

HOOSIER SURVEYOR



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

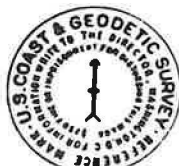
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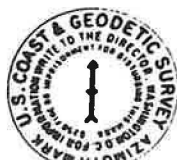
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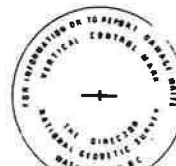
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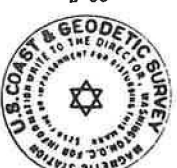
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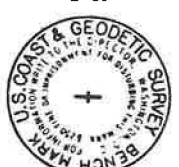
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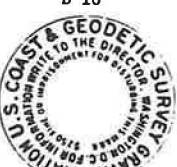
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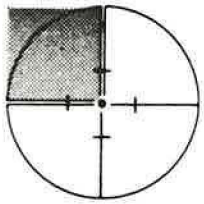


D 01

Figure 2-26.—Survey disks of the former U.S. Coast and Geodetic Survey.

Figure 2-27.—Survey disks of the National Ocean Survey and National Geodetic Survey.

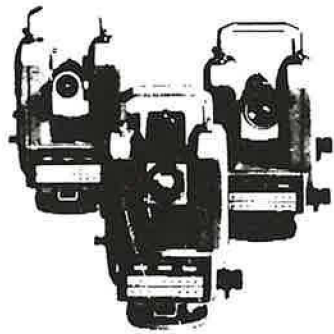
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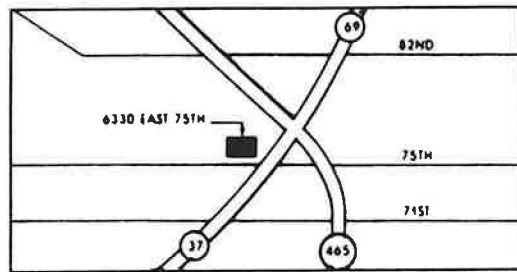
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EDITOR'S NOTE

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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 benefit of the surveying profession. No responsibility is assumed for errors or omissions as to its contents.

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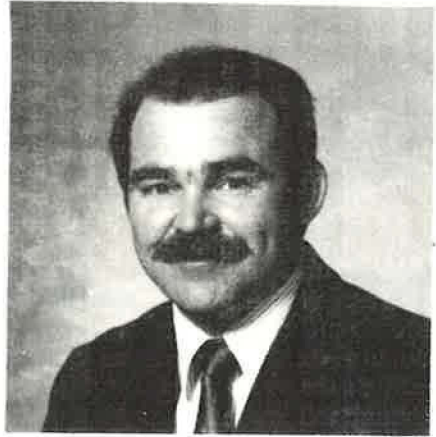
CONTENTS

Masthead	1
President's Thoughts	2
Notices - By-Laws Amendments	3
ISPLS Fall Workshop	
Minutes BOD Meeting/New LS's	5
Rear Admiral Yeager	6-7
Governor's Report	9
A Study in Contrasts	10-11
National Geodetic Survey	13-15
Observations	16
Gary Kent ACSM Director/Imagis	17
Surveyors Historical Society	18
Completed Career	19
District of Columbia Bicentennial Cmte	20-21
Calendar/Sustaining Members	24

Committee Assignments (1991)

Standing Committees	Hoosier Surveyor	Collegiate/IUPUI Surveying Course Stu
By-Laws	Ken Curtis - Editor	Randy Sexton - Chairman
Ron Hansell - Chairman	Mike Crawford	Dave Best
John Beals	Roger Woodfill	Jim Dankert
Randy Sexton		Wes Day
		Roger Fine
Chapters	Library	Art Haase
Rolyn Blankenkemper - Chairman	Pete Arnold, Chairman	Dan Pusey
Dave Ruckman	Ken Curtis	
President Initial Point Chapter	Dave Best	
Pete Arnold		Society Liaison
President Central Indiana Chapter		County Surveyors Association
Tony Gregory		Don Bengel - Chairman
President Northwest Chapter		E.R. Gray, III
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President St. Joe Chapter		Rick Miller
Mike Davis		
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Convention Coordinating		
Doug Herendeen - Chairman		Public Relations
Art Haase		Vic McCauley - Chairman
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		Roger Fine
Education		Les Weber
David Best - Chairman		
Anthony Gregory		Publications
Dean Hamilton		Jerry Carter - Chairman
Norm Hiselman		David Blankenkemper
Gordon Richardson		Norm Hiselman
		Hershel Manhart
Ethics		John Silnes
Cary Dodge - Chairman		
Don Bengel		Scholarship
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Roger Woodfill		
		Ad Hoc Committee
Headquarters		Professional Development Evaluation
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E.R. Gray, III		

PRESIDENT'S THOUGHTS
by Ross Holloway, ISPLS President, Martinsville, IN



Since the last time I wrote in this space, two things have happened that will have a lasting effect on the surveying profession. First is the passage of House Bill 1679 which establishes separate Boards of Registration for Land Surveyors and Engineers. This bill passed the Indiana House of Representatives by a vote of 98 to 1 and came out of the Indiana Senate on a vote of 99 to 0. At the present time it is on its way to Governor Bayh for his signature. If everything proceeds as anticipated the new Board of Registration for Land Surveyors should be in place by the end of July this year. Many of you have looked forward to this day for many years and in fact have been working on this objective for well over a decade. With the enactment of this bill, the Professional Surveyor will, for the first time, be judged and governed by a panel of his peers.

The second is the adoption by the Board of Registration of the revised Indiana Survey Standards, more commonly known as "Rule 13". It is this latest addition of the Standards that contains provisions for route surveying as well as revisions to survey monumentation and requirements for recording of the surveyor's report. The revised standards are now with the Indiana Attorney General for his review. If all goes as planned the revised version of the Standards should be in effect by fall. Look for upcoming information concerning workshops on the revised standards, hopefully in early fall.

Recently, an ISPLS GIS/LIS workshop was held at Ball State University in Muncie. Approximately thirty-five persons were in attendance. From all reports this was a very successful workshop. My thanks goes out to Dave Best, Roger Fine, Dean Hamilton and all those who helped put this workshop together. Don't forget there is a workshop scheduled for early October on the subject of "The Business of Surveying". This seminar will be held in Brown County and with the autumn leaves in full color it should be not only educational but also relaxing.

I recently met with the budget committee at Headquarters and am happy to report that, if the committee's budget is passed by the Board of Directors, there will not be any dues increase for the upcoming year. Also, the committee approved, on a trial basis, an accounting procedure whereby the expenses and income from workshops will be separated from the

general budget. This procedure will allow ISPLS to track the success of various workshops and provide for expansion of professional continuing education.

In the area of professional development, the Professional Development Committee is working on a program for voluntary continuing education. Every Professional Surveyor should be striving to keep abreast of advancements in the field of surveying. Only by keeping one's self current with the rapidly changing technology can the public be best served and the surveyor prosper. We are looking to the day when, like the medical and legal profession, continuing education is required to retain registration as a Professional Land Surveyor. This day may not be far off. When the day comes that continuing education is required then ISPLS will be ready with a program already in place. Look for an article on this subject in the fall issue of the "Hoosier Surveyor".

In closing, I want to take this opportunity to thank Pat Cunningham, Wes Day, Jake Hall, Representative Sheila Klinker and many others to numerous to mention for all their efforts in getting House Bill 1679 passed. Without the personal sacrifices of these people ISPLS would not have been able to get this legislation enacted. To these people every registered surveyor in this state owe a debt of gratitude.

NOTICE
The Following Amendments to The By-Laws
Was Inadvertently Omitted From The Roster

AMEND ARTICLE I SECTION 7 - DUES

ADD

Directors are to establish Annual Dues for all classes of Membership based upon an Annual Balanced Budget. Annual Dues shall consist of monies being collected to meet each Fiscal Year's financial obligations. Emergencies requiring additional funds (Special assessments) shall not be considered Annual Dues. In emergencies, during any Fiscal Year the approval to expend additional corporation funds up to 10% of the amount of the Annual Budget is authorized if approved by 100% of the Board. Emergency expenditures beyond the above 10% shall be submitted for approval by mail vote of the majority of the voting members and on the condition that 100% of the voting members have been notified of the issue.

On any year, the Board shall not increase the Annual Dues more than 25% above the preceding year without an affirmative vote by mail of the membership. When the Board deems circumstances warrant, the Board shall submit a proposal to increase Annual Dues beyond the

above limit or Special Assessment to the voting membership by mail vote with a majority vote required for an approval.

