

# SURVEYOR

# HOOSIER



VOLUME 7  
NUMBER 2  
SPRING 1980



## Indiana Society of Professional Land Surveyors, Inc.

Affiliated with the American Congress on Surveying and Mapping



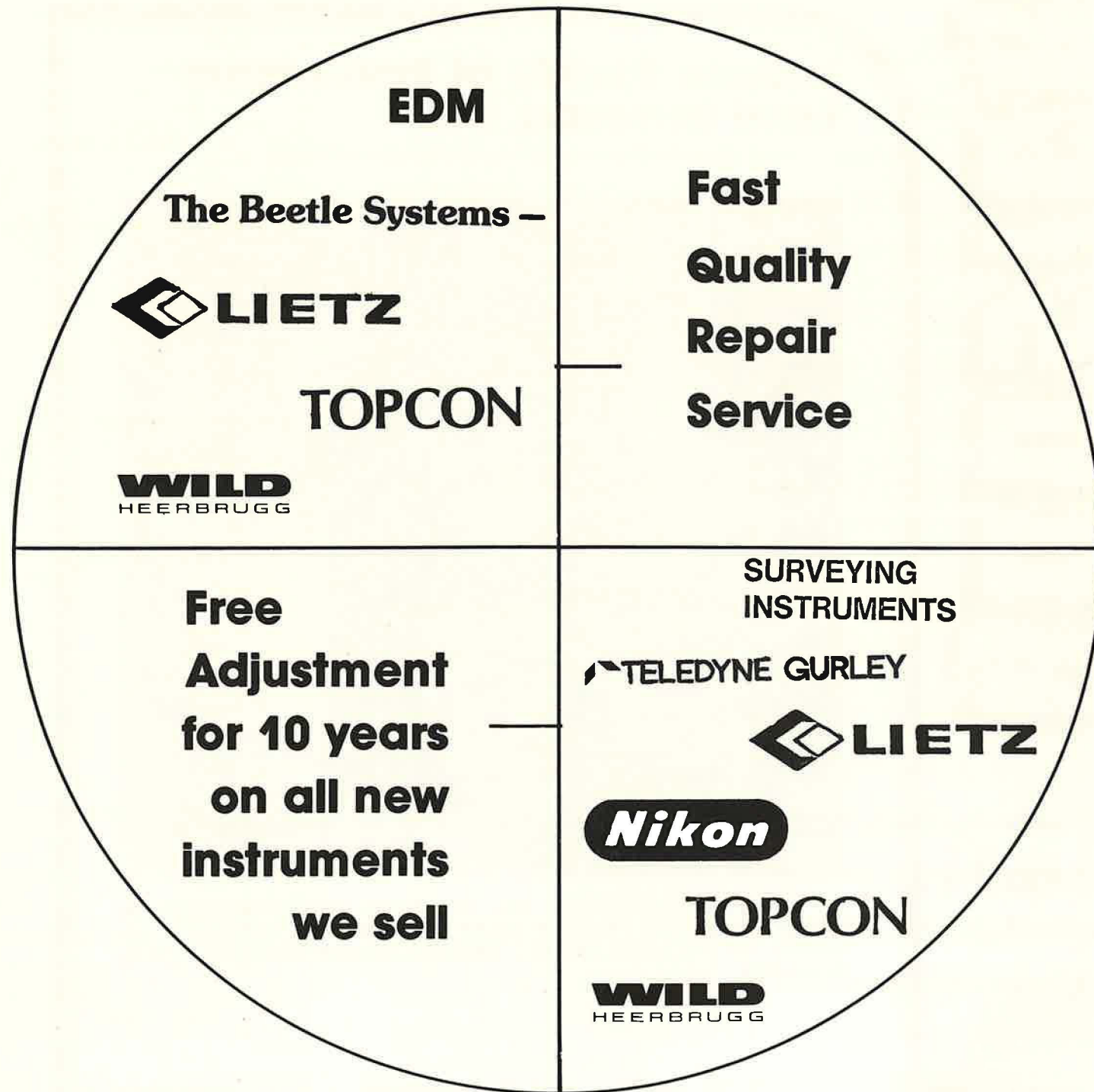
JOHN McENTYRE RECEIVES THE 1980 ACSM LAND SURVEYING EXCELLENCE AWARD FROM STANLEY SVATORA OF TECHNICAL ADVISORS, INC. AT ACSM AWARDS MEETING, MARCH 1980, IN ST. LOUIS, MISSOURI.

