HOOSIER SURVEYOR

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PROFESSIONAL LAND SURVEYORS, INC.

VOLUME
15
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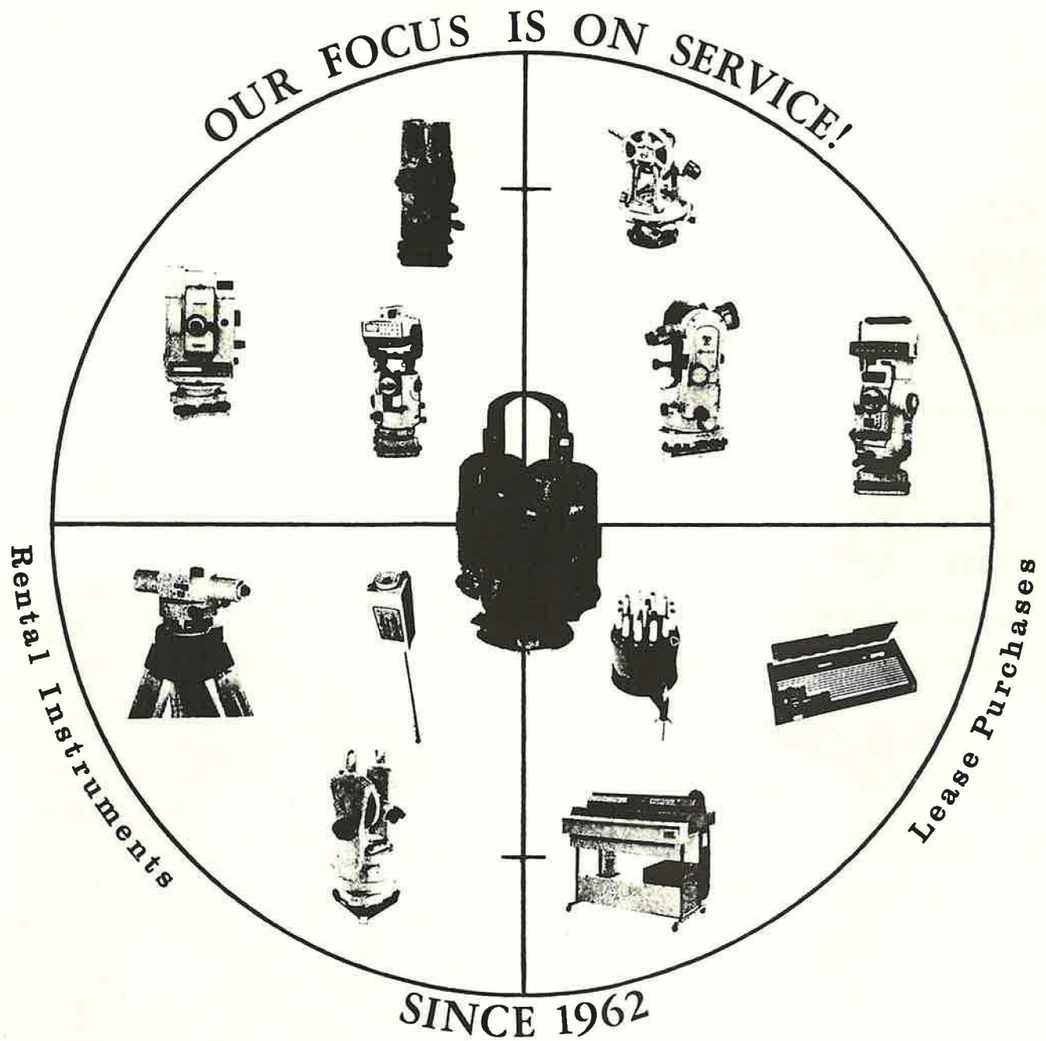

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HOOSIER SURVEYOR

VOLUME 15, NUMBER4

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Ken Curtis
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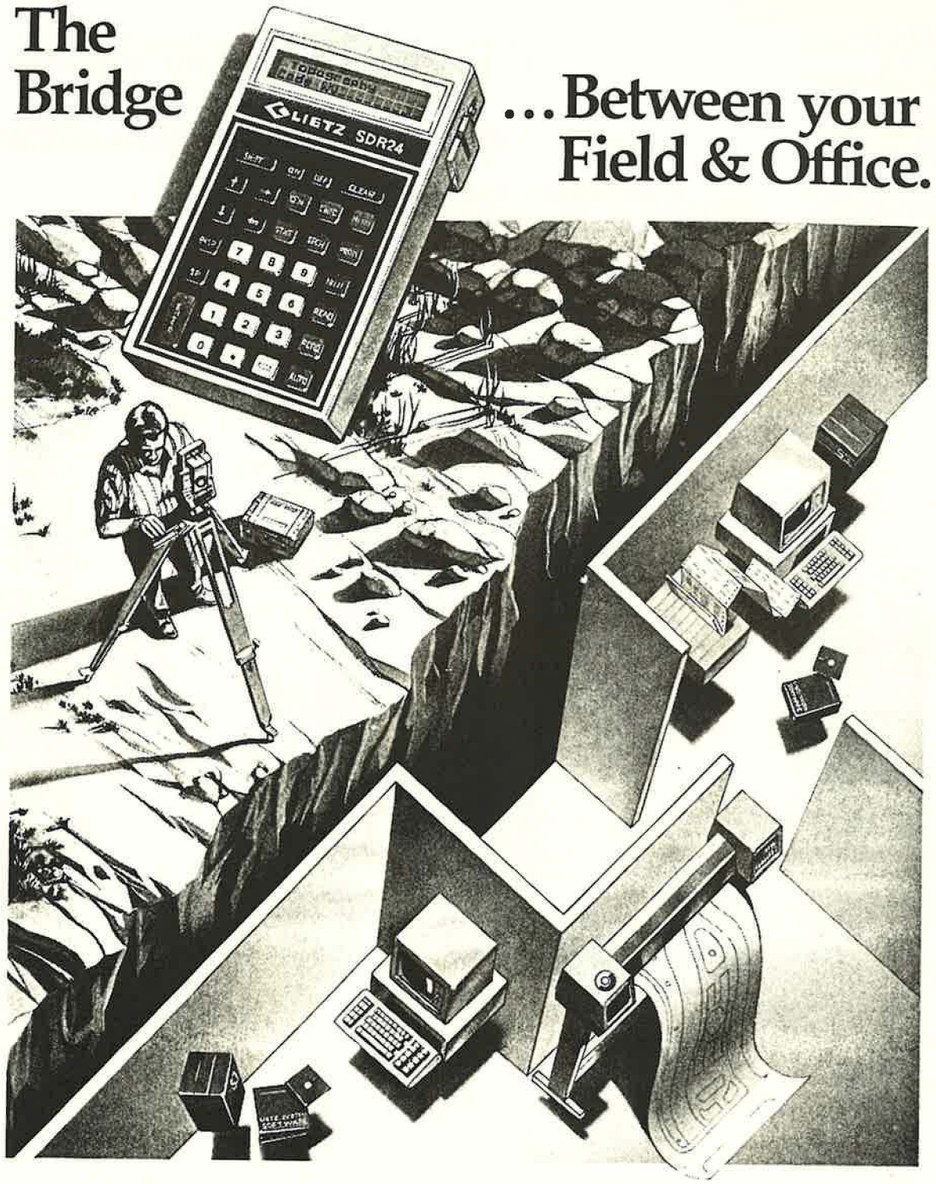

