will be January 22, 1991.

### Convention Report

Doug Herendeen stated his report is in the Convention Booklet. He also passed a

questionnaire around the meeting concerning the 1993 convention and if there was an interest in having a joint convention with ISPE, CEI, PEPP & IEEE and where? There appears to be an interest with KAPS for a joint convention in 1994. Perhaps something connected with the National Convention in Louisville. The 1995 Convention is undecided at this time, there is a possibility of a cruise.

### Education Report

Dave Best stated this report is in the Convention Booklet. There is currently a workshop set for Brown County in October 1991.

### Ethics Report

Ross Holloway stated this report is in the Convention Booklet.

### Finance Report

E.R. Gray stated this committee met only once this year to set the 1990-1991 budget.

### Government Affairs Report

Pat Cunningham gave this report. He stated this committee has set two immediate goals. 1) A Separate Registration Board and 2) Professional Development. The preparation of a position paper was handed out to the members at this meeting and that the use of the minuteman program will be used this coming year.

### Headquarters Report

Roger Woodfill gave this report. In addition to what Dianne stated earlier in her report. Roger mentioned the need for a Kelly type person to help Dianne out on occasion.

### Hoosier Surveyor

Ken Curtis gave this report. The Hoosier Surveyor has a new format with added color. This has meant more work for Dianne and the need for the Kelly person. Ken would like to see more society business, minutes of the Board of Directors meetings and Chapter's business in the Surveyor.

### Membership Report

This report is in the Convention Booklet.

### Nominations & Tally Report

Gary Kent gave this report in addition to the report in the Convention Booklet.  
President Elect - Randy Sexton

New Directors - Pat Cunningham  
Doug Herendeen  
Brenda Owens  
Rich Hudson (will fill  
Randy's vacancy.)

### Public Relations Committee Report

E.R. Gray stated this report is in the Convention Booklet and that they have met on five to six occasions. They have divided the state into 15 areas to promote Trig Star and other programs. The area coordinators are:

Don Bengel	Chris Marbach
Randy Sexton	Kerry Dickmeyer
Greg Deeds	Dale Grimes
Alan Stanley	Bill Leucht
Terry Miller	Don Craig
Roger Woodfill	Perry Cloyd
E.R. Gray	Art Haase
Mike Feldbusch	Vic McCauley

### Publications Committee Report

Jerry Carter gave this report in addition to the report in the Convention Booklet. A request will be made to the Board to update Manual 3 and as of this convention the following books have been sold.

Manual 1 printed 26 sold 21  
Manual 3 printed 200 sold 84  
Manual 6 printed 26 sold 25  
Early Trails ordered 100 sold 67

### Scholarship Report

Lee Bender gave this report for the John G. McEntyre Endowment in addition to the report in the Convention Booklet. Dan Pusey made a formal presentation to both the Purdue University and Vincennes University Endowment programs. Orwic Johnson also gave a report for the Peggy Archer Memorial Endowment in addition to the report in the Convention Booklet.

### Standards Report

Wes Day gave this report. There will be a public hearing on the latest version of Rule 13 on January 24, 1991 at 1:30 p.m. EST in the Supreme Court Chambers State Capital Building.

### Ad Hoc Committee

### Life Members

A written report is in the Convention Booklet. This committee has been disbanded.

### IUPUI Surveying Course Study

Dave Best is looking into the possibility of a four year degree at IUPUI.

### Society Liaison

#### County Surveyors Report

Rollyn Blankenkaker gave this report in addition to the report in the Convention Booklet. There is a current problem with a legislative bill that the County Surveyors have submitted. This will be corrected.

#### Indiana Historical Landmarks

Rollyn Blankenkaker gave this report. This committee is working on trying to preserve a living witness tree.

#### Great Lakes Coordinating Council

Don Bengel stated this report is in the Convention Booklet.

#### NSPS Governor

Gary Kent has been the Governor representative for the past eight years. He will not be representing ISPLS this year. Roger will be taking his place for 1991 with E.R. Gray filling in for the remaining time.

#### Indiana Department of Transportation

Jake Hall reported on the meeting with Kathy Lyons from INDOT. There is desire to install an EDM baseline in each district. Steve Hull from INDOT has indicated a desire to install a GPS network outside Limited Access R/W. QBS for design is trying to use the same procedures for survey services.

#### GIS/LIS Report

Larry Manning stated this report is in the Convention Booklet.

#### Old Business

Roger Woodfill brought us up to date on Harold Gibson lawsuit. The judge has ruled in favor of Harold Gibson. The Registration Board is to issue a license to Mr. Gibson. A motion was made by Gary Kent that the ISPLS Board instruct our Board Liaison to convey to the Board of Registration the ISPLS memberships concern over the Gibson ruling. Second by Dan Pusey. Motion passed unanimously, one abstain.

#### New Business

Jerry Carter will represent ISPLS as our QBS director. He has requested from the Board \$500 as ISPLS's contribution to this program. The Board has granted this request.

Voluntary Professional Development Program - A first draft has been placed in the Convention packet based on the Illinois program. Any comments can be made to Tony Gregory, Rich Hudson or Dave Pilz.

Meeting adjourned at 11:30 a.m.