Members having issues which require expenditure of Corporation Funds shall submit such issue to the Board for Budget consideration 60 days prior to a membership meeting. If the Board does reject such issue for the Budget reasons, the member may request that the issue be submitted to the membership at the next Membership Meeting with the voting to be in accordance with Section 3 or Article 2.

**AMEND ARTICLE II SECTION 3
CONDUCT OF MEETINGS**

ADD

At such meetings of the membership, NO MOTION, which requires the expenditure of corporation funds which has not previously been submitted to the Board, will be valid unless at such meeting a minimum of 2/3 of eligible voting members are in attendance at the Membership Meeting.

* * * * *

ISPLS FALL WORKSHOP FRIDAY, OCTOBER 25, 1991

Brown County Inn, Nashville, IN

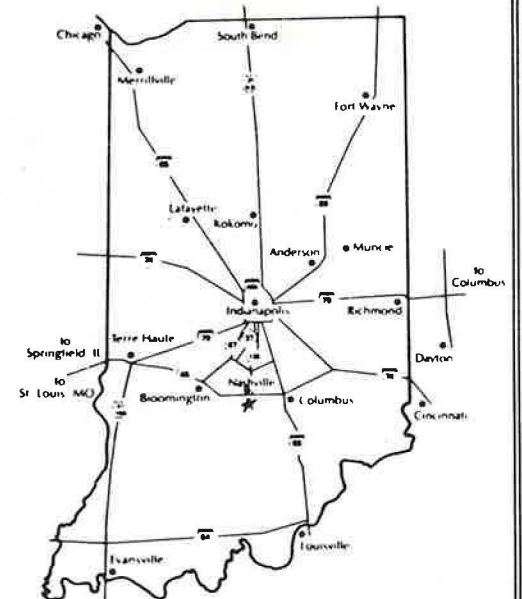
NOTICE !

The ISPLS Fall Workshop will be held at the Brown County Inn on Friday, October 25th. The topic will be "The Business of Surveying - How To Operate a Land Surveying Firm Profitably".

If you plan to attend and plan to stay overnight at the Brown County Inn, you **MUST** make your room reservations before August 25th. The room charge will be \$95.00 per night for either single or double rooms. Phone number for the Brown County Inn is (812) 988-2291. Mention that your reservation will be for the ISPLS Workshop.



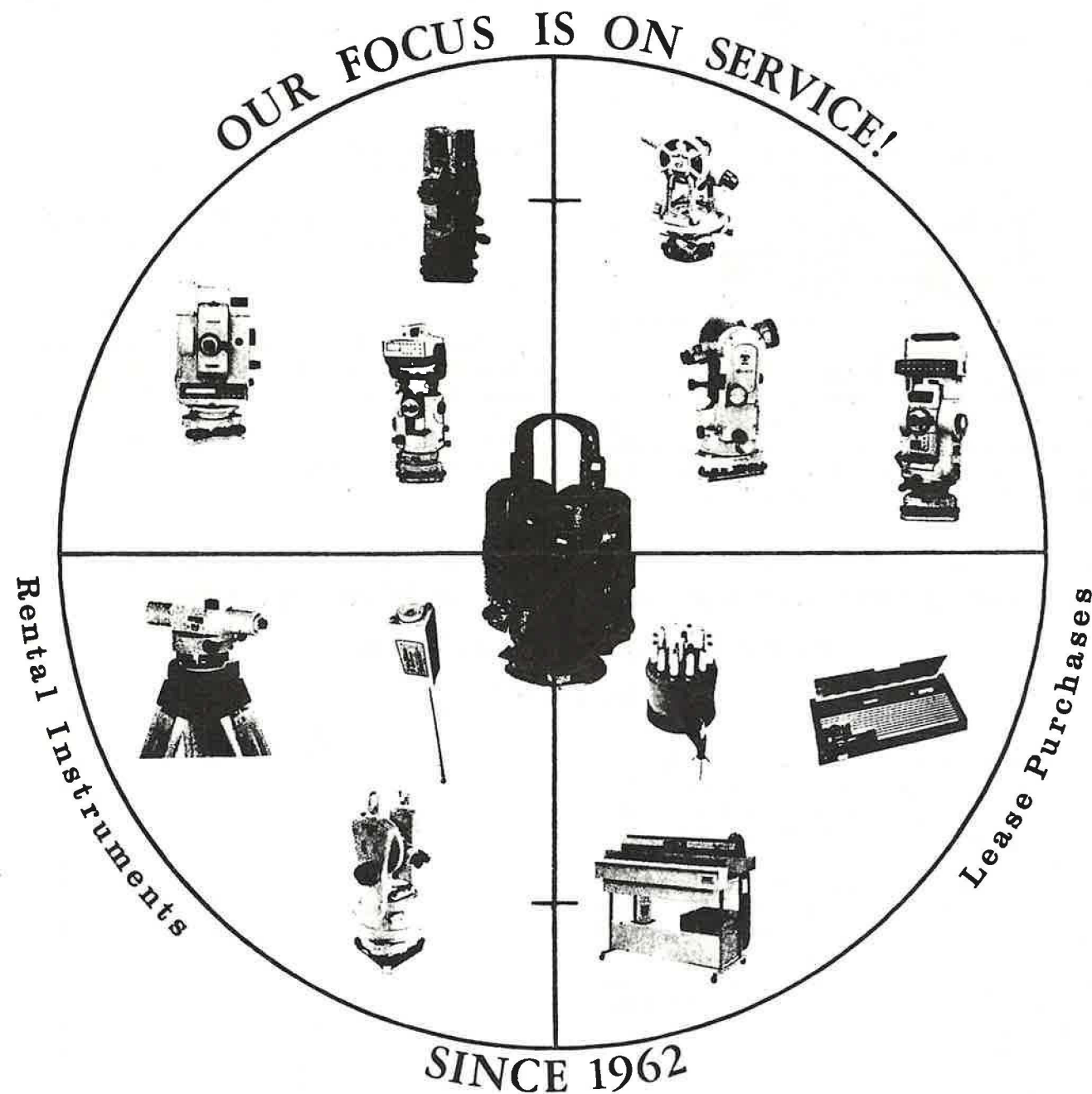
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BOARD OF DIRECTORS MEETING

February, 16, 1991
ISPLS Headquarters, Indianapolis

(MINUTES CONDENSED)

A Board of Directors meeting was held at the ISPLS headquarters in Indianapolis on February 16, 1991. A quorum being present, President Ross Holloway called the meeting to order at 10:24 a.m. Beyond the routine business and procedures of a Board meeting several items of interest and importance were brought to the floor.

Reports from the various committees were made. In the area of staff activity a motion was made and passed to increase "seed" money for next year's convention from \$1000 to \$1250. An amount of \$500 was approved as the Quality Based Selection contribution. This sum will come from the Government Affairs Committee budget.

Doug Herendeen reported that the 1991 convention resulted in a profit of approximately \$15000. A motion was made and passed to pay sponsors of conventions 10% of the profit from the convention. This policy will be retroactive to include the 1991 convention. It was also reported that about half of those responding to a questionnaire distributed at the convention were in favor of participating in a joint convention, if only one convention were held in that year.

The ISPLS went on record as opposing Senate Bill 535, which would waive the experience requirement for any County Surveyor who meets the education requirements and applies for the state exam. The Government Affairs Committee was instructed to take whatever measures are necessary to make known our opposition.

New membership applications were presented to the Board for: Richard L. Beaman (member), Gordon W. Bell (student), Michael John DeVoy (junior), and James Robert Wayman (junior). All were accepted. Under further Membership Committee business, John Silnes recommended purchase of membership pins. The design was agreed upon and gold was selected as the color of the new pins.

It was reported that Richard Lomax has been elected to an NSPS office. This creates a vacancy in the position of Area 5 Director. Roger Woodfill was nominated to be our candidate to fill that position.

Interest was noted in forming a Columbus chapter. Rollyn Blankenbeker and Chuck Coyle are working on the procedure to start a new chapter.

The schedule for future Board meetings was announced. The next meeting was set for April 6th with meetings following on: May 18th, June 29th, August 10th, September 21st, and November 7th.

The meeting was adjourned at 2:15 p.m.

Mike Crawford, reporter

* * * * *

NEW REGISTERED LAND SURVEYORS IN INDIANA

The Indiana State Board of Registration held the certificate presentation for Professional Engineers and Land Surveyors on Friday, May 10, 1991. The ceremonies were held at the State House in the House Chambers, Indianapolis. The following land surveyors were awarded with certificates.