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President's Message

Gary R. Kent
ISPLS President

One of the primary goals established for the Indiana Society of Professional Land Surveyors in 1989 is to develop and publish guidelines for the handling and tracking of complaints . This goal developed out of an intense frustration over a lack of vigorous, high-profile enforcement of the Registration Act over a period of many years — despite the honest efforts of the current Board of Registration.

We have been very encouraged by the attitude and efforts of the Registration Board over the past several years, yet for whatever reason, we have had no news of active enforcement and effective punishment on the many complaints filed by ISPLS over the past two years. Numerous cases have been "closed" by the Attorney General with no clues whatsoever as to the actual disposition of those cases.

In order to create an atmosphere of effective enforcement of the Registration Act, the Registration Board and the Attorney General's Office need the necessary tools.

There are many types of tools. Some confront the problem head-on. Such tools include adequate laws which allow for timely and effective punishment and adequate staff to investigate and litigate.

Other tools attack the problem obliquely. Such tools include standards of practice by which incompetence can be measured, mandatory professional development to raise the overall level of competence, and a separate Registration Board to foster a different attitude towards complaints.

The Attorney General and the Board of Registration share in enforcement responsibilities. In several meetings that ISPLS has had with the Attorney General's Office and the Board of Registration over the past two years; however, we found that the Board and the Attorney General's Office did not even agree on which was responsible for enforcement! I don't need to comment on what that bodes for enforcement — either for engineers or surveyors.

The Registration Act is being blatantly violated and the attitude of the so-called Consumer Protection Agency is to find any reason not to pursue complaints. Without question, the Consumer Protection Agency as the agency responsible for the protecting the public's health and welfare is a complete and utter failure when it comes to engineering and land surveying.

I will suggest that historically, it has been through education that any society has improved its lot in life. It is the firm belief of ISPLS that in regards to Land Surveying, the welfare and health of the Indiana public will be best served by a better educated surveying profession — accomplished through Mandatory Professional Development.

But any such program must be buttressed by enthusiastic enforcement of the Registration Act. Past performance has shown that proper enforcement will not happen on its own. Only when the Professional Engineers and Land Surveyors Registration Board is replaced by two Boards will the public's interests be properly served and protected.

ISPLS will not tolerate incompetence nor practice outside the Survey Standards. We intend to pursue the realization of a better educated profession which need not worry about enforcement of its registration act. But prior to that time, we intend on using whatever means are available to assure that the law is enforced.

* * * * * * * * * *

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SURVEYING: AN EVOLVING ANCIENT SCIENCE

Robert W. Foster, PE, PLS, Framingham, Massachusetts

The professors of this science are honored with a more earnest attention than falls to the lot of any other philosophers. Arithmetic, theoretical geometry, astronomy, and music are discoursed upon to listless audiences, sometimes to empty benches. But the land surveyor is like a judge; the deserted fields become his forum, crowded with eager spectators. You would fancy him a madman when you see him walking along the most devious paths. But in truth he is seeking for the traces of lost facts in rough woods and thickets. He walks not as other men walk. His path is the book from which he reads; he shows what he is saying; he proves what he hath learned; by his steps he divides the rights of hostile claimants; and like a mighty river he takes away the fields of one side to deposit them on the other.

CASSIODORUS, A.D. 540

Surveying is, indeed an ancient science. For as long as mankind has needed to replace flood-obliterated land marks, or find his position on the face of the earth, or translate the ideas of the designer to dimensions on the ground for the builders, there has been an exercise of the art and science of surveying.

The Great Pyramid of Khufu at EL Gizeh was built in 2600 B.C. So well did the Egyptian surveyor ply his craft, the southeast and northwest corners of the 13-acre base of the pyramid measure within four one-hundredths of a foot of each other, in elevation. The base is a nearly perfect square and the sides are aligned with nearly perfect orientation to the cardinal directions.

An example of the early efforts of surveyors in positioning, rather than retracement or construction layout, can be found in our own American history. In 1763 Charles Mason and Jeremiah Dixon while laying out the famous line that bears their name, established a 12 mile radius circle around New Castle, Delaware, as part of their effort. A 20th Century survey by the United States Coast and Geodetic Survey Service found the true radius of the circle to be 12 miles and 18 feet. Five monuments were recovered along the line within five feet of the circle. Not only is surveying an ancient science, some of the earliest applications of that science give evidence to astonishing accuracies when measured with the instruments of the twentieth century.

What Cassiodorus said about the surveyor of his time may not have current cultural relevance insofar as public recognition and acclamation is concerned, but the general principle which impressed that statesman and scholar of the first century holds true today. In retracement work the first effort of the surveyor is still to walk in his predecessor's footsteps. The big changes affecting surveying in the recent 20 centuries are due to technological advances, societal needs and institutional arrangements.

The lasers and satellites being used in surveying today might surprise those Egyptian rope stretchers as much as the accuracy of their work amazes us. The same could be said for our photogrammetric mapping and remote sensing data collection methods, our CADD systems, and our total stations and data collectors. Surely there are surveyors working on the banks of the Nile in 1989, collecting data during the day, down loading in the evening, and reviewing the days work in plan form the next morning. No doubt the modern Middle Eastern technicians and professionals are as blase' about the great technical leap forward that they are practicing, in the very place where it all began, as we are here in the United States, where John Love made his observations about surveying history over three hundred years ago.