**INDIANAPOLIS NATIVE AND MAP PROJECTION EXPERT  
IS PRESIDENT OF AMERICAN CARTOGRAPHIC ASSOCIATION**  
by Kenneth S. Curtis, editor



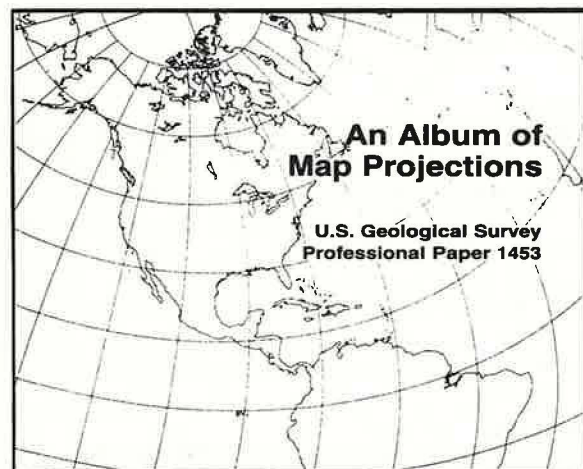
**ACA President  
JOHN P. SNYDER**  
Fellow, ACA. Retired but employed part time, National Mapping Division, U.S. Geological Survey, Reston, Virginia.

It is always gratifying to see one of your former classmates or former students become very successful in his professional endeavors. I have known John P. Snyder since our under-graduate Purdue days in the mid-forties. He was a chemical engineering student, while I was enrolled in civil engineering. However, our friendship developed through our joint activities in a church-related

campus program. (In fact, that is where I met my wife).

John came to Purdue after graduating from Broad Ripple High School in Indianapolis. After graduation from Purdue, he obtained a master's degree at M.I.T. and then worked as a chemical engineer for Proctor and Gamble Co., Cincinnati; then Congoleum-Nairn Inc., Kearny, New Jersey; and, when he retired in 1980, was senior staff engineer for CIBA-GEIGY Corp. of Summit, New Jersey.

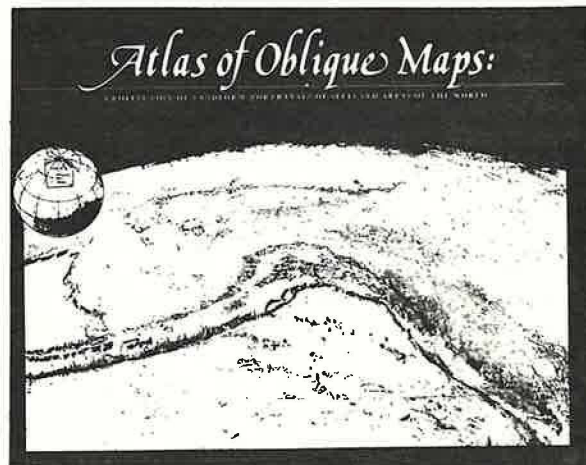
**Professional Paper 1453**



An album of map projections, by J. P. Snyder, U.S. Geological Survey; and P. M. Voxland, University of Minnesota, with an introduction by J. L. Morrison, U.S. Geological Survey. 249 p. 1989. \$14.

An album of map projections is a 249-page description of about 90 different projections, showing illustrations and summarizing properties, usage, and origin. This album is nonmathematical except for an appendix that lists formulas for the map projections described.

Miscellaneous Investigations Series Map I-1799  
**U.S. Geological Survey**



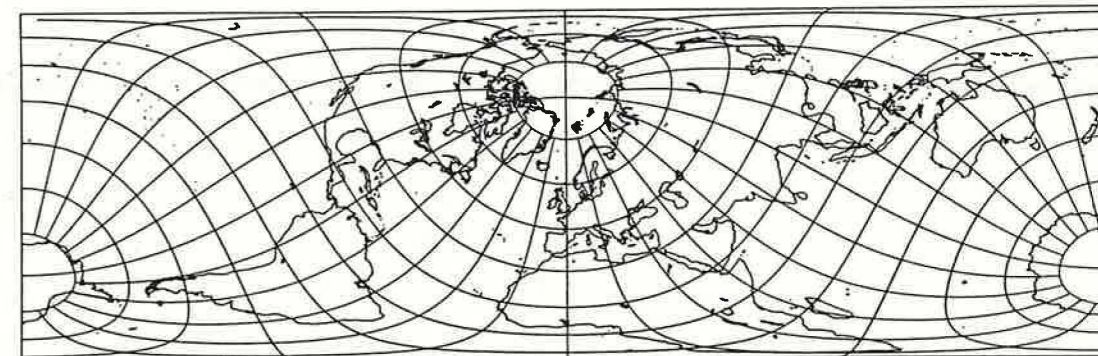
Atlas of oblique maps; a collection of landform portrayals of selected areas of the world, edited by T. R. Alpha, J. S. Detterman, and J. M. Morley. 1988. 137 p., 16 by 20 inches. \$30.

A collection of more than 100 oblique maps, compiled from 1961 to 1986, that portray the surface of the Earth as if viewed from above at an oblique angle. Each map was originally designed for a specific purpose and publication in cooperation with scientists of the U.S. Geological Survey. This atlas presents these maps in one publication and provides a history and explanation of the techniques used to make these maps.