- EXCELLENCE AWARD TO McENTYRE
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# HOOSIER SURVEYOR

VOLUME 7, NUMBER 2, SPRING 1980

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COVER: John G. McEntyre, West Lafayette, Indiana is professor of land surveying at Purdue University. On March 12, 1980, he received the ACSM Land Surveying Excellence Award at the St. Louis, Missouri. The Award consists of a plaque and \$500 honorarium contributed by Technical Advisors, Inc., Wayne, Michigan. The letter of nomination by ISPLS is contained in this issue.

### EDITOR'S NOTE:

Deadlines for copy for various planned issues of the HOOSIER SURVEYOR are as follows:

Winter issue - January 31  
 Spring issue - April 30  
 Summer issue - July 31  
 Fall issue - October 31

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Kenneth S. Curtis  
 Editor

Gary Kent  
 Associate Editor



# THE PRESIDENT'S PAGE

## PRESIDENT'S MESSAGE

By C.A. Budnick

In my initial message, I spoke of the many challenges that we face. Now I would like to focus in on just one of those challenges - education.

I believe that education - the lack of it - is the root cause of many of our problems today, and will become even more critical in the coming decade.

Historically, surveyors have received their technical training by employing a combination of methods: Formal education through colleges and universities; "on the job" training; and continuing education through seminars and workshops.

Now, let us examine formal education. Looking back ten or twenty years ago, most nationwide formal surveying education was taught as a part of the civil engineering curriculum and consisted of a course or two in plane surveying with some field lab sessions. Many colleges and universities also offered "Summer Surveying Camp" which gave the student an opportunity to apply his classroom knowledge to real surveying problems. The deficiency in these programs as seen from today's perspective is that surveying was treated as a sub-branch of civil engineering and therefore was heavily oriented toward the engineering needs of the day (i.e. the fifties and sixties developed highway surveyors).

Today, "Land Surveying" has become recognized as a separate course of study and we in Indiana are very fortunate to have an excellent four year degree program at Purdue, and a fine two year degree program at Vincennes University.

I believe that our future education needs will require building on today's foundations and laying some new ones. First, surveying education in the future should put more emphasis on the control, construction, engineering, geodetic, hydrographic, photogrammetric and mining aspects of surveying. The "Registered Surveyor" of the future should be required to demonstrate total proficiency in all of these areas as well as "Land Surveying." If we fail to fill this gap, others will assume the responsibility.

Second, university curriculum should include several courses in communications (speech and writing), and management. Because of their technical qualifications, graduates of a surveying curriculum must assume a supervisory position very quickly after graduation. With the addition of these courses, graduates would be better prepared to fulfill employer's needs and to communicate with employees and the public more effectively.

Third, university curriculum should be expanded to include a "Co-op" program whereby students would alternate between periods of work and study. This system would allow more students to work their way through school and would result in graduates that are better equipped to fulfill the needs of the industry.

Fourth, "on-the-job" training methods should be replaced by a formal technical training program. Manuals and teaching methods should be developed that will insure uniformity and an end product that is both affordable and useful to practitioners. Evening or Saturday courses could be offered through local colleges and universities or through the statewide Indiana Vocational Technical School. As "Liability Claims" increase both in frequency and amount, it is becoming extremely clear that we should have "Certified" technicians performing our field and office functions.

Fifth, "Continuing Education" should become mandatory. In today's ever changing technological world, we must keep pace by constantly updating our knowledge and procedures. The only way to insure that this will happen is by making continuing education a condition for maintaining a surveying license. Furthermore, by periodically culling the marginal practitioners, the public would be better served and the surveyor's image would be enhanced.

In summary, many of the challenges we face in this decade can be overcome through better education. We can prevent others from taking over responsibility for surveys outside the scope of "Land Surveying", by emphasizing all disciplines of surveying in our formal education programs. We can improve our image and influence others by improving our communication skills. We can develop leaders by improving our management and supervisory skills. We can produce better trained graduates through a survey degree co-op program. We can lessen our liability and increase our efficiency by training and "certifying" technicians to a known level of competency. Finally we can improve the profession as a whole and thereby enhance our public image by requiring mandatory continuing education as a condition for maintaining a surveying license.