We have, indeed, become inured to the technological drama of the times. After all, many of the surveyors of today were school children when we first walked on the moon; many were not even born when Sputnik beeped its way into our lives. Why be especially excited or surprised that we are now using satellites in measuring vector and position? There are those of us who remember using logarithms and steel tapes; we have become accustomed to the stunning technological advances of our century. There are less dramatic but equally significant institutional changes affecting the surveying profession today.

The man or woman entering the surveying profession in 1989 may no longer be considered educationally prepared if he or she carries only a basic bachelor of science degree in civil engineering. To cope with the requirements placed on the surveying profession by society in the next quarter century, the very least that one will need is an undergraduate degree. At least twenty colleges and universities in seventeen states are now granting degrees in surveying engineering, surveying and mapping, geodetic science, or civil engineering with a surveying option.

What is the impetus for this growth in the surveyor education industry? It is not, as some would suggest, due to a legislative trend toward a requirement for a four-year degree as a minimum requirement for licensure. Of the nine states requiring the four-year degree for surveying licensure, only four were in force at the end of 1988. The next two (New Jersey and Wyoming) will not become effective until 1991. The explanation is somewhat more abstract. Increased land values, economic expansion, confused land tenure claims, regulatory requirements demanding more and better data, more sophisticated technologies, even increased liability for the poorly-prepared professional - all these factors are placing more demands on the surveyor and on his educational preparation.

A growth industry in the land data business is in the development of land information systems and geographic information systems. The land-dependent activities of government and industry are discovering that it is possible to store, sort, recall, and manipulate data that have any direct or remote relationship to the land. This applies to census data as well as land use, agricultural inventories, parcel ownership, and mineral exploration. In fact, the only limit to LIS and GIS applications is the ingenuity of those who have custody - or a need for - the data.

The surveyor is at the center of the LIS/GIS evolution. It is the surveyor/cartographer who will collect much of this data; it is the surveyor/cartographer who will prepare and qualify the mapping systems on which the LIS and GIS systems are based; and it is the surveyor/geodesist who will put in place the monumented datum to which the mapping systems will relate. The modern undergraduate surveying curriculum contains elements of geodesy, cartography, computer science, boundary law, environmental law, photogrammetry and remote sensing, and cadastral systems, along with the usual courses in mathematics and science, and the standard technical surveying courses.

To satisfy the needs of society in the next 25 years, the surveyor must be prepared to be boundary specialist, and translator of the schemes of the land planner, architect, and engineer. As data collector the surveyor must be prepared to recognize a bewildering array of environmental attributes while defining cultural improvements. The surveyor must be cartographer and geodesist; in short, he must be a land data specialist. Come to think of it, that is what the well-prepared professional surveyor has always been. It's just more complicated today.

Robert W. Foster is Executive Vice President of Schofield Brothers, Inc. of Framingham, MA. Foster is also Treasurer of ACSM and serves on the Board of Direction of that organization. Additionally, he is Chairman of the ACSM Public Relations Committee and NSPS Professional Liability Committee..

Permission to reprint this article was given by the author and CIVIL ENGINEERING NEWS where it was originally published in the February 1989 issue.

Hickerson Instrument Co., Inc. Receives Lietz President's Award

OVERLAND PARK, KANSAS (April 10, 1989) -- Doug Mueller of Hickerson Instrument Co., Inc. was awarded the "Lietz 1988 President's Award" recently in recognition of his company's outstanding sales and service to the surveying industry.

Hickerson Instrument Co., Inc. was presented an engraved plaque by George E. Huber, President and William D. Steinbrecher, National Sales Manager, of the Lietz Company at a ceremony held by Lietz on April 5 at the American Congress on Surveying and Mapping/American Society of Photogrammetry convention in Baltimore, Maryland. The Lietz Company, a national distributor of surveying systems, instruments, equipment, and supplies, recognizes Hickerson Instrument Co., Inc. as some of its top Authorized Distributors.

Calendar

September 17-21, 1989
ACSM-ASPRS Fall Convention
Cleveland, Ohio

November 26-30, 1989
GIS/LIS '89
Orlando, Florida

January 18-20, 1990
ISPLS Annual Convention
Fort Wayne, Indiana

March 19-24, 1990
ACSM-ASPRS Annual Convention
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Northwest Chapter Report

The 1989 ISPLS Northwest Chapter officers and board of directors are:

President - Michael J. Marlow
President-Elect - Richard L. Hudson
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Director (One Year Remaining) - Ordell L. Gertsmeier
Director (Two Years Remaining) - Kenneth D. Gembala
Director (Three Year Term) - Chester J. Ziemniak
Immediate Past President - Kevin B. Breitzke

A chapter meeting was held March 9, 1989 at 86th Place Restaurant and Lounge in Merrillville and was attended by 17 members.

President Mike Marlow called the meeting to order at 7:36 p.m. A motion was made by Bob Bigelow to approve the minutes of the February 9th meeting, as printed in the *Field Notes*. The motion was seconded by Emil Beeg, and approved unanimously.

Secretary/Treasurer Tony Gregory then reported that the chapter's treasury was at $408.44. He also acknowledged that Rowland Fabian overpaid his dues by $10.00, and asked that the extra be put in the chapter's account. Thank you, Rowland!

No committee reports were given.

No state report was given.

President Mike stated that Ray Tappan could not make the meeting because he had been hospitalized for surgery. The chapter sends Ray best wishes for a speedy recovery.

Old/New Business: Rich Hudson reminded everyone that the April meeting will be held on Tuesday, April 11, at Big Elm's O.B. in Valparaiso. State President Gary Kent will attend the meeting to discuss the standards. Any specific questions that anyone might want answered should be directed to Gary prior to the meeting. In addition, the *Field Notes* will also be send to non-members in an effort to keep all surveyors informed of the development and use of the standards.

President Mike noted that Dennis Condit was a special guest at the meeting. Dennis, formerly of National Surveying, now works for Topcon through Engineers and Surveyors Service Company in Arlington Heights, Illinois. Dennis addressed the chapter briefly and described what services are provided at the Arlington Heights facility. He stated that he would like to have an opportunity to address the chapter at a future meeting with some demonstrations of equipment.