However, subsequent interest led him into the history of mapping and especially into the subject of map projections. His activities and writings brought him to the attention of the National Mapping division of the U.S. Geological Survey where he started working half, then full-time, chiefly on map projections and orbital geometry. He has authored numerous books and papers, as can be noted by the listing accompanying this article. His prolific writing has earned him the reputation as the foremost expert on map projections in the world. He now resides in Virginia, where he teaches and consults on the subject. He also currently has the distinction of serving as president of the American Cartographic Association (ACA) which is a member organization of ACSM.

Congratulation to John on his success in his "second" professional career, this time in the fascinating world of mapping.

**Special-Interest Publications on Map Projections**



World map with Oblique Cylindrical Equal-Area projection provided by J.P. Snyder.

P 1395. Map projections--A working manual, by J.P. Snyder. 1987. 383 p. \$20.

Extensive revision superseding Bulletin 1532. Title changed due to inclusion of 11 other projections including Cylindrical Equal Area, Cassini, Equidistant Conic, Bonne, Gnomonic, General Perspective, Modified-Stereographic Conformal, Satellite-Tracking, Mollweide, and Eckert IV and VI. All 16 projections described in Bulletin 1532 are retained. The State Plane Coordinate Systems parameters are listed, not only for the existing NAD 1927, but also as modified for the NAD 1983 datum. The basic format of the work is unchanged. General projection concepts are followed by individual projection descriptions that include history, features, usage, forward and inverse formulas for sphere and ellipsoid (where applicable), tables of coordinates, and numerical examples. (I-1402 included.)

B 1518. Space Oblique Mercator projection--Mathematical development, by J.P. Snyder. 1981. 108 p. \$5.50.

Complete mathematical derivations for the projection developed by the U.S. Geological Survey for continuous mapping from Landsat and similar satellites.

B 1532. Map projections used by the U.S. Geological Survey, by J.P. Snyder. 1982. 313 p. (2nd ed., 1983, 313 p.) \$8.

Description of 16 projections, including history, features, usage, forward and inverse formulas for sphere and ellipsoid (where applicable), tables of coordinates, and numerical examples. (Map I-1402 included.) Summary of contents: map projections-general concepts; characteristics; longitude and latitude; the datum and the Earth as an ellipsoid; scale variation and angular distortion; transformation; classifications. Projections include Mercator, Transverse Mercator, Oblique Mercator, Miller Cylindrical, Equidistant Cylindrical, Albers Equal-Area Conic, Lambert Conformal Conic, Bipolar Oblique Conic Conformal, Polyconic, Orthographic, Stereographic, Lambert Azimuthal Equal-Area, Azimuthal Equidistant, Space Oblique Mercator, Van der Grinten, and Sinusoidal. (Superseded by Professional Paper 1395, but still suitable for projections covered.)

B 1629. Computer-assisted map projected research, by J.P. Snyder. 1985. 157 p. \$6.

Mathematical derivations with microfiche of three FORTRAN computer programs that can be used to determine: (1) Polynomial coefficients to transfer large quantities of data from one map to another map or to transfer data to or from a data base in geodetic or rectangular coordinates. (2) Which, if any, of several common map projections fit a map for which the projection or set of parameters is not known, permitting transfer of information from this map. (3) Using least squares, the parameters of minimum-error projections applicable to particular regions. Historical background is also provided.

C 982. Map projections used for large-scale quadrangles by the U.S. Geological Survey, by J.P. Snyder. 1986. 6 p. Free.

Nonmathematical discussion of Polyconic, Transverse Mercator, and Lambert Conformal Conic projections as applied to U.S. Geological Survey topographic quadrangles. (Supersedes Circular 57.)

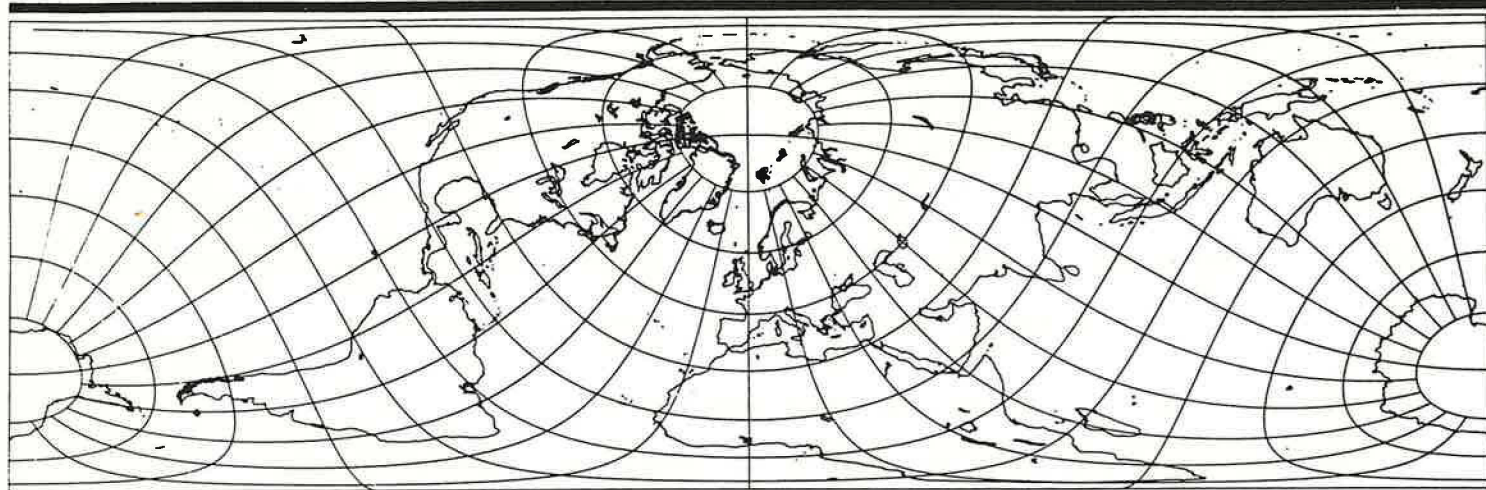
Map I-1402. The properties and uses of selected map projections, by T.R. Alpha and J.P. Snyder. 1982. Sheet 31 by 37 inches. \$2.40.