Robert R. Grove - Lafayette, IN
William L. Clark - Vincennes, IN
Terry Krasko - The Plains, OH
Jeffrey G. Stahl - Chandler, IN
Lawrence C. Suhre - Indianapolis, IN
Rodney K. Young - Evansville, IN
John W. Lyons - Brandon, FL
Dennis J. Gobble - Elkhart, IN
Brad S. Faris - Greenwood, IN
Jacob T. Hawk - Columbus, OH
William Bivins - Newburgh, IN
David R. Winemiller - West Milton, OH
James W. Emans - South Bend, IN
Randall L. Byers - Crown Point, IN
David A. Dries - Louisville, KY
Brad Cramer - St. Joseph, MI
Lawrence W. Albaugh - Middleville, MI
Bryan Catlin - Clayton, IN
Lawrence L. Baumann - Fairfield, OH
Timothy G. Wolfe - Fishers, IN
Coventine Fidis - Dixon, IL

Congratulations to all of you!

REAR ADMIRAL YEAGER NEW DIRECTOR C&GS
 IS PURDUE UNIVERSITY GRADUATE
 by Kenneth S. Curtis, editor



Rear Adm. Austin Yeager, left, new director of C&GS chats with retired NOAA-commissioned officer, Eugene Taylor, at recent Baltimore ACSM convention.

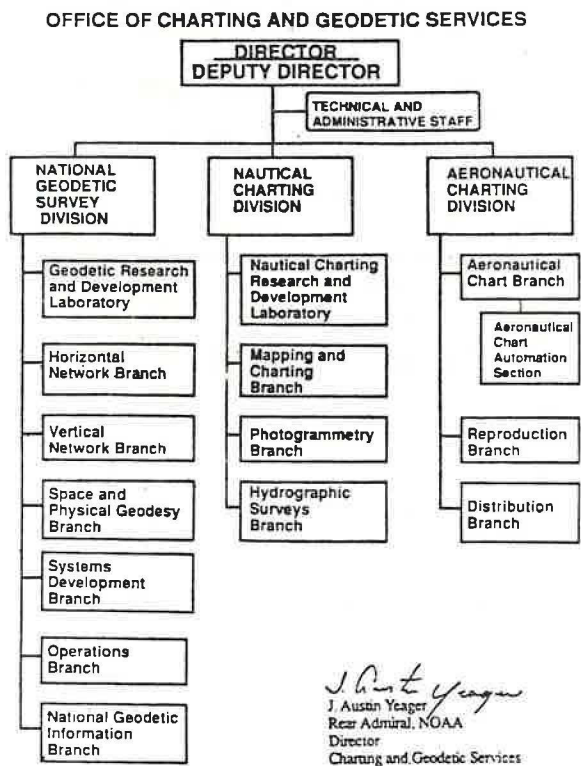
In the fall of 1964, a commissioned officer in the U.S. Coast and Geodetic Survey, Lt. J. Austin Yeager, was sent to Purdue University's graduate program to study geodesy, photogrammetry, and mathematics at the master's degree level, which he completed in January 1966.



Austin was born in Birmingham, Alabama, graduated from Thompson High School in Siluria, Alabama, and in civil engineering from Alabama Polytechnic Institute in Auburn in August 1959. He joined the commissioned corps upon graduation from Auburn. His assignments have been primarily in hydrographic and geodetic surveying activities in the National Ocean Service (NOS) of the National Oceanic and Atmospheric Administration (NOAA) and in operational support of Charting and Geodetic Services (C&GS).

Early in his career he was involved in the world-wide Satellite Triangulation program which used passive satellites photographed against star backgrounds, analyzed with comparators, and the network then computed. This method was superseded by very long baseline interferometry (VLBI), doppler satellites, and now the global positioning system (GPS) which uses signals from the NAVSTAR satellites.

On December 1, 1990, he assumed the duties of Director, Office of Charting and Geodetic Services (C&GS). Now a rear admiral, Yeager has three major divisions of NOS, NOAA, under his supervision - National Geodetic Survey Division, Nautical Charting Division, and Aeronautical Charting Division. The activities of these three divisions renders national leadership in the fields of geodesy, mapping, and charting at the federal level.

Congratulations to Austin on this important new assignment in his professional career in surveying and mapping.



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ASSISTANT SECRETARY FOR OCEANS AND ATMOSPHERE, AND DEPUTY ADMINISTRATOR

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General Counsel

Legislative Affairs

Public Affairs

Comptroller

Administration

NOAA Corps

Aircraft Operations

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- Charting and Geodetic Services
- Oceanography and Marine Assessment
- Ocean and Coastal Resource Management
- Marine Operations
- Ocean Services

ASSISTANT ADMINISTRATOR NATIONAL WEATHER SERVICE

- Meteorology
- Hydrology
- Systems Operations
- Systems Development
- National Meteorological Center
- National Weather Service Training Center
- National Data Buoy Center
- Regions (6)

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- Fisheries Conservation and Management
- International Affairs
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- Research and Environmental Information
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- Regions (5)

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- Satellite Data Processing and Distribution
- Research and Applications
- Systems Development
- Assessment and Information Services
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- National Oceanographic Data Center
- National Geophysical Data Center

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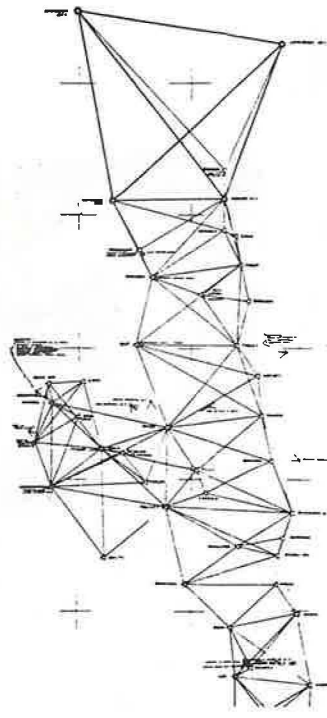


Figure 6.1. A typical arc of triangulation.




Exhibit 12.—A selection of Federal Geodetic Control Committee publications.

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GOVERNOR'S REPORT

*NSPS Board of Governors Meeting
March 26, 1991, Baltimore, Maryland*

The NSPS Board of Governors is composed of fifty-one members who elect their own chairman and a secretary. There is one representative from each state and one representative (starting in 1991) from the Canadian Council of Land Surveyors. The Board of Governors was created about 1981 to serve as a means for state affiliate surveying organizations to be represented at the national level. Forty-four (86%) representatives answered roll call at their most recent meeting in Baltimore March 26, 1991. I was happy to be there representing the Indiana Society of Professional Land Surveyors. The governors meet biannually at ACSM conventions, and their meetings have always lasted for eight hours or more.

The gavel sounded at 8:00 A.M. and any holes in the agenda were soon filled. Elections for the 1992-1993 officers found Jim Granger of Michigan (an ISPLS member) and Robert Prescott of New York in line for Chairman and Secretary positions respectively. Many officer and committee reports were given -- some written and many oral. Action items from the reports will be discussed later. New Governor, Wayne Brubecher, representing the Canadian Council of Land Surveyors was allowed to give an oral summary of his report. His written report and all the other written reports have been placed in a three ring binder at the Kenneth S. Curtis Surveying Library. I tried to circle items that pertain to existing ISPLS committees; and send copies of the pertinent reports to our committee chairmen.

Also, in the Kenneth S. Curtis Surveying Library you can now find software with documentation entitled "Cadastral Survey", a gift to all of the affiliate societies from the Bureau of Land Management. More about these programs in later issues of the "Hoosier Surveyor".

There were several incidental unfinished business items, but the most intense items in the "Old Business" part of the meeting dealt with recommendations to solve the financial and organizational woes of ACSM. Over twenty-five resolutions, positions, or motions had been made in various state and committee reports; and at least four series of resolutions about these matters appeared on the agenda. Chairman Jim Boyer of Tennessee wisely recessed the meeting and ordered sponsors of these motions to caucus and combine the serious action items into a manageable form. When we reconvened, a reorganization proposal with seven strong

reorganization proposal with seven strong suggestions to the ACSM Board of Direction was presented and approved.

A stray report came in under "New Business" suggesting that national, state, and chapter professional society dues all be paid simultaneously. State affiliates fiscal years and membership classifications would have to coincide for a central collection service to work. I noted on my yellow pad that the renewal rates for ACSM as of March 21st were as follows:

ACA	65%	Cartographers
AAGS	67%	Geodesists
NSPS	71%	Surveyors

ACSM 68% Pro-rated

The dues year for NSPS/ACSM is from January through December; the dues year for ISPLS is July through June. I don't see much happening in the near future with state and national joint membership.