Charles Budnick  
President



## IMPORTANT DATES TO REMEMBER

**October 7-10, 1980**

Fall Technical Meeting of American Congress on Surveying and Mapping, Convention Center, Niagara Falls, New York.

**October 16-17, 1980**

Fall Workshop, Indiana Society of Professional Land Surveyors, McCormick's Creek State Park, Spencer, Indiana (Topic to be announced)

**January 28-30, 1981**

1981 Annual Meeting of Indiana Society of Professional Land Surveyors, Holiday Inn, (I-65 and U.S. 30) Merrillville, Indiana.

**February 22-27, 1981**

ACSM-ASP Annual Meeting and Exhibit, Washington Hilton Hotel, Washington, D.C.

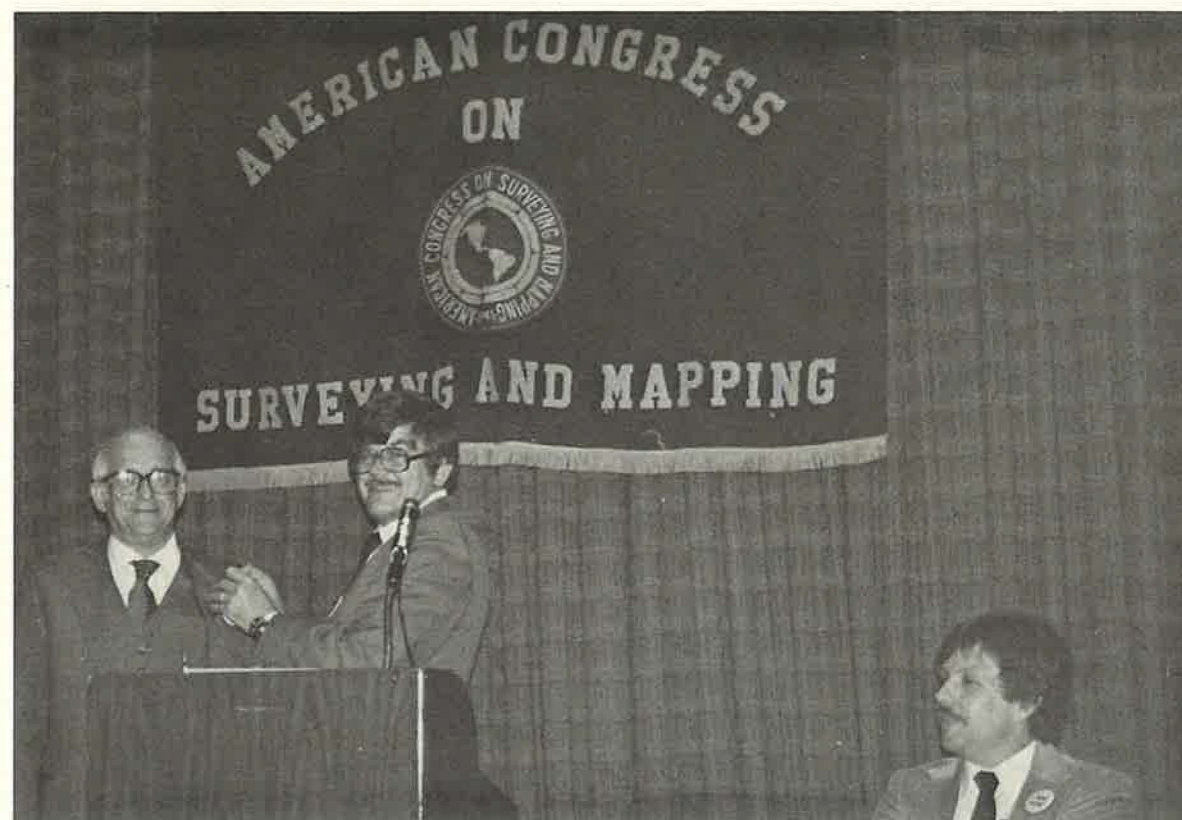


Charles A. Budnick, Noblesville, is pictured with Albert McConahay, new vice-president, as he presided at the first new board of directors meeting in January 1980. This picture was originally intended to be on cover of the last issue.