Nonmathematical descriptions of 17 common projections. (Supersedes Map I-1096.) Sold separately or as an insert in Professional Paper 1395 and Bulletin 1532.

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# Cartographic Handouts



World Map with Oblique Cylindrical Equal-Area Projection

The National Mapping Program publishes a series of poster/catalogs, leaflets, booklets, and fact sheets as a public service to provide information about its major activities, products, and services.

Single copies of these nontechnical publications are available at any USGS National Cartographic Information Center, Public Inquiries Office, or Earth Science Information Center. Copies are free except where noted by an asterisk.

Multiple copies are available in limited quantities and may be ordered from the following addresses.

For poster/catalogs, leaflets, and booklets, write to:

USGS Book and Report Sales  
Box 25425  
Denver, CO 80225

For fact sheets, write to:

NCIC Headquarters  
U.S. Geological Survey  
507 National Center  
Reston, VA 22092

## Poster/Catalogs

**Catalog of Cartographic Data**--Lists and illustrates 16 categories of products (such as color and map feature separates, aerial photographs and satellite images, geodetic control data, and software for computer programs) and 7 information search-and-inquiry systems (such as microfilm, photoindexes, and micrographic indexes of aerial photographs).

**Catalog of Maps**--Classifies and illustrates the complete range of maps published by the USGS--from topographic maps to maps of the planets and moons--including geologic and hydrologic maps, land use maps, combination topographic-bathymetric maps, Antarctic maps, photoimage maps, satellite image maps, National Atlas maps, and special maps.

**Digital Cartographic and Geographic Data**--Highlights specific applications of US GeoData, a computerized form of earth science information that includes elevation data, geographic names information, and planimetric data.

**Map Information**--Describes four search and retrieval systems developed through computer technology to assist researchers and the public in finding specific map information. The four systems are the Map and Chart Information System, Cartographic Catalog, Aerial Photography Summary Record System, and US GeoData.

**The Sky's the Limit**--Provides details of the National High Altitude Photography Program, including history, agency participants, camera and film specifications, and types of aerial photographs produced by the program. Color illustrations show the range and diversity of the photographs.

**Understanding Maps and Scale**--Provides a primer on the most common USGS maps published and an explanation of scale, minutes, and degrees. (\$1)\*

## Leaflets

**Alaska From Space**--Describes a series of satellite images of Alaska, which reveal valuable information on land features and resources.

**Finding Your Way with Map and Compass**--Tells how to use a map and compass by explaining scale and illustrating how to determine distance and direction. Emphasis is on the characteristics of topographic maps.

**How to Obtain Aerial Photographs**--Focuses on the value of studying the Earth's surface with aerial photographs, and discusses specific applications such as studying seasonal changes in vegetation or wildlife habitat and evaluating damage caused by geologic hazards like volcanoes, landslides, and floods.

**How to Order Maps on Microfilm**--Explains how over 120,000 topographic maps, dating back to 1884, are archived and how to obtain microfilm copies.

**Lake Letter**--Highlights how information contained on some early topographic maps can reveal water depths and underwater conditions in current manmade lakes.

**Looking for an Old Aerial Photograph**--Provides an overview of the vast number of aerial photographs available to the public for business, personal, or historical purposes, dating from early 20th century to present day. Sources include Federal agencies and private firms.

**Looking for an Old Map**--Provides sources for obtaining historical maps that show areas of the United States as they existed years ago.

**Manned Spacecraft Photographs and Major Metropolitan Area Photographs and Images**--Describes the varied cartographic products, maps, aerial and space photographs, and satellite images available and the techniques used to obtain them.

**Map Accuracy**--Outlines the rigid accuracy standards applied to USGS maps.

**Map Scales**--Explains the relationship between distance on a map and distance on the ground and includes a detailed table of the most commonly used scales.

**National Cartographic Information Center**--Describes the services this organization offers to the public, which include information, research, and assistance in ordering and obtaining cartographic products.

**National State Affiliates**--Describes the network of offices that provide cartographic and geographic information services to the public.