President Mike stated that some of the chapter members have not yet paid their 1989 dues. Please send dues to Secretary/Treasurer Tony Gregory soon.

Rich Hudson reported that the surveying display will be arranged at the Valparaiso Library again this year. Rich is open for new ideas, and could use any help. Anyone interested should get in touch with Rich.

Possible future meeting topics was then discussed. It was suggested that a representative of the DNR (possibly Jim New) might address the chapter regarding the new wetlands regulations. Ordell Gertsmeier offered to contact Jim in that regard. Jim Gorski suggested a "wives night" (possibly annually -- at Christmas time). After much discussion, a vote was taken as to who would be in

favor of having one meeting per year at which wives/girl friends would attend. All in attendance voted in favor of such an arrangement. Planning will be done at future meetings.

At 8:02 p.m., the motion was made by Bob Bigelow and seconded by Jim Gorski to temporarily adjourn the meeting for dinner. The motion was approved unanimously.

At 9:00 p.m., the meeting was again called to order by president Mike, who then presented two films on the construction and layout of a highspeed railway in France. After viewing the movies, the meeting was adjourned at 9:38 p.m. through a motion by Bill Tanke, seconded by Emil Beeg.

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Central Indiana Chapter Report

The Central Indiana Chapter (CIC) of the Indiana Society of Professional Land Surveyors held a meeting on Wednesday, January 18, 1989 at the Anchor Inn, 1616 North Arlington Avenue, Indianapolis. A social hour started at 6:00 p.m. with dinner served at 6:30 p.m.

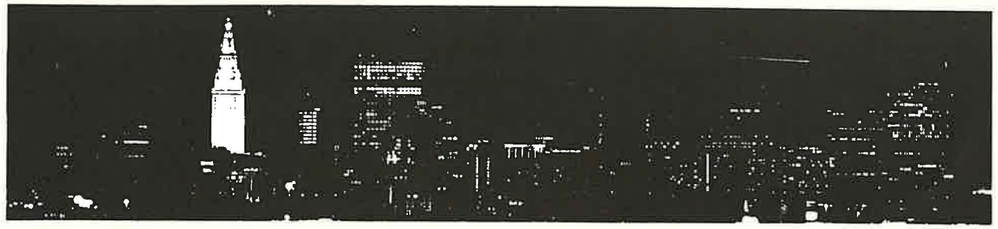
The business meeting was called to order at 7:30 p.m. by President Bill Luecht with 24 members present. The first order of business was the election of officers for the upcoming year for the CIC.

The results were as follows:

President - Ross Holloway
Vice President - Pete Arnold
Secretary - Rick Miller
Treasurer - Terry Miller
Director - Norman Heiselman

Following the election, Mr. Gary Kent addressed the members present concerning the current activities of the ISPLS, concentrating on the ISPLS dialogue with the Board of Registration and the State Recorder's Association. Following this, Mr. Doug Herendeen discussed the current status of the State Convention to be held later on in this January. After this discussion, outgoing President Luecht adjourned the meeting.

By Michael DeBoy, Chapters Committee.



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Highlights of 1989 ISPLS Convention

January 25-28, 1989, Indianapolis

An excellent 37th annual state convention was held at the Sheraton Meridian Hotel in Indianapolis and hosted by the Central Indiana Chapter. The attendance list contains 182 registrants and does not include the many spouses that also were involved with alternate activities.

After two days of Interesting technical sessions on Thursday and Friday, an overflow crowd on Saturday attended a repeat workshop on the new Indiana Survey Standards which had previously been held in the fall.

The technical sessions included: small business management (Robert Gastineau); surveyor's liability (Ron Hansell); developing a business plan (SCORE); history of the county surveyor (Doug Lechner); certification of technicians (Anne Glasgow); horizontal property regime (Roger Fine and James McKinney); and broken pieces of old China (David Best). Charles Tapley, of Iowa, was the luncheon speaker on Friday and discussed "This Business of Surveying".

Twenty-four exhibitors filled the exhibit hall and provided outstanding opportunity to view and discuss their services and wares.

The Convention Committee is to be congratulated on executing another very successful convention. They were:

Douglas Herendeen, Chairman
Gary Kent, Assistant Chairman
Jerry Carter, Program
John Silnes
Tom Daugherty
Bill Luecht, Registration
Art Kaser
Terry Miller, Exhibits
Norm Hiselman
Joe Blevins, Arrangements
Don Borches
Rick Miller
Jake Hall, Finance
Gloria Hall, Spouse
Patty Blevins
Wanda Carter

Out-going President John Schneider made several awards. He recognized, with presidential citations, Jake Hall, Gary Kent, and Wes Day, for their efforts during 1988. The coveted Bridge Award was presented to Pat Cunningham for outstanding and continuing contributions to ISPLS.

INDIANA SOCIETY OF PROFESSIONAL LAND SURVEYORS, INC.

John Schneider, ISPLS president, presents distinguished service awards to Jake Hall, left, Gary Kent, and Wes Day.

Gary Kent, left, Pat Cunningham, and Jake Hall demonstrate some equipment to Ruthann Sumpter, Marion, Indiana, the public member of the State Registration Board.

Exhibit hall was full of companies offering surveying and computer equipment, supplies, and/or services.

Busy exhibit coordinator.

Dianne Bennett, ISPLS office secretary.

Roger Woodfill and Dianne Bennett tend the ISPLS booth.

Gary Kent, assistant chairman, left, and Doug Herendeen, chairman, flank Charles Tapley of Iowa.

Bill Luecht, CIC president; John Schneider, ISPLS president

James McKinney and Roger Fine awaiting their turn.

Pat Cunningham receiving accolades while being presented the Bridge Award.

SCORE

Doug Lechner

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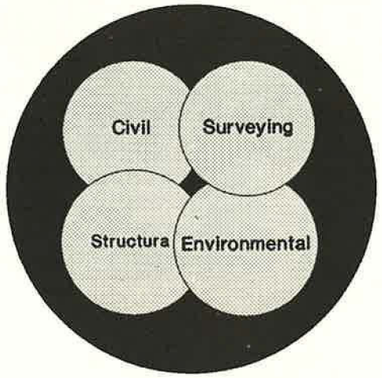
Anne Glasgow

David Best

SURVEYING ENGINEERING OR ENGINEERING SURVEYING?