# A.C.S.M. ANNUAL MEETING HIGHLIGHTS



Roger Woodfill, right, past-president of ISPLS and current ACSM delegate from ISPLS, receives a presidential citation from ACSM president, Urho Uotila, for his work last year as chairman of the ACSM Ad Hoc Committee on Accreditation of Educational Activities in Surveying. Roger was also recently elected a director of the Land Surveys Division, ACSM, representing area 4 which includes the states of Indiana, Illinois, Ohio, Wisconsin, and Michigan. It should also be noted that Roger is the Republican party nominee for Representative of the Indiana's 57th District for the General Assembly. His home is Lawrenceburg, Indiana.



Outgoing ACSM president, Urho Uotila, pins the new president's pin on incoming ACSM president, Edwin Brownell, left, as president-elect Joel Morrison, right, looks on.



# 1980 ACSM Land Surveying Excellence Award Winner



The 1980 ACSM Land Surveying Excellence Award was presented to John G. McEntyre, L.S., P.E., of West Lafayette, Indiana, at the ACSM Business and Awards Meeting during the ACSM-ASP Spring Meeting held last month at the Chase Park Plaza Hotel, St. Louis, Missouri. Professor McEntyre received an Award plaque and a \$500.00 honorarium contributed by Technical Advisors, Inc., Wayne, Michigan. He was selected for the Award by the ACSM Land Surveys Division Awards Committee chaired by Roy Minnick (CA). In addition to Minnick, the Committee members were: F. Marshall Fulkerson (ID), Paul W. Lamoreaux, Jr. (CA), Elmer J. Petersen (MN), Ferrell J. Prosser (SC), and Donald A. Wilson (NH).

In support of its nomination of John McEntyre, the Indiana Society of Professional Land Surveyors wrote:

John G. McEntyre, professor of land surveying at Purdue University, is immediate (1978) past-chairman of the Land Surveys Division of the American Congress on Surveying and Mapping. This position was reached after many years of devotion and commitment to the profession he loves. It is hard to conceive of any land surveyor in the United States who has contributed more to the development of the professional aspects of land surveying. He strongly believes that the salvation of this profession, in the years ahead, rests on a thorough and broad educational base for practitioners. To this end he has devoted his professional career. A citation of the activities of this unique individual will indicate his intense devotion.

John McEntyre claims Topeka, Kansas, as his birthplace and hometown. He was born on November 3, 1920. After high school, he attended Kansas State University in Manhattan where he earned a B.S. (with honors) and an M.S. in Civil Engineering in 1942 and 1948 respectively, the latter with a major in structures. He soon realized that his major interests were in surveying and went to Cornell University in order to study surveying under Prof. Arthur J. McNair. In 1954, he was awarded the Ph.D. degree from Cornell. His dissertation involved "land surveying and land registration." He was probably the first Ph.D. in the United States to have majored in land surveying.

After returning to Kansas State University and teaching there in civil engineering until 1963, he accepted a position as a consultant-advisor to the organization of the Cadastral Survey of Afghanistan on a USAID project. This assignment lasted two years and in the next two years, 1965-67, he stayed

on in Afghanistan, but this time as an Education Specialist advisor to Kabul University in Kabul. In this capacity, he acted as an advisor in the area of civil engineering and surveying. He has many fond memories of his associations with the Afghans. He can be justly proud of his contributions to that developing country and as a representative of the United States during this four year period.

On his return to the United States he joined with Professor Kenneth Curtis at Purdue University in the development of one of the first four-year professional curricula leading to a degree in land surveying. In the past seven years, 103 students have been graduated and currently 20-25 students complete their degree each year. It is difficult to assess the impact that this program is having on surveying education and the professional status of the land surveyor, but reports indicate the contributions are becoming more evident daily. Several other states have initiated such programs based on Purdue's success.

The courses John teaches are the backbone of the program. These are land survey systems, property surveys and descriptions, legal aspects of surveying, subdivision planning and design, and summer surveying field project. He has also developed several elective mini-courses in land parcel identifiers, coastal boundary mapping, and unwritten rights. Although most of his teaching has been at the undergraduate level, he has been sought out by several graduate students who have wanted to study under him.

The Purdue land surveying program is under the administration of the School of Civil Engineering. John has consistently carried a heavy student counseling load and was honored to receive the 1978-79 Ross Judson Buck '07 Memorial Award as the "Best Counselor in the School of Civil Engineering."

Along with Professor Curtis, he has conducted several one-day workshops each summer at 8-10 major cities around Indiana. His topics have been *Retracement and Perpetuation of Corners in Indiana*, *Law and Surveying*, *Establishment of Boundaries by Unwritten Methods*, and *Land Parcel Identifiers*. With respect to the first three topics he has written manuals which are available through the Indiana Society of Professional Land Surveyors (ISPLS). Each manual has had to be reprinted because of the demand for them.