**Out-of-Print Maps**--Explains how to obtain a paper reproduction or microfilm copy of an out-of-print USGS map.

**A Selected Bibliography**--Provides a comprehensive list of books and reports about maps, mapping, and remote sensing.

**Topographic Map Symbols**--Illustrates standard symbols used on topographic maps, shows how color is used to distinguish kinds of features, and compares scale and coverage area of different USGS map series.

**Understanding Color-Infrared Photographs and False-Color Composites**--Describes how invisible near-infrared wavelengths of light can be recorded on special sensitized film and by scanning instruments such as those on Landsat satellites to show land forms, land use, shallow seas, environmental pollution, and vegetation health patterns.

**Using APSRS Microfiche**--Describes the Aerial Photography Summary Record System, a reference data base for aerial photographs. Offers suggestions on how to locate photographs for specific areas.

**US GeoData 1:2,000,000-Scale Planimetric Digital Data**--Describes the computer tapes that contain cartographic data in digital form at the 1:2,000,000 scale.

## Booklets

**Elevations and Distances in the United States**--Gives elevations of the 50 largest cities, extreme and mean elevations in each of the States, elevations of summits over 14,000 feet, elevations of selected summits east of the Rocky Mountains, geographic centers, and extreme distances between features in the United States.

**The Naming (and Misnaming) of America**--Explains how the U.S. Board on Geographic Names came into existence to approve geographic names, and relates incidents in the country's history that influenced geographic names.

**The Quiet Revolution in Mapping**--Discusses the changes in mapping brought on by computer technology.

**Topographic Maps**--Provides a comprehensive introduction to the elements of topographic mapping including principal map series, scale, control surveys, national standards, procedures, symbols, revision, and information sources.

**Types of Maps Published by Government Agencies**--Lists types of maps, publishers, and ordering information.

## Fact Sheets

**Cooperative GIS Activities at the U.S. Geological Survey**--Describes projects that use geographic information systems and computer hardware and software systems for data collection, analysis, research, and correlation and dissemination of spatially related earth-science and environmental data sets.

**Earth-Science Information from the U.S. Geological Survey**--Lists major sources for information, books, maps, and other products about the Nation's mineral, land, and water resources.

**Guide to USGS Map Indexes**--Describes the different types of map indexes available for topographic and geologic maps, as well as other types of cartographic data and products.

**Map Projection Publications**--Lists and describes seven publications on map projections.

**Map Reference Libraries**--Lists university and public libraries that have been designated in all 50 States and Canada as depositories for published maps of the USGS.

**Mapping and Research Support in Antarctica**--Explains the support role of the USGS National Mapping Program in obtaining Antarctic scientific data necessary for understanding world climate and weather, sea-level changes, and for accurately assessing the Earth's mineral, fresh-water, and marine resources.

**National Inventories of Digital Spatial Data and Cartographic Applications Software**--Explains how to obtain bibliographic descriptions and sources of spatially related data files and cartographic applications software.

**National Uranium Resource Evaluation Data**--Describes the NURE Program and the types of data available for earth-science research.

**NCIC Digital Data and Software Information Acquisition Program**--Explains one of the services provided to acquire information about spatially related data files and cartographic applications software.

**SLAR, Side-Looking Airborne Radar**--Describes imagery products available for use in geologic analysis, petroleum and mineral exploration, land use mapping, and ground-water studies, and provides an index of available SLAR imagery.

**United States Maps Available from the U.S. Geological Survey**--Describes 15 different maps of the Nation ranging in sizes from 13" x 9 1/2" to 80" x 54," in color or black-and-white, and at varying scales and content.

**US GeoData Digital Elevation Models**--Provides information about cartographic data in digital form for terrain elevations.

**US GeoData Geographic Names Information System**--Explains the automated data system developed by the USGS to provide information on known places, features, and areas in the United States identified by their proper names, and describes the five separate data bases within this system.

**US GeoData 7.5- and 15-Minute Planimetric Digital Data**--Provides information about the availability of cartographic data in digital form which includes information on boundaries, transportation, hydrography, and the U.S. Public Land Survey System.