Robert W. Foster, PE, PLS, Framingham, Massachusetts



Civil Engineers who remember the semester or two of surveying education they received in their undergraduate curricula may be puzzled by the surveying terminology they are hearing these days.

Whereas some in the surveying profession refer to themselves as *land surveyors*, there are others who decry a designation other than *surveyor*. Even more confusing is use of terms like *engineering surveying* and *surveying engineering*. Does the reversal of adjective for noun and noun for adjective indicate a substantive, or a subtle difference in emphasis?

The move from *land surveyor* to *surveyor* is not a retreat from specificity as much as it is an effort at generalization. The argument has been made that surveyors as licensed in most jurisdictions are concerned with more than just the land. In performing hydrographic surveys the surveyor is dealing with something other than land. In aligning sensitive optical equipment inside an industrial building the surveyor cannot even see the land, and in much construction layout the surveyor is not in contact with the land.

The American Congress on Surveying and Mapping (ACSM) in its reorganization in 1981 chose to call its new member organization (as a replacement for the old Land Surveys Division) the National Society of Professional Surveyors - not the National Society of Professional *Land* Surveyors.

The distinction between engineering surveying and surveying engineering is more a matter of semantics than of scope of services. An engineering survey as defined in **Definitions of Surveying and Associated Terms** published jointly by ACSM and the American Society of Civil Engineers in 1978 is a survey "...executed for the purpose of obtaining information which is essential for planning an engineering project or development and estimating its cost..."

The term *surveying engineering*, on the other hand, recognizes surveying as an engineering discipline. In other words surveying is to engineering as orthopedics is to medicine. The concept is not universally accepted by surveyors whose practice is largely boundary ("...made to establish or re-establish a boundary line on the ground..."), or cadastral ("...related to land boundaries and subdivisions, made to create units suitable for transfer or to define the limitations of title..."), or land ("The process of determining boundaries and areas of tracts of land...") surveying. But surveyors with a broader application of their practice, who perform data collection surveys, topographic surveys, engineering surveys, construction layout surveys, mining surveys, control surveys, and geodetic surveys - as well as boundary, cadastral, and land surveys - are beginning to understand that their modern formal education is comparable to an engineering education and that the rigorous application of mathematics and scientific principles in their daily operations, and analysis of the results, qualifies their activities as engineering.

The Board of Direction of the American Society of Civil Engineers recently adopted a definition of surveying engineering (ASCE News, August 1988), which is an expansion of the one printed in 1978 in **Definitions of Surveying and Associated Terms**. In part, the new definition says "Engineering surveying may be regarded as a specialty within the broader professional practice of engineering and, with the exception of boundary, right-of-way, or other cadastral surveying, includes all surveying and mapping activities required to support the sound conception, planning, design, construction, maintenance, and operation of engineered projects. Engineering surveying does not include surveys for the retracement of existing land ownership boundaries or the creation of new boundaries."

This definition may not be inconsistent with the constraints placed upon engineers in the practice of surveying as found in many state statutes regulating engineering and surveying. For instance, the Massachusetts statute, Chapter 112, Section 81D states that the "Practice of engineering...shall not include...the practice of surveying, except that a registered professional engineer qualified in the branch of civil engineering may perform land surveying incidental to his engineering work for locating or relocating any of the fixed works embraced within the practice of civil engineering excluding property line determination." The assumption is made that the "locating or relocating of any fixed works" is a euphemism for the planning and construction of the engineered project.

The real problem with the new ASCE definition of surveying engineering is that it implies that the civil engineer can actually perform the more arcane elements of surveying intended to support construction of the engineered project. Given the paucity of surveying education in most undergraduate civil engineering curricula, the implication is more optimistic than realistic. The civils would do well to leave the surveying to the professionals whose specialty is surveying. The new breed of surveying engineers are graduating from programs like those of the University of Maine at Orono, Cal State at Fresno, and Iowa State University, which are granting Bachelor of Science degrees in Surveying Engineering. There are programs like those of the University of Florida, Ohio State, Purdue, and Ferris State College (Michigan) which are granting B.S. degrees in Surveying, or Surveying and Mapping, or Geodetic Science. Some schools, like Oregon State University are granting a civil engineering degree with a surveying option. There are B.S. degrees in Engineering Technology with Survey Option at schools like Bluefield State College in West Virginia and East Tennessee State University.

Like many other disciplines surveying has become specialized. The requirements for surveying expertise have become demanding, the educational preparation rigorous. High land values, greater need for high-precision data, and rapidly-changing techniques for positioning and data gathering have combined to define surveying as a discrete engineering discipline rather than one more application of mechanical measurement. Our educational institutions have begun to recognize this reality; so has the surveying profession. The civil engineering universe should acknowledge that surveying is no longer a skill that can be applied from time to time by the civil who remembers how to set up a theodolite from his undergraduate days. Soon our registration laws are going to have to deal with the situation, too, but that is another subject altogether.

Robert W. Foster is Executive Vice President of Schofield Brothers, Inc. of Framingham, MA. Foster is also Treasurer of ACSM and serves on the Board of Direction of that organization. Additionally, he is Chairman of the ACSM Public Relations Committee and NSPS Professional Liability Committee.

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Member News

ISPLS member, Tom Daugherty, of the Greater Greenwood Toastmasters Club won the Area 2 speech contest. He was to compete against Toastmasters from east central Indiana and western Ohio in April.

Professor Howard Turner, who taught in Purdue's Surveying and Mapping Area for five years, has moved to the University of California at Pomona where he is involved in developing a professional educational program for surveyors.

Completed Careers

Robert G. Silander was the owner of Silander & Son, a land surveying firm in Alsip, Illinois. He was a registered land surveyor and professional engineer in Illinois and a registered land surveyor in Indiana and Wisconsin. He was a life member of the Illinois Registered Land Surveyors Association, the Indiana Society of Professional Land Surveyors, and the American Congress on Surveying and Mapping. He is survived by his wife Ruth and two sons who are surveyors associated with the firm. He died November 27, 1988.