We expect more activity in continuing education. I was privileged to second a motion by Milt Denny of Alabama (He presented a program on marketing at the Lafayette ISPLS convention.) requesting NSPS to design a "clearing house" for evaluation of continuing education. I had made a similar motion at the 1980 St. Louis ACSM convention that had been approved. According to Walt Dix's new booklet, "Recollections"; ACSM President Brownell assigned Marshall Davies the job of establishing a procedure for recording c.e.u.'s in 1980. However, after the recording system was located, no one followed up with an evaluation procedure. The major movement among state societies is the effort in "continuing education".

On a personal note, I would like to say that Walt Dix was kind enough to autograph my copy of his new history of ACSM mentioned above. I read the ninety-four typeset pages as soon as I returned home. He has broken down ACSM's history by years. Anyone who is, or wants to be, active in the professional society should read this history of the changes during the past fifty years.

Also, Henry Sipe of West Virginia, promised to autograph and send me a copy of his book on "Compass Surveying". Mr. Sipe is the most elderly of the state governors -- but very alert and respected. There are not many surveyors who retrace surveys like he and I do, so we had many things to talk about. Another

... Continued on page 19

A STUDY IN CONTRASTS

by David B. H. Best, L.S., Indianapolis, IN

During October, 1990 a 16-member delegation of ACSM/NSPS members and spouses spent two memorable weeks in the Soviet Union and Finland meeting with counterparts in fields associated with land surveying. The trip, organized by the author, was under the auspices of People to People International through Goodwill People to People Travel Program and Maupintour, Inc. of Lawrence, Kansas. Our aim was to share professionally with the counterparts we met and to promote goodwill and a better understanding between our countries.

The format of our counterpart meetings differed in the two countries. In Finland our host was Mr. Pekka Raitanen, Deputy Director General of the Finnish National Board of Survey and also the Secretary General of the International Federation of Survey (F.I.G.). Prior to our departure Mr. Raitanen advised us of our schedule of meetings while in Helsinki. In contrast our meetings in the Soviet Union were arranged by Intourist, the Soviet travel agency. We did not know with whom we would meet in Leningrad, Tbilisi, the capitol of Georgia, or Moscow, our three stops in the Soviet Union, until we landed in those cities and were met by the local guides. Fortunately, our counterpart meetings in these three cities met and exceeded any expectations we might have had.

The counterpart meetings were a study in contrasts simply because in Finland there is the private ownership of land, whereas in the Soviet Union all land is owned by the State. In 1990 the Supreme Soviet passed legislation authorizing the private ownership of land in the Soviet Union. This subject became a principal topic of discussion with our Soviet counterparts. Considering that there is no framework or historical precedence for private ownership of land, our Soviet counterparts were keenly interested in anything we could tell them relating to the subject. Records, maps, monuments, property lines, descriptions we discussed in detail. Our counterparts in all three cities asked about how much land surveyors earned in the United States. The salary of a Soviet surveyor is \$60 per month.

Our Soviet counterpart meetings were all conducted on the university level. In Leningrad we met with the faculty and students of the Institute of Mine Surveying, a college founded in 1773. In Tbilisi it was the Topographical Technical School. In Moscow our meetings were conducted in the Moscow Institute of Geodesy,

Aerial Surveying and Cartography, the leading university of its kind in the Soviet Union.

In Helsinki we attended a day-long meeting at the National Board of Survey, the government agency which controls and supervises surveying throughout Finland. We were introduced to: 1) the real estate (property) system of Finland; 2) the land administration system; 3) the classification of land records; 4) National Land Survey in Finland and the organization of the National Board of Survey; 5) the role of a private consultant; 6) the geographical system; 7) satellite pictures in practical use; 8) the real estate information system; and 9) the operation of the Helsinki District Survey Office. Land surveying in Finland is a well-organized efficient system which involves the close cooperation of the government, the municipalities and private consultants.

While in Helsinki we also visited Geopolar, a surveying supply company, servicing and supplying the latest Leitz equipment. Our final counterpart meetings in Finland were a tour of the Espoo-Vantaa Institute of Technology in Espoo, a suburb of Helsinki, a visit to the Helsinki University of Technology and its Department of Surveying. The four divisions of this department are: 1) the Institute of Photogrammetry and Remote Sensing; 2) the Institute of Geodesy and Cartography; 3) the Institute of Real Estate Management and Techniques; and 4) the Institute of Law.

Our trip also included visits to Red Square, the Hermitage in Leningrad, an archaeological museum in Tbilisi where vintage houses as old as 200 years from throughout Georgia are on display, and the homes of Tolstoy and Dostoevski in Moscow. We received briefings in the U.S. embassies in Moscow and Helsinki. We were warmly received everywhere. Our counterparts have already extended invitations for us to return to conduct workshops and seminars in Leningrad, Moscow, Tbilisi, and in Vilnius, Lithuania. The experience indeed was a study in contrasts.



Members of the United States Land Surveyors People to People Delegation listen to presentations by representatives of the Finnish National Board of Survey in Helsinki.



Leningrad citizens wait in line to buy items in short supply. These lines were commonplace during the United States Land Surveyors People to People Delegation's visit to the Soviet Union.



United States Land Surveyors People to People delegates and members of the faculty of the Moscow Institute of Engineers for Geodesy, Aerial Surveying and Cartography assemble outside the entrance of the Institute's original building. The Institute was founded in 1779.



David B. H. Best (LS-IN), leader of the United States Land Surveyors People to People Delegation poses with a member of the faculty and two students outside the Institute of Mine Surveying in Leningrad at the conclusion of a counterpart meeting.

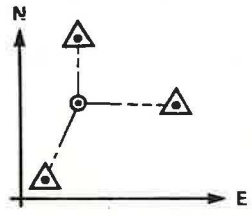



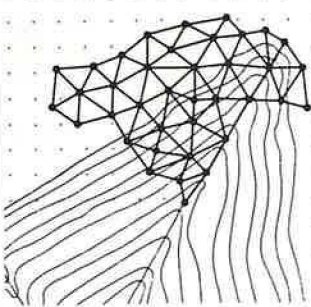







The United States Land Surveyors People to People Delegation poses in Moscow's Red Square with St. Basil's Cathedral in the background. The cards held by the delegates spell out "THANKS SECO" for the 100 caps the SECO Manufacturing, Inc. firm donated as souvenirs for Soviet and Finnish counterparts.



The United States Land Surveyors People to People Delegation with members of the Topographical Technical School of Tbilisi, Georgia, and their families enjoy hospitality Georgian style at a farewell luncheon in the apartment of Teymuraz Kiknadze (standing in rear), the school's Manager.

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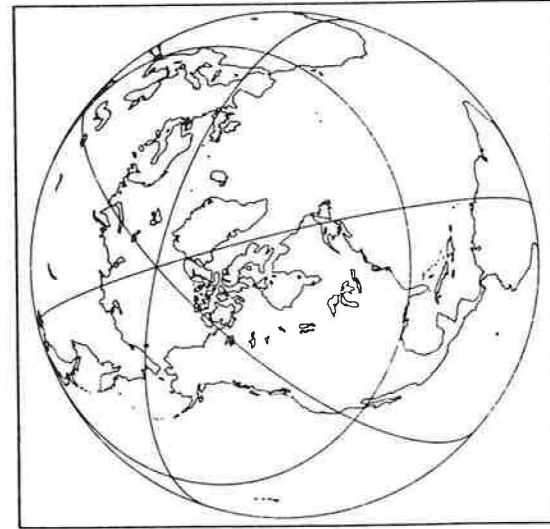
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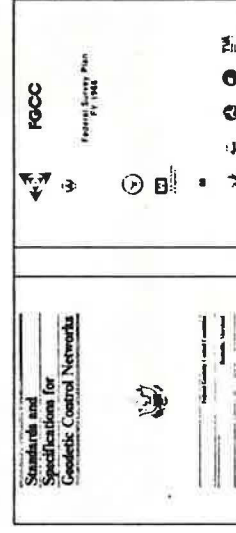
Our Nation's first civilian scientific agency was called the Survey of the Coast, established by President Thomas Jefferson in 1807 to assist waterborne commerce. Its mission soon included surveys of the interior as the Nation grew westward. From 1878 until 1970 the agency was known as the Coast and Geodetic Survey.

In 1970 it became a component of the National Oceanic and Atmospheric Administration (NOAA) and was renamed the National Ocean Survey. Today it is known as the National Ocean Service (NOS). To acknowledge the geodetic aspect of its mission, the portion of NOS responsible for geodetic functions was named the National Geodetic Survey (NGS).