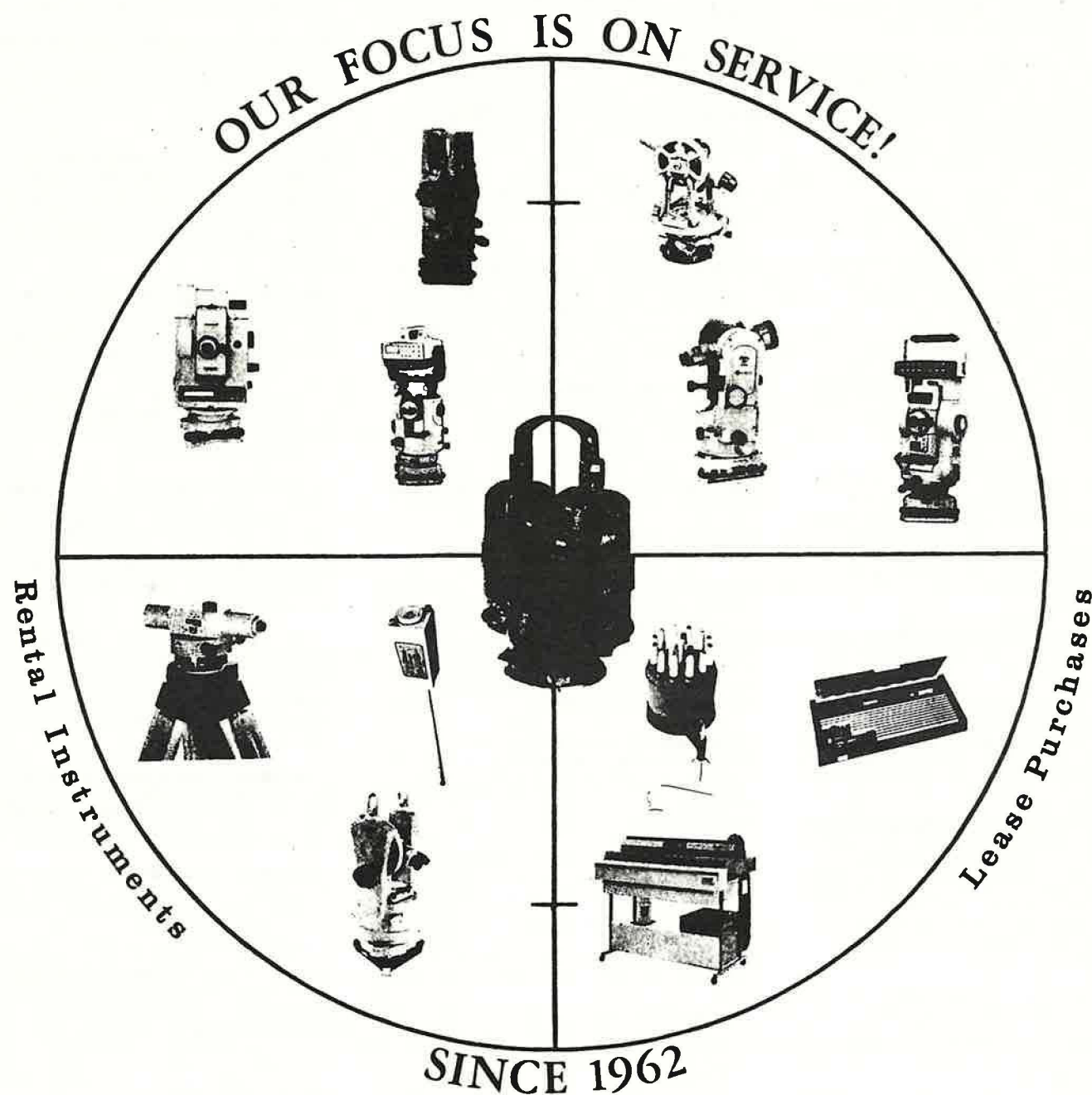
**US GeoData 1:100,000-Scale Digital Line Graph Sampler Now Available**--Describes digitized planimetric cartographic data tapes available as a sampler to familiarize users with the product.

**US GeoData 1:100,000-Scale Digital Planimetric Data**--Describes digital cartographic data derived from 1:100,000-scale map quadrangles.

**US GeoData 1:250,000- and 1:100,000-Scale Land Use and Land Cover and Associated Maps Digital Data**--Describes the categories of digitized land use and land cover data; the associated files defining political units, hydrologic units, census county subdivisions and Federal landownership; formats in which these data are available; and applications of US GeoData.

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## SURVEYING IN THE AGE OF UNREASON

by Michael L. Crawford, L.S., Indianapolis, IN

Anyone who has been in the field of surveying for longer than two weeks knows that as a profession we are constantly buffeted by the winds of change. Further, one will notice that the changes which assail us often seem to come from two major sources: technology and economics. The climate of change, or "discontinuity", is the herald of the "Age of Unreason" according to Charles Handy, author of The Age of Unreason.

Mr. Handy purposes that we are no longer in a time of continuous, comfortable change where the status quo moves forward in a predictable pattern. Rather, he suggests, because of rapidly changing technologies and the economics associated with them changes today are discontinuous, that it is the little changes which will make the biggest differences in the way our work is organized and the way we live, and that the proper response to discontinuous change is discontinuous upside-down thinking.

Let us accept the premise that we are in this new age (Mr. Handy does an admirable job of building his theory in the book) and see how it might affect (or has already affected) the way we organize our work.

The most obvious effects of technology (and economics) can be seen in the way we structure our field crews. The Department of Highways Survey Manual describes survey parties of "at least seven people" and yet with the equipment and procedures we use today more than three people on a crew seems excessive. Besides how many surveyors can afford to field more than two or three people per crew and remain competitive? The technology exists today for the "one man crew". How far off is the time when we cannot afford to ignore the economics of that situation?

I think the profession has been foresightful in recognizing that to cope with changing technology requires increased education. Seeking people who are properly trained to enter surveying is important. However, to focus only on requiring a four year degree for those coming into surveying is to relegate to obsolescence everyone currently in the profession and considering the rate of change those graduates of the four year program will be "out-dated" within half a decade. Continuing education for everyone involved in surveying from the beginning field technician to registered land surveyor will be critical in the Age of Unreason.