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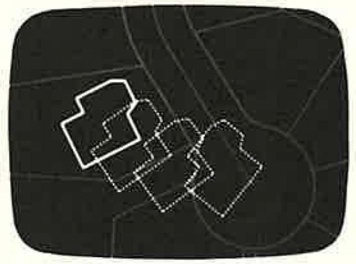

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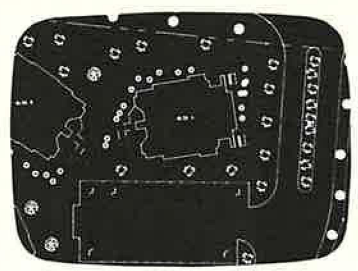

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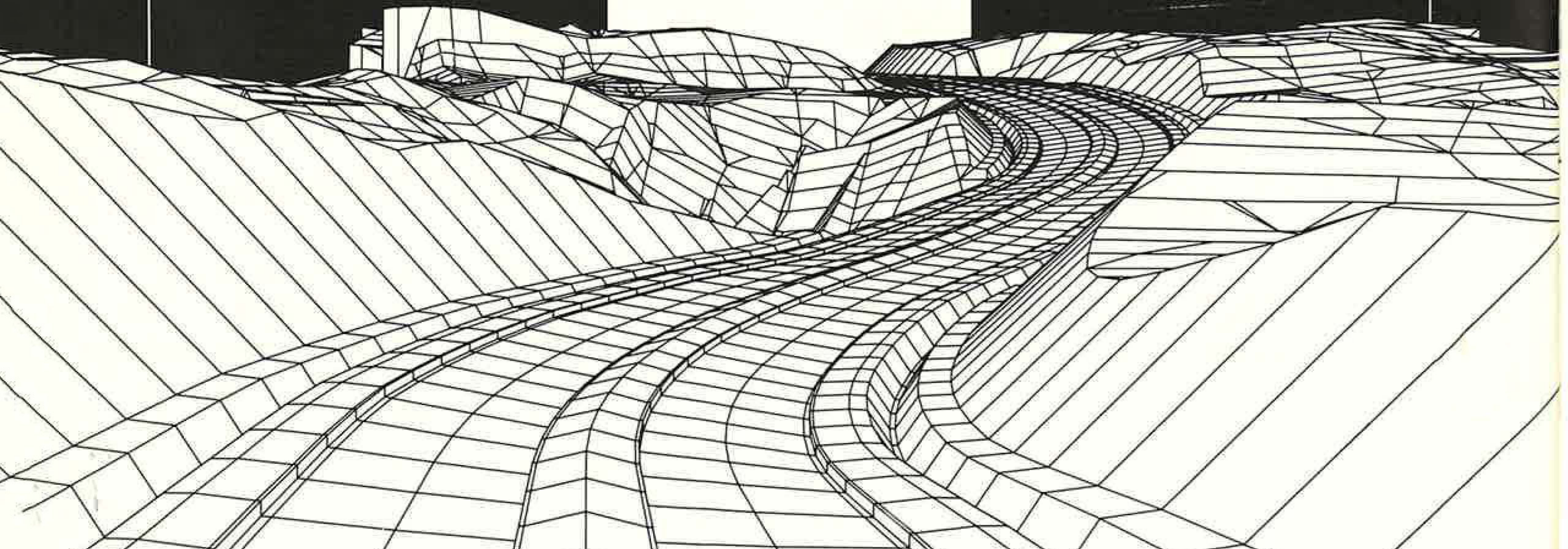

Report of County Surveyors Association

At the 1989 Purdue Road School the following were elected as officers of the County Surveyors Association:

President - E. Don Bengel
North Vice President - Larry Fisher
Central Vice President - E. R. Gray
South Vice President - Rollyn Blankenbeker
Secretary-Treasurer - John McNamara

These people will serve during 1989 and 1990.

During our business meeting, there was much discussion concerning SB16, the so-called wetlands bill. While we felt that there may be a national problem of losing wetlands, we do not see this bill as correctly answering the problem. It simply imposes red tape on the drainage boards and/or county surveyors that will make some worthwhile drainage project almost impossible to implement.

John McNamara reported on the progress of the HERPICC Erosion Control Task Force. He, Don Bengel, and Mike Spencer are three County Surveyors on the Task Force. The Task Force has met three times and is now working on the third draft of a model erosion control ordinance that can be used by the Indiana counties as an example for their use.

There was also a report on the progress of a county-wide GPS program in the counties of Marion and Hamilton. As we approach the 1990's, we as county surveyors need to be in a position to be open to this type of section corner control program. Perhaps it could be paid for by an increase in the now $1.00 fee that the Section Corner Perpetuation Fund collects from each deed recorded by the County Recorder.

By John McNamara, Secretary

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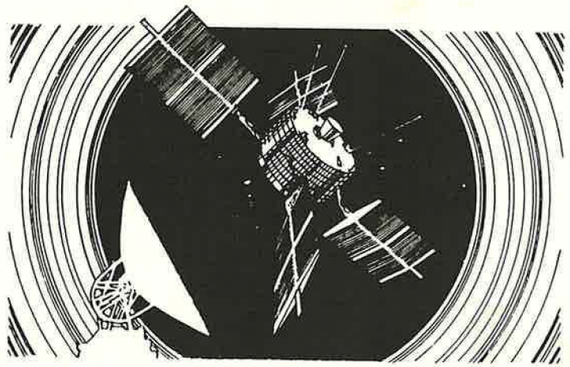
ENTERING THE ERA OF SATELLITE SURVEYING

Robert W. Foster, PE, PLS, Framingham, Massachusetts



Fifteen years ago a few futurists in the surveying engineering community were predicting that the next big breakthrough in surveying technology would be developed of inertial positioning systems. The United States Navy had learned to navigate beneath the Arctic ice caps by inertial systems. If it were possible to steer a submarine out of the docks and into the dark undersea, keeping track of position to return days, weeks, or months later and "zero out" at the same dock, why not chart ones path through the woods the same way? No need to cut line, turn angles, or drag tape.

Surveyors have become accustomed to rapid technological changes in their profession. With the advent of computers and electronic distance measuring, the next logical step seemed to be these inertial systems. The technology has been developed; all that was needed was some minor engineering to produce a smaller black box - one that could be carried overland from point to point. In fact this was accomplished; prototypes were built and tested, reports were written, surveyors were excited.

In 1989 no one seriously expects to see inertial technology in a practical surveying application. The global positioning system (GPS) revolution has happened instead in a stunning example of technology overtaking technology. The research and development folks have surprised us all be capturing satellite signals from the Government's NavStar constellation, processing data through black boxes the size of the family VCR, and producing coordinates with millimeter accuracy. All that is lacking is a around-the-clock operation.