Today NGS is responsible for establishing, developing, and maintaining the National Geodetic Reference System (NGRS). NGRS comprises approximately 1 million precisely located points and serves as the common base of reference for latitude, longitude, height, scale, orientation, and gravity measurements throughout the United States. NGRS, therefore, supplies the framework for the multitude of surveying, mapping, and construction projects conducted every day.

LEADERSHIP ROLE

As the geodetic component of the U.S. Department of Commerce, NGS coordinates activities of the Federal Geodetic Control Committee (FGCC). FGCC develops standards and specifications for conducting Federal geodetic surveys, coordinates the development and application of new surveying instrumentation and procedures, and assists state and regional agencies through cooperative programs. In this role, NGS directs the planning and execution of Federal surveying activities to ensure that: 1) the Nation's geodetic needs are met in the most expeditious and economic manner, and 2) whenever practical, all surveying activities financed by Federal funds contribute to NGRS.



Published results of Federal Geodetic Control Committee activities

NGS provides users with the published results of FGCC activities, including standards and specifications for developing geodetic control networks, user guides for submitting surveying data to NGS for entry into the national geodetic data base, the results of testing

various geodetic surveying instruments and techniques, and interagency reports on a variety of topics related to geodetic surveying applications.

PROVIDING FOR THE FUTURE

In 1986, NGS completed a redefinition and readjustment of the existing horizontal control data to produce a new horizontal reference system, the North American Datum of 1983 (NAD 83). NAD 83 removed distortions from the existing continent-wide horizontal (latitude, longitude) geodetic reference system and produced a globally best-fitting horizontal reference datum. The new adjustment placed all of the NGRS horizontal survey observations into a coherent reference system of vastly improved accuracy. NAD 83 is consistent with the new satellite technology of the Global Positioning System (GPS).

NGS provides users with several NAD 83 data and application products. NAD 83 coordinate listings include the latitude, longitude, geoid height, northing, easting, and elevation for each control point. They are published in blocks of 1 degree of latitude by 2 degrees of longitude. NAD 83 data sheets include geographic, state plane and Universal Transverse Mercator coordinates, point position accuracies, station location descriptions, and comprehensive station recovery information.

NGS also supplies software programs to adjust horizontal survey data using the new NAD 83 parameters. These programs compute geodetic azimuths, distances, and positions, and convert coordinates computed in one coordinate system to another coordinate system. Publications are also available describing the various aspects and stages of the NAD 83 adjustment, as well as the anticipated impact of changing from the North American Datum of 1927 (NAD 27) to the NAD 83 reference datum.

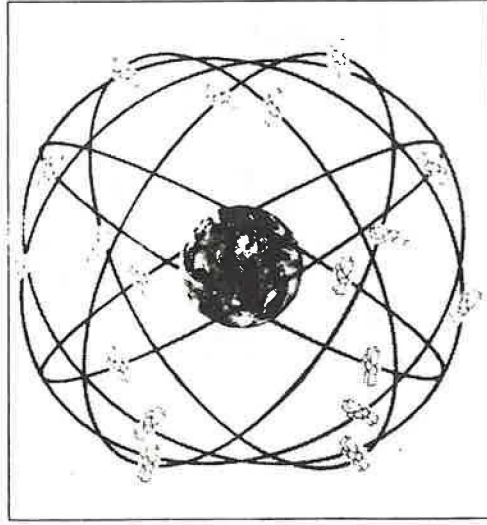
NGS is currently readjusting vertical geodetic data to produce the North American Vertical Datum of 1988 (NAVD 88). The NAVD 88 readjustment will remove distortions from the continent-wide vertical geodetic (height) reference system. This project is planned for completion in 1991. The vertical adjustment combines a large-scale resurvey of the U.S. vertical control network, replacement of missing or destroyed bench marks, and a readjustment of the entire vertical control network. The result will be a greatly improved, up-to-date height reference system for all of North America.

Users can obtain vertical geodetic (leveling) data organized by 30-minute quadrangle, by level line, and by county. These data are currently based on the National Geodetic Vertical Datum of 1929 (NGVD 29). NGS also sells software that computes and verifies fixed leveling data and publications that describe the steps involved in adjusting the vertical datum and the anticipated effects of changing from the NGVD 29 to the NAVD 88 reference datum.

ADVANCING TECHNOLOGY

NGS is playing a key role in applying a revolutionary emerging technology to geodesy, the NAVSTAR Global Positioning System (GPS). The horizontal component of NGRS is now being improved primarily by using GPS. NGS is also using GPS measurements to produce a National Crustal Motion Network to monitor tectonic motions across the United States. GPS technology is proving to be more accurate, more efficient, and more economical than traditional geodetic survey methods.

The first-order horizontal control standard of accuracy in the United States is one part in 100,000. By using GPS, NGS achieved accuracies ranging from one part in 100,000 to better than one part in 1,000,000. In addition to such accuracies, GPS surveying yields tremendous advantages in efficiency over classical methods. Base lines involving distances of many tens of kilometers can be determined in a single data collection session of a few hours or less. In addition, field observations are averaging about one-fifth the cost of traditional surveys.



Graphic depiction of orbiting Global Positioning System constellation

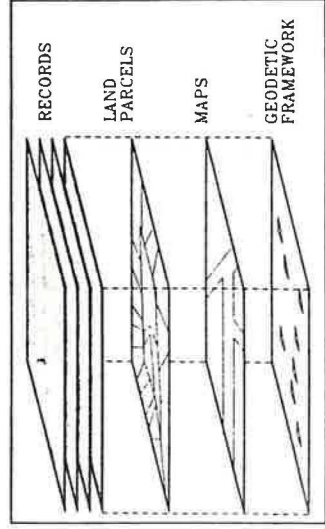
NGS provides the surveying community with precise orbital positions for the NAVSTAR GPS satellite constellation. In 1988, NGS began computing and distributing the satellite ephemerides, available 3 to 4 weeks after the satellite tracking data are collected.

A high-accuracy gravity reference network is being established by NGS throughout the United States in conjunction with the Defense Mapping Agency. Gravity measurements will first be made at 11 geologically stable primary base sites. Forty secondary sites will be added to complete the network.

with a geodetic reference framework to form a unifying foundation by linking its component layers of cartographic data.

A great many areas of the country urgently need comprehensive, timely land information for tax assessment, land-use planning, construction and maintenance of public utilities, and many other services. The widespread use of computers and improved techniques for acquiring land data combine to make LIS an ideal way to meet these needs. NGS is currently coordinating the development of an FGCC guidebook for establishing land information systems using the LIS concept, including generic LIS specifications.

NGS serves as the Nation's depository for geodetic data. The National Geodetic Information Branch (NGIB) distributes geodetic information products to satisfy current and anticipated user needs. These products include the final results of geodetic surveys, software programs to format, compute, verify, and adjust original survey observations, and publications describing how to obtain and use NGS information products and services.



Graphic depiction of Land Information System

Each year NGS responds to 20,000 requests from Federal, state and local governments, and users from the private sector for the following geodetic data and information services:

Horizontal and vertical data for NGRS control points with corresponding station description information

Geodetic control diagrams covering the conterminous United States, Alaska, and Hawaii

Gravity values for more than 1 million points

Calibration base line data

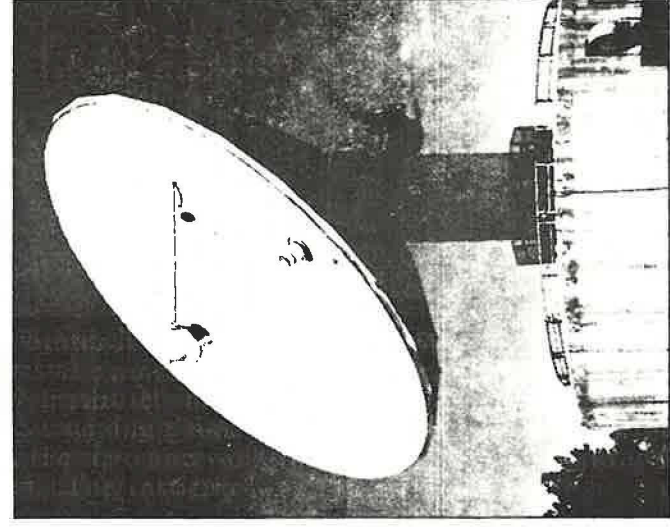
Astronomic and Doppler satellite data

Horizontal and vertical crustal movement data

Special services including computer programs, historical records, publications, and related geodetic information.

GEODETIC RESEARCH

NGS conducts research studies involving all aspects of geodetic science, as well as the related fields of oceanography, solid-Earth physics, astronomy, and computer science. These research studies are undertaken to understand the large-scale movements of the Earth's crust, polar motion, Earth and ocean tides, gravity at sea, and irregularities of the Earth's orbit.