Field crews, of course, account for only a

portion of the organization which makes up a surveying practice although it can be argued that they represent a microcosm of the entire of the business. As such we might anticipate, as Mr. Handy does, that businesses will be flatter (less hierarchical) and rely on a "core" of highly educated and well compensated professionals and technicians. Further, he postulates that more work will be subcontracted out and business will increasingly rely on temporary or part time help for functions outside the core.

Whether Mr. Handy's predictions are an accurate depiction of our time and projection of the future is of course open to debate. Perhaps the most important lesson to be garnered from The Age of Unreason is simply to be aware of the changes occurring around us. For it is certain that those who do not adapt to change will fall by the wayside and those who can see and adjust to changing conditions will be in a position to benefit from new opportunities.

\* \* \* \* \*

### STATE PLANE COORDINATE PROJECTION TABLES

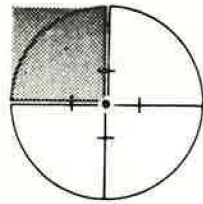
The Transverse Mercator Projections for east or west zones may be purchased from National Geodetic Information Center. Cost: \$10 each  
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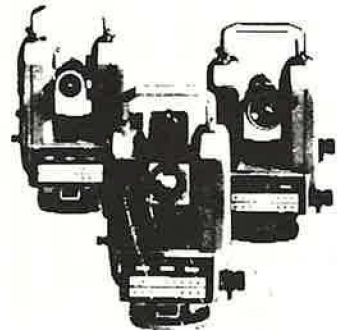
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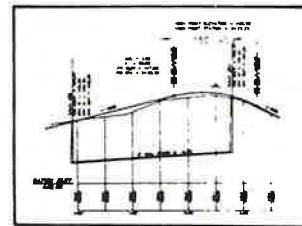
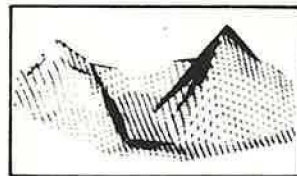
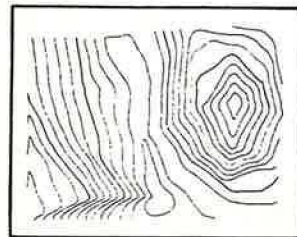
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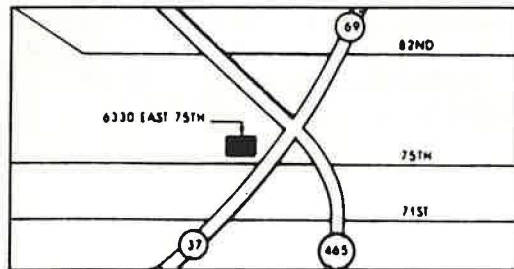
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## CHAPTER NEWS

The Kenneth S. Curtis Surveying Library is the final resting place for Sam Hanna's brass headed, walnut cane. The Northeast Chapter presented ISPLS an unique walking cane at the Vincennes Convention. The gift originating with the Ft. Wayne Center almost a year earlier; honors Sam Hanna, who promoted frontier days commerce in the Ft. Wayne area. The Northeast Chapter had earned it hosting the 1990 statewide surveyors convention, promoting commerce and duplicating Hanna's civic pride.

November 29th minutes of the St. Joseph Valley Chapter report new chapter officers as follows:

John McNamara, President  
Bob Kirkley, Vice President  
Joseph Pietrzak, Secretary/Treasurer

The Chapter is concerned about establishing formal surveying coursework within a reasonable travel radius. They all seem to agree that college level training, and retraining, is necessary. The second most discussed topic at the meeting was how the surveyor fits into the GIS system from presite reconnaissance to the digital format of recording subdivisions.

The Northwest Chapter also has new officers for 1991.

Tony Gregory, President  
Mike Gerberick, President/Elect  
Mike Marlow, Secretary/Treasurer  
Van Janovic, Director (3 year)

Chapter Newsletter reports recent discussions on continuing professional development, and programs varying from "Sexual Harassment in the Work Place" to new equipment lines carried by local distributors.

The Initial Point Chapter also elected officers in January. They are as follows:

Dave Ruckman, President  
Tom Boofter, President Elect  
Frank Ballintyn, Vice President  
Ron Vuckson, Secretary/Treasurer

This is our newest chapter, and they are investigating a new idea. They are considering recognizing individuals who have contributed to our profession by granting honorary chapter membership.

Dave Ruckman made detailed presentation of a corner re-establishment at their last meeting. On March 12th the Initial Point Chapter is to have a joint meeting with the Falls of the Ohio Chapter of KAPS at the Holiday Inn in New Albany.

We also hear rumors of a local ISPLS chapter being organized in the Bartholomew County area. It seems logical with Columbus being selected the 1992 ISPLS convention site.

## SURVEYORS HISTORICAL SOCIETY NEWS

The Indiana affiliate of SHS held its annual membership meeting in conjunction with the Indiana Society of Professional Land Surveyors convention in Vincennes, Indiana. Vincennes was established as a French fur trading post. Occupation of the frontier fort during the French and Indian War, the Revolutionary War, and the War of 1812 played a part in shaping the Northwest Territory, the Indiana Territory, and subsequently the State of Indiana.