The Government has changed horses from the troubled Shuttle program to the Titan 11 rockets to complete its NavStar satellite array; but even as this happens development of the GPS system continues. Before the surveying engineering profession has had a chance to adapt to the new technology the concept of kinematic GPS surveying is rapidly being developed. By the time GPS becomes a normal process of positioning and measuring for surveyors, we will be carrying the receivers from point to point in mid operation.

The questions going the rounds of the surveying engineering profession now have more to do with how we will apply the new technology, and pay for it, than when we will use it. Many believe that GPS will be practical only for large-project positioning and control. Some in the profession whose primary activity is boundary work see GPS as an exclusive tool of the geodesist. But these people may be forgetting that in the early 60s surveyors were apt to consign electronic distance measuring technology only to large international projects like the St. Lawrence Seaway Project, or control surveys in the Middle East where the distances were vast, the sight lines clear, and the oil money endless. Computers were the equipment only of the big engineering firms and accessible to surveyors only through service vendors. Our experience of the past quarter-century ought to have taught us that the equipment manufacturers and software writers will find ways to make new technologies affordable and useful for even the most modest surveying applications.

As generalist surveyors begin to use GPS we will find that there are more applications than appeared in our early imaginings, not the least of which will be straightforward boundary surveying in which a random traverse is first constructed around a site. While we are doing that we might as well tie it in to a local plane coordinate system, or NAD27, or NAD83, or WGS84, or all of the above. For the first time the result of any garden variety boundary survey can be tied to the earth's surface and need no longer be the floating island that culture and custom have accepted for so long.

In the approach to the GPS age in surveying we may be doing a better job of planning for its impact on the profession than we have done with past technological advances. While computer hardware and software were being developed for other industries, surveyors were finding applications through a trial and error adaptation. electronic measuring devices have become standard equipment in the surveyor's inventory but, as with computers, it has happened without a great deal of institutional planning or preparation in the profession. The advent of GPS has received more attention. There have been papers and demonstrations on the subject delivered at state surveyor conventions; the American Congress on Surveying and Mapping recently held a special session on "GPS Surveying-Applications and Processing", the American Society of Civil Engineers presented its four-day conference "Engineering Applications of GPS Satellite Surveying Technology" last May in Nashville, and is offering a specialty conference titled "Surveying Engineering '89,, Managing New Technologies" May 18-20 in Denver (this conference will concentrate on the cost effectiveness of satellite surveying, contracting for services, "techniques for the next decade", and selection of hardware and software "for technical and business applications").

Yet surveyors will discover that there are a number of questions still to be answered in the application of GPS. Will the training of operators present the same difficulties encountered in the adoption of CADD systems, in which the cost of training often equaled the cost of the system? Will savings in time and manpower be passed on to clients, or will the typically thin profit margins in the surveying business see some enrichment? Will users of GPS technology adopt appropriate quality control devices, in recognition of new liability exposure, or will they assume that greater precision always produces more reliable results?

Stand by for the dramatic, invigorating, exciting, perilous entry of the surveying engineering profession into the GPS era.

Robert W. Foster is Executive Vice President of Schofield Brothers, Inc. of Framingham, MA. Foster is also Treasurer of ACSM and serves on the Board of Direction of that organization. Additionally, he is Chairman of the ACSM Public Relations Committee and NSPS Professional Liability Committee..

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Member: A member of this Corporation shall be limited to Registered Land Surveyors in good standing with the Indiana State Board of Registration for Land Surveyors. A member shall be eligible to vote, hold office and to participate fully in the affairs of the Corporation.

Junior: A Junior Membership will be granted to those non-registered individuals who are endeavoring to make Surveying their chosen career. A Junior Member is entitled to vote and participate fully in the affairs of the Corporation but shall not be entitled to hold office.

Asscoiate: An Associate Membership will be granted to anyone who is associated or affiliated with the Land Surveying profession but is not otherwise pursuing registration or any non-resident who is registered and in good standing as a Land Surveyor. An Associate Member is not entitled to vote or hold office but will receive Newletters and be invited to participate in meetings.

Student: A Student Member shall have the same eligibility requirements as those of a Junior Member, except that this class of Membership shall apply for a period of four (4) years only. A Student Member is not entitled to vote or hold office but will receive Newsletters and be invited to participate in meetings.

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VU News, Jan. 8-Jan. 14, 1988, Vincennes University

Land surveyors establish scholarship endowment

THE INDIANA SOCIETY OF Professional Land Surveyors is establishing an endowment at VU to fund a scholarship for a second-year student in Surveying Technology.

Daniel Pusey, chairperson of the ISPLS Scholarship Committee, met with Dr. Phillip M. Summers and Arthur Hasse, chairperson of the Surveying Technology department, to establish the endowment created by gifts from members of the Society. Pusey is from West Lafayette and is a civil engineer and land surveyor with the Purdue University Physical Plant as a facilities planning and construction engineer.

Pusey saw the culmination of a two-year project to establish the scholarship in memory of Peggy Archer, former secretary of ISPLS, by turning over more than $5,000 to Dr. Summers to establish the endowment with the VU Foundation.

The grant will go annually to a student at the end of his or her first year who has maintained high scholastic marks and is a U.S. citizen. Only the interest will be used for the grant each year; thus, the Society will continue to seek funds to raise the amount to be given to each recipient.

Haase noted that graduates had at least four offers for positions following May graduation. Currently there are at least 12 positions for which graduates are being sought, but none are available, he said. Ample job opportunities is the reason. The Placement Office and Surveying Technology department cooperate in keeping files active as new positions are made known to graduates who might be seeking job changes.

Last year's graduates average $16,156 annually; however, that total is misleading, Haase explained, as those persons who chose to relocate following graduation earned from $20,000 to $24,000 annually, but those who returned to their hometowns where jobs were not as plentiful were often forced to accept lower paying jobs.

Haase also pointed out that women and minorities can move up very quickly in the field because those numbers have been limited in the past, and they are not readily available now.

Surveying is an outdoor occupation, and the eight women who have previously graduated from the program are doing extremely well professionally.

Peggy Archer, for whom the scholarship is named, was secretary for ISPLS from 1976-87. She often helped students with arrangements and finances at the Society's conference.