Seventeen-meter diameter VLBI antenna at Westford, MA

NGS research studies have played a pioneer role in applying an advanced technology called very long baseline interferometry (VLBI). VLBI uses radio signals from distant stars to measure the orientation in space of the Earth's pole of rotation and to measure time, as determined from the Earth's changing rate of rotation (UT1). NGS operates a three-station VLBI radio telescope network called POLARIS (Polar Motion Analysis by Radio Interferometric Surveying) which contributes data to the International Earth Rotation Service (IERS). NGS serves as the computational center for the VLBI component of IERS and distributes the resulting data to the worldwide scientific community.

Polar motion and UT1 information is important for understanding the geodynamic behavior of the North American continent and for providing scale and orientation for NGRS. Geophysicists analyze these data

IMPORTANT ADDRESSES

Many products are available on paper, magnetic tape, and floppy diskettes. To order items in this brochure or to obtain more information on any of the products, programs, and services listed, contact:

National Geodetic Information Branch
N/CG174, Rockwall Building, Room 24
National Geodetic Survey, NOAA
Rockville, MD 20852

Telephone: (301) 443-8631

For more information on the NGS workshop program, contact:

Mr. Edward J. McKay

N/CG13, Rockwall Building, Room 313

National Geodetic Survey, NOAA

Rockville, MD 20852

Telephone: (301) 443-8567

For more information on the NGS advisor program, contact:

Planning and Requirements Staff

N/CG1x10, Rockwall Building, Room 622

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- Calibration Base Lines for Electronic Distance Measuring Instruments
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- Digital Data
- Polar Motion Data
- Crustal Motion Data
- Reference Services (Publications, Records)
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to understand the redistribution of the Earth's mass due to such phenomena as melting of the polar ice caps and global shifts of atmospheric winds.

The U.S. Naval Observatory cooperates with NGS in collecting, analyzing, and distributing polar motion and UT1 data. Both organizations are part of the National Earth Orientation Service (NEOS). The purpose of NEOS is to provide the most current Earth orientation information and Earth orientation predictions for up to 90 days.

In another research program, NGS collects, processes, and distributes information on ocean surface variations using the U.S. Navy altimeter satellite GEOSAT. Satellite altimetry is one of the most useful methods for ocean remote sensing. GEOSAT also provides information on circulation and sea level variations that can be obtained in no other way. The data obtained over the next several years will represent the first global, long-term survey of sea level variation and should advance our understanding of the dynamic behavior of the world's oceans.

COOPERATIVE PROGRAMS

NGS conducts several cooperative programs to meet specific needs of state and local governments, other Federal agencies, the private sector, and the scientific community. One of these programs provides surveyors with a means to detect and correct errors in electronic distance measuring instruments (EDMI).

More than 250 EDM calibration base lines have been established by NGS throughout the United States in cooperation with various government agencies, universities, professional societies, and others. These highly accurate base lines provide a locally accessible standard for length measurement. For each state, NGS provides users with the location descriptions and the adjusted results of calibration base line measurements.

NGS scientists organize technical workshops throughout the United States on topics ranging from survey mark recovery to satellite surveying instruments and methods. The workshops, established in conjunction with state and local surveying and mapping organizations, are cooperative ventures involving NGS, the American Congress on Surveying and Mapping, and other organizations, such as an engineering department of a university or college.

In another cooperative program, NGS employees serve as state geodetic advisors. The advisors instruct local surveyors on how to use and protect NGRS; link surveying activities among Federal, state, and independent surveyors; and assist in using new surveying technologies.

SERVING OUR USERS

Recently NGS has been focusing attention on the concept of a Land Information System (LIS). An LIS interrelates the identity, use, and attributes of land parcels, maps, and paper records. These are linked

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OBSERVATIONS

By James H. Granger, Chairman, Board of Governors, NSPS

There has been a concern for some time with the procedures and organizational structure of ACSM and the relationship between ACSM and NSPS. Often overlooked but perhaps equally important is the relationship between the three Member Organizations.

Unfortunately, in the past, concerns of the M.O.'s, especially NSPS, have been ignored or dismissed as efforts by specific individuals to pursue personal agendas. Unfortunately, again, perhaps there has been some basis for this opinion. This has resulted in mis-trust and suspicion of everyone who attempted to initiate dialog or advocate any change of any kind. At the same time, it is now painfully clear that the concerns with ACSM operations, especially relative to finances, were more accurate than most had suspected. Extreme positions hardened ranging from "nothings wrong" to "abolish ACSM". And the moderates who attempted to work on both were often "catching the flac" from all directions. The wagons were circled, the siege assault begun and the "peace keeping" contingent scrambled to dodge the shelling. After the first salvos, a pause occurred to assess damages and an opportunity was realized to re-assess positions.

There has been a change in the individuals elected to the ACSM Board by all three M.O.'s and I believe that there is a greater recognition that there are serious problems, both financial and organizational, that have to be addressed. At the same time, I believe NSPS, while firm in their commitment to change leading to improvement in and strengthening of ACSM, has recognized that there are multiple steps and efforts which are needed to accomplish this goal.

The meeting in Baltimore was identified by many as a decision point. So what has been accomplished and what is the prognosis?

- A. The ACSM Board has directed the ACSM Constitution & By-laws Committee to prepare changes for a ballot to the membership. The changes will have the ACSM Directors representing each M.O. be nominated by the M.O. and voted on only by the members of that M.O. The final wording will be acted on at Atlanta and a ballot mailed out to the membership.
- B. ACSM has agreed to separate checking and savings accounts for NSPS and to deposit all currently unexpended 1991 dues, all subsequent dues and all of the NSPS reserve funds as of 12/31/90 into the NSPS account.
- C. ACSM and NSPS have negotiated an agreement to loan NSPS funds to ACSM on 90 day increments with interest paid to NSPS monthly. NSPS will retain a minimum of 90 days of budgeted expense monies in the NSPS account.
- D. A recognition by ACSM that 70% of the membership, as represented by NSPS, is serious and determined to effect changes, that these changes are not the personal agendas of a few individuals and that there is a need for change and a greater accountability to the M.O.'s and the membership. This is not to say that all ACSM Directors and Officers have accepted this position but certainly more do now than in the past.

E. NSPS has voted to incorporate and the papers will be filed within probably the next 30 to 60 days. New By-laws were also adopted and put into effect with a ratification vote by the NSPS membership present at the 1992 Spring Meeting.

These are significant and positive achievements! Does this mean that our work is done? Absolutely not! There are still organizational and accountability issues that must be addressed and further changes are needed in the ACSM Constitution and By-laws. We must continue our dedication and commitment to these tasks and remain involved in the financial aspects as well.

Where do we go from here? I believe the following items need to be the focus of attention over the short term up to Atlanta:

1. Complete the revisions to the ACSM Constitution and By-laws. I have been appointed to that committee representing NSPS.
2. A Study Committee consisting of the NSPS President-elect and 2 Area Directors, the Chairman of the Board of Governors and 2 Governors has been established. The purpose of the committee is to evaluate the relationship between the NSPS Board of Directors and the Board of Governors. Members of the committee are Richard Lomax, John Thalacker, Sam Best, Jim Granger, John Swan and Jerry Goodsen. If you have concepts you would like considered, please forward them in writing to one of the committee members.
3. A year ago the Governors voted to have a committee study the Articles of Affiliation. I intend to activate this committee and have appointed Alden McGee, Governor from Ohio, as Chairman. I also propose to charge the committee to continue with proposed changes to the ACSM Constitution and By-laws and have a report ready on both issues for Atlanta. I would like 4 additional Governors to serve on this committee so if anyone is interested please contact me on or before April 12, 1991.
4. Establish closer contacts and communications between the three Member Organizations to foster better understanding of each other and our positions.

No matter how much we (NSPS) or the other M.O.'s organize, evaluate or improve ourselves, if ACSM does not financially survive then much of our efforts will be wasted. There may be some who feel that it would be better to let ACSM go under. However, if you carefully and thoughtfully consider all of the ramifications with that course of action, it will be clear that we will lose much more than we may appear to gain and may set back the national status and recognition of the profession more than can be recovered.

And make no mistake about it, the financial condition of ACSM is very near the fatal condition! It is imperative that an immediate, concentrated and determined effort be made by each State Society and ACSM member to get all of the 1990 membership to renew for 1991 and to seek out and sign up new members. After all, the NSPS dues are now under the direct control of NSPS and we will be helping ourselves by doing so.

The ball is in our court now. Dedicated, thoughtful concern is the measure of the arena. You are the team. How well will we handle the ball?