The "Grouseland" Indian boundary treaty line, stretching across southern Indiana, takes its name from William Henry Harrison's home "Grouseland" in Vincennes. The town itself was basically laid out parallel and perpendicular to the Wabash River. Several of the old tracts were in existence prior to the cardinal direction grid of the public land surveys Second Principal Meridian which dominates the surrounding area for miles.

I have been told that there are five surveying systems confronting surveyors in the Vincennes area. When the mayor addressed the surveyors, he commented about the lack of straight streets in town. Richard Lomax, Vice Chairman of SHS was present at the affiliate's membership meeting to tell about national programs. The chapter re-elected directors Sexton, Curtis, and Gray for a full two year period at their meeting.

The Surveyor's Historical Society Banner was hung above the chapter's booth in the exhibit hall. A variety of link chains, a plain compass, a vernier compass, a L.M. Prince transit and Peter Heer wye level were displayed. SHS members contributing to the exhibit were Gray, Johnson, Sexton and Woodfill with several others volunteering booth time.

by Roger Woodfill

\* \* \* \* \*



Initial Point Chapter Officers for 1991 are left to right: David Ruckman, Tom Boofter, Frank Ballintyn, Ronald Vuckson

Congratulations to the Southwest Chapter for their work preparing an outstanding convention in Vincennes this year. Columbus has a challenge.



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Test Date	Application Postmark Deadline††	Test Date	Application Postmark Deadline††
January 26	December 1, 1990	May 4	March 9
February 9	December 15, 1990	May 18	March 23
February 23	December 29, 1990	June 1	April 6
TEST CYCLE 3		TEST CYCLE 4	
Test Date	Application Postmark Deadline††	Test Date	Application Postmark Deadline††
July 20	May 25	November 9	September 7
July 27	June 1	November 23	September 21
August 10	June 15	December 7	October 5
August 24	June 29		

†† Applications must be *postmarked* no later than the dates listed above and must be mailed directly to ACSM. Postmark deadlines will be strictly observed. Applications postmarked after the published date will be held for the next testing date at the Test Center selected, unless a second choice with a later deadline date is indicated.

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CYCLE 1	CYCLE 2	CYCLE 3	CYCLE 4
Feb 9	Jun 1	Aug 10	Dec 7
Feb 9	May 18	Jul 27	Nov 9
Feb 23	May 4	Aug 24	Nov 9
Feb 23	May 4	Aug 24	Nov 9
Feb 23	May 18	Aug 24	Dec 7
Jan 26	May 18	Jul 27	Nov 9
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Feb 9	May 4	Jul 27	Nov 9
Jan 26	May 4	Aug 10	Nov 9
Feb 9	May 18	Aug 10	Nov 23
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Feb 23	May 4	Aug 24	Dec 7
Feb 23	May 4	—	Nov 9

CYCLE 1	CYCLE 2	CYCLE 3	CYCLE 4
Feb 9	Jun 1	Aug 24	Nov 9
Feb 23	—	—	Dec 7
Feb 9	Jun 1	Jul 27	Nov 9
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Feb 9	May 4	Aug 24	Nov 9
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Feb 23	May 4	Aug 24	Nov 9
Feb 9	May 4	Aug 10	Nov 9
Feb 23	Jun 1	Jul 27	Dec 7
Feb 9	May 18	Jul 27	Nov 9
Feb 23	Jun 1	Aug 24	Dec 7
Feb 9	May 4	Jul 27	Nov 23
Feb 9	May 4	Jul 27	Dec 7
Feb 9	May 4	Aug 10	Nov 9
Feb 23	May 4	Jul 27	Nov 9
Jan 26	May 4	Aug 24	Nov 23

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**SUSTAINING MEMBERS**

**March 12, 1991**  
Initial Point Chapter Joint Meeting with Falls of Ohio Chapter of KAPS, Holiday Inn, New Albany, Speaker Bill Kreisle, "Establishment of the Kentucky-Indiana Boundary."

**March 14, 1991**  
ISPLS Northwest Chapter Meeting, State Standards Discussion

**March 24-29, 1991**  
ACSM/ASPRS Annual Convention Baltimore, Maryland

**April 11, 1991**  
ISPLS Northwest Chapter Meeting, "Soil Scientist"

**April 19, 1991**  
ISPLS GIS/LIS Workshop, Ball State University, Muncie, Indiana

**May 8-10, 1991**  
Surveying Automation '91 Conference (POB) concurrently with A/E/C Systems 91 Computer Exhibition, Washington D.C.

**May 10, 1991**  
ISPLS Northwest Chapter Meeting

**August 11-15, 1991**  
29th Annual URISA Conference, San Francisco, CA.

**September 22-27, 1991**  
International Congress & Exhibition of International Society for Mine Surveying, Lexington, Kentucky

**October 25, 1991**  
ISPLS Workshop, "Business of Surveying", Brown County Inn, Nashville, Indiana

**October 27-30, 1991**  
GIS/LIS '91 Annual Conference & Exhibition, Atlanta, Georgia

**January 15-17, 1992**  
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