John serves as the faculty advisor for the ISPLS-ACSM Student Chapter and he was recently invited to be an associate member of the newly-formed land surveying honorary, Lambda Sigma. In addition, he is a member of several other honoraries including Chi Epsilon (civil engineering), Tau Beta Pi (engineering), Sigma Xi (research), and Phi Kappa Phi (general).

A list of the papers which he has authored shows his interests and his valuable contributions to land surveying. However, his most important work is the 1978 publication by John Wiley and Sons of his book, *Land Survey Systems*, which will probably be in the library of every land surveyor within a year (or should be!).

Since 1969 he has been a consultant to the Indiana State Board for Registration of Professional Engineers and Land Surveyors. He constructs and grades the professional section of the LS examination, as well as the comity section. He is a registered

## ACSM Excellence Award

engineer in Kansas and Indiana and a registered land surveyor in Indiana. He usually lists "LS, PE" after his name and emphasizes the value he places on each by the order of the listing. He continually attempts to stress that the profession of land surveying is on an equivalent level to engineering.

Aside from his contributions in education, he has also been extremely active in the state surveyors association as a member of several committees, convention program chairman, technical speaker, and officer. In 1974, he served as President of the ISPLS and is regarded as one of the presidents who accomplished much during his term of office. He still contributes, as time allows, especially on the Ethics and Business Practice Committee which is composed of past presidents. In 1975, he received the "Distinguished Service Award" for "outstanding service to the profession of land surveying in Indiana."

At the national level, as immediate past chairman of the Land Surveys Division (1978), John is serving on the Board of that Division. He spent many hours of his time as Chairman (1978) in administering this most important Division which really represents the "grass-roots" land surveyor at the national level. It is obvious, to those who have observed his direction of these activities, that he is a real leader who is making a great deal of progress at a time when there is more activity and problems than ever before.

John received an ACSM presidential citation in March 1979 "in recognition of outstanding services rendered to ACSM and the surveying and mapping profession." He is an ACSM Fellow Member and has served on several ACSM committees including education, continuing education, and publications. He served several years as Chairman of the Publications Committee of the Land Surveys Division and, for four years, supervised the awarding of the "Excellence in Professional Journalism Award" for newsletters. In 1979, he was elected to a three-year term (1979-81) on the ACSM National Board of Direction. He performs all of these assignments with a thoroughness that many others lack. He rarely accepts a job unless he can devote the necessary time to insure its success. His background and experience are very valuable to the Board, and he was chosen by the President to serve on the Executive Committee. John has traveled a great deal as a representative of ACSM. He has been to Massachusetts, Vermont, New York, South Carolina, Georgia, Pennsylvania, Michigan, Illinois, Kentucky, Washington, D.C., among others.

He was discharged from the U.S. Army in 1946 as a 1st Lt. after four years of active service. He kept up his reserve status and retired as a Lieutenant Colonel. While teaching at Kansas State University, he held several summer jobs in civil engineering and surveying which permitted gaining experience in the field. He belongs to a number of professional societies including ACSM, ASCE, ASP, ASEE, NSPE, ISPE, and ISPLS. He has served as President of the Kansas Section, ASCE, and the Tri-Valley Chapter of the Kansas Engineering Society.

John G. McEntyre has been (and is) making substantial contributions to the land surveying profession in the United States. He should be recognized for his continued dedication and professionalism. ●

# ACSM LAND SURVEYING EXCELLENCE AWARD

## RECIPIENTS TO DATE:

1971

<b>Arthur J. McNair</b> Ithaca, New York	<b>Gaines A. Stout</b> Oklahoma City, Oklahoma
<b>James A. Thigpenn III</b> Jacksonville, Florida	

1972

<b>Kenneth S. Curtis</b> West Lafayette, Indiana	<b>Hobart B. Hyatt</b> Anchorage, Alaska
<b>Max A.M. Mehlburger</b> Little Rock, Arkansas	<b>Lamon L. Moody, Jr.</b> Baker, Louisiana

1973

<b>Dr. Daniel Kennedy</b> Rolla, Missouri	<b>John J. McMahon</b> Detroit, Michigan
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1974