GARY KENT ELECTED TO ACSM BOARD OF DIRECTORS

Indiana's Gary Kent, (second from right, standing) has been elected to the national ACSM board of directors for a three-year term. He joins, (seated left to right) Dahlberg (IL), Foster (MA), Greulich (MA), Taylor (MD), Mozzachio (NJ); second row, Aylward (FL), Lindgren (CA), Shackelford (NJ), Denny (AL), Kent (IN), and Wiedel (MD). Members come from the three member organizations: National Society of Professional Surveyors (NSPS), American Cartographic Association (ACA), and American Association for Geodetic Surveying (AAGS).



* * * * *

IMAGIS TO DEVELOP STANDARDS AND PROCEDURES

The City of Indianapolis has issued a Request for Proposals for the development of standards for use by the engineering, surveying and development community in providing the City with digital files of land and facility updates to the *IMAGIS* database.

IMAGIS, the *Indianapolis Mapping and Geographic Infrastructure System*, is controlled by the *IMAGIS* Consortium which is comprised of City Departments (Department of Transportation, Department of Public Works, Department of Metropolitan Development), Utilities

(Indianapolis Water Company, Citizen's Gas and Coke Utility, Indianapolis Power & Light Company, Indiana Bell Telephone), Marion County and IUPUI.

The standards and procedures to be developed will provide for standardization in update, review, and quality control processes within the affected organizations.

A steering committee comprised of members of the *IMAGIS* Technical Committee, ASCE, ACSM, and ISPLS has been formed to assist with the implementation of the project.

SURVEYORS HISTORICAL SOCIETY NEWS

by Roger Woodfill, Lawrenceburg, IN

I know that many of you have read about the 200th anniversary of the District of Columbia Boundary, but I want to give you a firsthand account of the ceremony held at Jones point March 24, 1991. Jones Point is the most southerly point and "the initial point" for the District's boundary. It is on the west bank of the Potomac River about fifteen miles upstream from Mt. Vernon in Alexandria, Virginia. I assume Jones Point was named after the lighthouse standing within twenty feet of the stone monument. The actual survey point is so near the water that you must stand on the rip-rap breakwater to photograph it. My wife got the job of creeping out on the rocks and playing photographer while I explained to our two youngest children the historic significance of why this one particularly vicious stone was in a cage observable conveniently only through a four inch diameter hole in the concrete cover.

It was a cloudy, windy day; and the ceremony started with a blast from a Revolutionary War period cannon into the waters of the Potomac. Then more members of a unit dressed in Revolutionary War uniforms posted the colors. Mickey Shakelford of the Surveyors Historical Society emceed the program. Guests included actors dressed as George Washington and Thomas Jefferson, the President and the Secretary of State who participated in the original dedication two hundred years earlier.

Another dressed as an eighteenth century Episcopal Minister recited the invocation and benedictions that were supposed to have been given two centuries ago. I suspect that they were authentic because Virginians of that period, even American colonists in general, seemed to keep good records. Introductions were respectfully scattered throughout the ceremony, and it probably was not easy to recognize everyone. You see, there were eight surveying groups; four historic groups; three park districts; city, district, state and federal officials, the Masons of Virginia, the Daughters of the American Revolution, and I suppose others all taking part in the project.

The meat of the program was Curt Sumner, NSPS governor from Virginia, reading the history of surveying the district or federal city site as surveyors dressed in period clothes and representing Andrew Ellicott, Benjamin Banneker, Pierre L. Enfant, and their helpers chained, took celestial observations, and made notes in the background, with properly dated equipment. Detailed histories of the ten mile

square survey of the "district" or "federal city site" can be found in "P.O.B.", "Technical papers of the 1991 ACSM Annual Meeting", "The Professional Surveyor", and the Surveyors Historical Society "Backsights". Two interesting historical facts that I had not realized was that:

- 1) The land that is now the District of Columbia was all or parts of seventeen large farms at the time of its creation. I think four towns -- Georgetown, Alexandria, Carrollsburg, and Hamburg were within the boundaries. The farmers granted free of cost such portions of their farms as were needed for streets, parks and other public reservations. Land for government buildings was sold to the USA for about \$67/acre and the remainder of the land was laid out in lots and apportioned out equally between the Federal Government and the original owners.
- 2) The lands west of the Potomac (36 of the 100 square miles) were given back to Virginia because all the new government buildings were to be built on the Maryland side of the river for convenience.

I think many of you know that George Washington was embarrassed and protested commissioners naming the federal city after him. Did you know that they named the district for Christopher Columbus, the first President's hero and his preferred name for the city?

I have asked the ISPLS Board of Directors to consider making a donation to the District of Columbia Boundary Bicentennial Committee. Individual donations mailed to P.O. Box 9300, Silver Springs, Maryland, 20906 of \$25 or more are rewarded by lapel pins, map reproductions, brass disks, or plaque depending on the amount. I consider this project one of the best public relation projects for surveyors known to me. Another shot from the cannon and we were free to mill around the park.

GOVERNORS REPORT

continued from page 9

notion that we agreed on was that a survey consists of the following:

- 1) A plat, plan, or map,
- 2) A land description, and
- 3) A report of survey.

In order to make his information public knowledge, Sipe does all his work on 8 1/2" X 11" or 8 1/2" X 14" paper required by the Recorder's Offices in West Virginia. He was amused that I insist upon having all three elements together on 12" X 18", 12" X 24", or 24" X 36" sheets. The Canadian governor's report earlier had noted that north of the USA, the "real property report is as important as the real property plan and should be taken together". How about that -- two rural, hill surveyors agreeing with a suave Canadian!

I presented one item of business before the Board of Governors. Last year when ISPLS tried to go statewide with the "Trig-Star" competition, we learned that local sponsors were technically required to be members of NSPS. My suggestion at the Board of Governors meeting was that Trig-Star sponsors could be NSPS members, state affiliates, or members of affiliate societies. Earlier in the week I had talked with the Great Lakes Regional Council and the NSPS Education Committee chairman. Both indicated that they would support expansion of sponsorship in this public relations program. Also at the Owensboro meeting of Area 3 and Area 4 governors, I had received a warm welcome to this proposal, so I was a little surprised at the amount of discussion over this item. It passed overwhelmingly, but only after a half hour debate.

by Roger Woodfill

* * * *



COMPLETED CAREER

ORDELL L. GERTSMEIER, 59 Member, Dies

Services for OrdeLL L. Gertsmerier, 59, Valparaiso, Professional Engineer and Registered Land Surveyor, were held on Saturday, March 16, 1991, at the Valparaiso First Presbyterian Church with entombment in Graceland Mausoleum.

"Gerts" was president and Owner of PTGR Inc., an Engineering and Surveying firm, which he joined in 1956. He became an owner of the firm in the mid 60's.

Active in the community, Gertsmeier served on the City Park Board, the Valparaiso Community Schools Holding Corporation, and the Board of Directors of the Porter County Boys and Girls Club.

He was a member of the first Presbyterian Church in Valparaiso, Valparaiso Kiwanis Club, and Member and Past President of Associates in Downtown Valparaiso.

He received the "Friends of Education" award and the "Service to Youth" award for his 20 years of service to the Boys and Girls Club.

Gerts was a Member of ISPLS and the first President of its Northwest Chapter and served several terms as a director. He was also a Member of the National Society of Professional Engineers and a past Member of ISPE.

He was a 1953 graduate with a Civil Engineering Degree from Valparaiso University and a U.S. Army veteran.

Surviving are his wife Marilyn, a daughter, Nancy Cook, three sons, Robert, David and Jonathan, two sisters and five grandchildren.

Memorial contributions may be made to the Boys and Girls Club of Porter County or the Valparaiso First Presbyterian Church.

* * * *

Standing at Jones Point, Roger Woodfill explains the historic significance of the stone monument to his children.

1792

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**DISTRICT OF COLUMBIA BOUNDARY
BICENTENNIAL COMMITTEE**

Box 9300
Silver Spring, Maryland 20906

A COOPERATIVE PROJECT BY:

- The American Congress on Surveying and Mapping
- The National Society of Professional Surveyors
- The American Association for Geodetic Surveying
- The Surveyors Historical Society
- The Maryland Society of Surveyors
- The Virginia Association of Surveyors
- The Potomac Chapter of the Maryland Society of Surveyors
- The Mount Vernon Chapter of the Virginia Association of Surveyors

THE BOUNDARY STONES:

The original boundaries of the Federal Territory were marked with forty stones set at one mile intervals. Fourteen of the monuments were placed along Virginia's new border during 1791 and twenty-six upon Maryland's in the following year.