ENDOWMENT ESTABLISHED – Daniel Pusey (left), West Lafayette, chairperson of the Indiana Society of Professional Land Surveyors, heads the Scholarship Committee for the Society. In that post he met with Dr. Phillip M. Summers (center) and Prof. Arthur Haase, department chairperson for Surveying Technology at VU, to establish the ISPLS/Peggy Archer Scholarship Endowment for students who are studying Surveying Technology at VU. The endowment has been established for more than $5,000, and the group hopes to reach $10,000. Peggy Archer was secretary of ISPLS from 1976 until 1987, and she often helped students with the Conference arrangements and finances.

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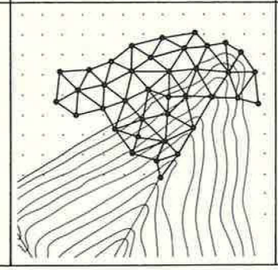

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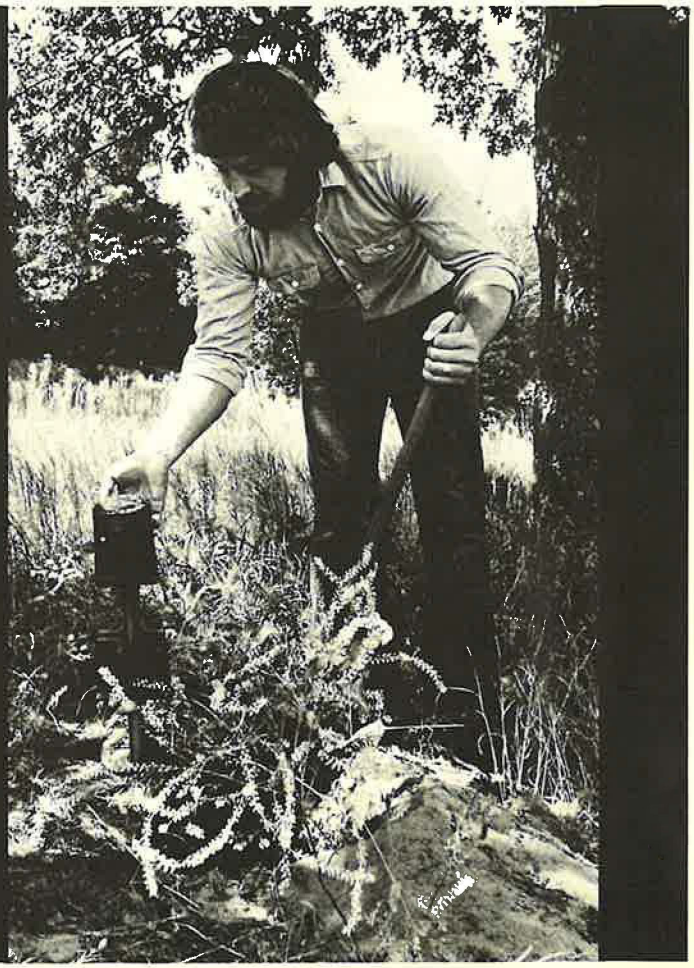

INDIANA SOCIETY OF PROFESSIONAL LAND SURVEYORS, INC.
5355 East 38th Street, Suite 209
Indianapolis, Indiana 46218
317-546-0188

June 22, 1989

Members
Indiana Society of Professional Land Surveyors

Dear Member:

During the legislative session just ended, an attempt was made to void that portion of the Indiana Administrative Code which contains the entire set of Indiana Survey Standards.

On second reading in the House of Representatives, Representative Ray Richardson (R-Greenfield) amended Senate Bill 79 (which dealt with regulating Plumbing contractors) in a manner which would have immediately voided Rule 13. Members of ISPLS made an effort, but failed to defeat the bill on third reading in the House. The vote was 63-34. Enclosed is a sheet identifying those representatives voting for and against the bill. A vote **against** the bill was a vote **for** the survey standards.

Contact was made with the original sponsor of the bill, Senator Harold Wheeler (R-Larwill), and he promised to dissent on the amendment thereby sending the bill to conference committee. The conference committee was composed of Senator Wheeler and Representative Richardson, together with Senator James Lewis (D-Charlestown) and Representative Vern Tincher (D-Riley).

Several members of ISPLS and a member of the Registration Board testified at the conference committee hearing. Later, in a hastily called conference committee meeting not attended by any members of ISPLS, the committee voted to amend the bill in a different manner. The new amendment provided that a surveyor would not have to prepare a survey plat nor record a survey if the client did not desire. It also exempted the Indiana Department of Highways and any political subdivision or state agency from monumenting property lines and from all requirements of Rule 13 for land survey work involving road, highway, street, alley or bridge projects begun prior to June 1, 1989. Despite these proposed changes, under the new amendment Rule 13 would still have been voided effective July 1, 1990.

A meeting was held with Mr. Fred Glass, one of Governor Bayh's Administrative Assistants in order to encourage the Governor to veto the bill. The next day; however, a meeting with Senator Wheeler revealed the fact that all amendments dealing with Rule 13 had been dropped. A subsequent letter from Representative Richardson to the Registration Board (copy enclosed) indicates that the amendment was finally dropped because it was not germane to the original plumbing bill to which it had been attached.

As stated in his letter, Representative Richardson has promised to introduce legislation next session to void Rule 13 by July 1, 1990. He notes that his primary problem with Rule 13 has to do with the "uncertainty of where to begin a survey" and he has stated that a surveyor should not have to use a section corner if "he doesn't want to".

ISPLS is implementing its *Minuteman* program which was outlined to the membership at the annual meeting in January. You will soon be hearing more on *Minuteman.* Additionally, the Standards and Government Affairs Committees and a special ad hoc committee are currently working on plans for an August 17-18 Registration Board hearing on Rule 13.

I suggest contacting your senator and representative(s) regarding their support, or lack thereof, in the third hearing vote on Senate Bill 79 in the House of Representatives and encouraging them to support Rule 13 in the next session.

Sincerely,

INDIANA SOCIETY OF PROFESSIONAL LAND SURVEYORS, INC.

Gary R. Kent, L.S.
President

P.S. Recordation of surveys has been made a part of the Indiana Statutes by virtue of the passage of Senate Bill 427 this session. A copy of the portion of S.B. 427 dealing with survey recordation has been included for your information.