The boundary stones were approximately one foot square with beveled tops and set to protrude two feet above the ground. They were made of brown sandstone from quarries leased by the Federal Government at Acquia Creek in Stafford County, Va. Inscriptions on the stones include the year set, magnetic variation at that place and time, distance from the previous corner, and the name of the territory and adjoining State on the appropriate face. Each stone is identified based upon its location. The corners are called the North, East, South and West points. Intermediate stones along each side of the boundary are numbered clockwise from the previous corner.

The four faces of a Maryland corner stone are diagramed above.

THE COMMITTEE:

The District of Columbia Boundary Bicentennial Committee was formed to plan events and activities to commemorate the 200th Anniversary of the survey establishing the boundaries of our nation's capital. The committee, representing the professional organizations listed in this brochure, is comprised of volunteers employed in both the private and public sectors.

COMMITTEE OBJECTIVES:

1. Plan a re-enactment survey and dedication ceremony.
2. Recover the remaining boundary stone monuments.
3. Locate the stones by a Global Positioning System (GPS) survey.
4. Repair or restore many of the protective iron cages placed around the stones by the Daughters of the American Revolution.
5. Publish the GPS results and a history of the original survey.

CELEBRATION:

A re-enactment survey and dedication ceremony are planned to take place at the initial or south point of the survey. The celebration, co-sponsored by the Office of Historic Alexandria, is scheduled for Sunday, March 24, 1991 at Jones' Point Park in Alexandria, Virginia. This event will coincide with the American Congress on Surveying and Mapping's 50th Anniversary celebration during the ACSM-ASPRS/Auto Carto 10 Annual Convention and Exposition being held, March 24-29, 1991 in nearby Baltimore, Maryland.

PROJECT FUNDING:

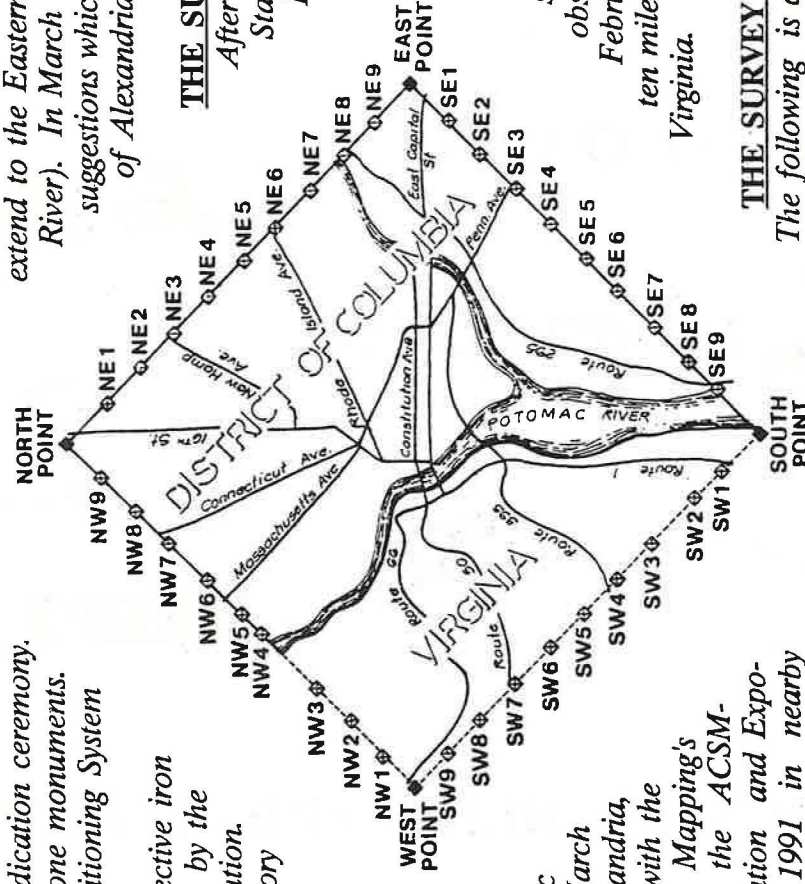
A budget of \$90,000 has been established to complete the committee's objectives. Funding for the project is solely dependent upon donations. Anyone interested in supporting this historic event should send their contributions to the District of Columbia Boundary Bicentennial Committee, P.O. Box 9300, Silver Spring, Maryland 20906. Commemorative souvenirs are offered to those who donate certain amounts to this endeavor. Contact the committee for details.

THE FEDERAL TERRITORY:

The Residence Act of July, 1790 authorized the establishment of a permanent seat for the United States Government to be located on the Potomac River. Both Maryland and Virginia had agreed to cede a portion of their lands to the federal government for this purpose. The act assigned the responsibility of selecting a specific ten mile square site to President George Washington. After touring the area of the river, he recommended to include land on both sides of the Potomac encompassing Georgetown in Maryland and to extend to the Eastern Branch (now known as the Anacostia River). In March of 1791, Congress adopted Washington's suggestions which were amended to also include the City of Alexandria in Virginia.

THE SURVEY:

After the site had been selected, Secretary of State Thomas Jefferson sent a letter in February of 1791 to Major Andrew Ellicott, a surveyor in Philadelphia, Pennsylvania, requesting that he begin a survey of the Federal Territory at once. Benjamin Banneker, a free black astronomer from Ellicott Mills, Maryland was selected to assist in making celestial observations. The survey was begun, February 12, 1791 at the south point of the ten mile square on Jones' Point near Alexandria, Virginia.




THE SURVEY CERTIFICATE:


The following is a portion of the certificate Major Ellicott issued, January 1, 1793 upon completing the survey:
" ...These lines are opened, and cleared forty feet wide, that is twenty feet on each side of the lines limiting the territory: And in order to perpetuate the work, I have set up squared mile stones, marked progressively with the number of miles from the beginning on Jones' Point, to the West corner, thence from the West corner to the North corner...to the East corner and from thence to the place of beginning on Jones' Point: except in a few cases where the miles terminated on declivities...the stones are placed on the first firm ground, and their true distances in miles and poles marked on them..."



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GENERAL:

The U.S. Army Corps of Engineers will conduct its triennial Surveying Conference at Louisville, Kentucky on 16 through 18 July 1991. It is sponsored by the Office, Chief of Engineers, to promote effective utilization of surveying technology and to maintain efficiency and quality within the Corps' surveying mission. This symposium is designed to promote information exchange among Corps surveyors, its commercial contractors, equipment manufacturers, private survey organizations, and other government agencies. A major conference objective is to maintain technical expertise by transferring new technology among Corps surveyors.

Representatives from each district and division office of the Corps, as well as other Federal agencies will attend. In addition, Corps surveying contractors and surveying equipment manufacturers are being invited. Attendance at past conferences has typically exceeded 400. A three-day program will contain technical and management sessions on the following application areas:

Hydrographic Surveying
Photogrammetric Mapping
Remote Sensing
Digital Data Systems
Land/Topographic Surveying & Mapping
NAVSTAR GPS Surveying
Precise Surveying

Additional time will be allotted for a series of committee meetings to review and establish Corps surveying and mapping goals on:

Computer Aided Design & Drafting
Surveying Research and Development
Surveying Criteria Standards & Documentation
Contracted Survey Services
Surveying Training

The Corps' 1991 Surveying Conference is open to any individual or group interested in the various surveying disciplines.

CONFERENCE FACILITIES

All technical sessions, management sessions, and exhibits will be held at the Galt House Hotel on the Ohio River, Louisville, Kentucky. In addition, an outdoor area will be provided on the river bank to demonstrate topographic and GPS survey equipment. Docking facilities will also be available at this site to board hydrographic survey vessels.

CALENDAR

May 16, 1991
 ISPLS Northwest Chapter Meeting
May 18, 1991
 ISPLS Board of Directors Meeting,
 Holiday Inn, Columbus, Indiana
June 29, 1991
 ISPLS Board of Directors Meeting,
 Headquarters, Indianapolis, Indiana
July 16-18, 1991
 U.S. Army Corps of Engineers
 Surveying Conference, Louisville,
 Kentucky
August 10, 1991
 ISPLS Board of Directors Meeting,
 Headquarters, Indianapolis, Indiana
August 11-15, 1991
 29th Annual URISA Conference,
 San Francisco, California
September 21, 1991
 ISPLS Board of Directors Meeting,
 Headquarters, Indianapolis, Indiana
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
November 7, 1991
 ISPLS Board of Directors Meeting,
 Headquarters, Indianapolis, Indiana
January 15-17, 1992
 40th Annual Convention, Indiana
 Society of Professional Land
 Surveyors, Holiday Inn, Columbus,
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