**Dr. Clair V. Mann**  
Rolla, Missouri

1975

**Percival "Tom" Sprague**  
Beaver Dam, Wisconsin

1976

**Llewellyn T. Schofield**  
Framingham, Massachusetts

1977

**Edwin R. Brownell**  
Miami, Florida

1978

<b>Carlisle Madson</b> Hopkins, Minnesota	<b>L.G. Sturgill</b> Charleston, W. Virginia
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1979

**F. Henry Sipe**  
Elkins, West Virginia

1980

**John G. McEntyre**  
West Lafayette, Indiana

## REMINDER

Nominations for the 1981 ACSM Land Surveying Excellence Award must be submitted by ACSM Sections and Affiliates to Roy Minnick, Chairman, Land Surveying Excellence Award Committee, 10324 Newton Way, Rancho Cordova, CA 95670, by December 1, 1980. Questions regarding the Award or the nominating procedure should be directed to Minnick.

The 1981 ACSM Land Surveying Excellence Award is scheduled to be presented to its recipient at the ACSM Awards Meeting during the ACSM-ASP Convention to be held at the Washington Hilton Hotel, Washington, D.C., February 22-27, 1981.



# The NCEE Land Surveying Examinations

by Porter W. McDonnell, Jr., L.S., P.E.  
Land Surveying Coordinator, NCEE

NOTE: This article and the preceeding one on the Excellence Award are reprinted from the P.O.B. magazine with their permission.



Porter W. McDonnell, Jr., is the first full-time Land Surveying Coordinator for the National Council of Engineering Examiners, joining the staff in Seneca, South Carolina, on October 1, 1979. He had been in charge of the Surveying Technology program at the Mont Alto Campus of The Pennsylvania State University since 1965. Mr. McDonnell is the author of a textbook, *Introduction to Map Projections*, published by Marcel Dekker, Inc., New York, and was the Editor of *The Pennsylvania Surveyor* for eleven years. In 1974, he chaired the National Surveying Teachers Conference. He has taught at the University of Arizona and Case Western

Reserve University, and was the Product Manager of Surveying Equipment for the Eugene Dietzgen Company. He gained practical experience with his father in Toledo, Ohio, where he became registered. He is a member of the Pennsylvania Society of Land Surveyors, for which he wrote a manual, *Simplified Tables for the Pennsylvania Coordinate System*, as well as ACSM, NSPE, ASEE, and ASCE. He holds B.S. and M.S. degrees from the University of Michigan and has taken graduate courses at Purdue University, Texas A&M, and the University of New Brunswick.

## The Function of the State Boards

All 50 states, plus Puerto Rico, Guam, and the Virgin Islands now have laws requiring the registration of land surveyors. The only objectives are to promote the general welfare and to protect the public (not the profession). The 53 Registration Boards which implement these laws are independent, of course. Because they all deal with similar issues, however, they formed a National Council exactly sixty years ago to promote various forms of cooperation. It was not until 1973 that the National Council of Engineering Examiners prepared a common examination in land surveying. Only 12 jurisdictions used that first exam, but there has been a steady growth in its acceptance. In April 1980 it is expected that 43 of the Boards will use part or all of the NCEE exam.

Because of the differences in boundary law from state to state, the national exam constitutes only 12 hours of the 16-hour examination administered by each Board. Nine states, in fact, use only eight hours of the national exam, leaving more time for covering their own practices.

NCEE reports the scores on its exam to each Board and the Board uses that, in combination with the score on the local exam and the information in the applicant's file, to determine who is to be granted registration as a land surveyor.

The Council's policies and activities are developed by the Member Boards which elect officers and directors, all of whom contribute their services. (They also serve their own Boards without pay, as do the other members.) Land Surveying matters are handled by two committees (20 people) reporting to the Directors. The Council also has a full-time headquarters staff of 15 people, including a Land Surveying Coordinator. The latter position became full-time only last October.

## The Examination

A full description of the NCEE examination is contained in a small booklet *Land Surveying, Typical Questions*, 1979 edition, which may be ordered for \$1.00 from NCEE, P.O. Box 1099, Seneca, S.C. 29678. There are three 4-hour parts, followed by the state exam. The outline of the examination is as follows:

**Fundamentals** of Land Surveying (first day)

Part I, closed book - 100 quickly-answered questions.

Part II, open book - 25 questions, mostly numerical

**Principles and Practice** of Land Surveying (second day)

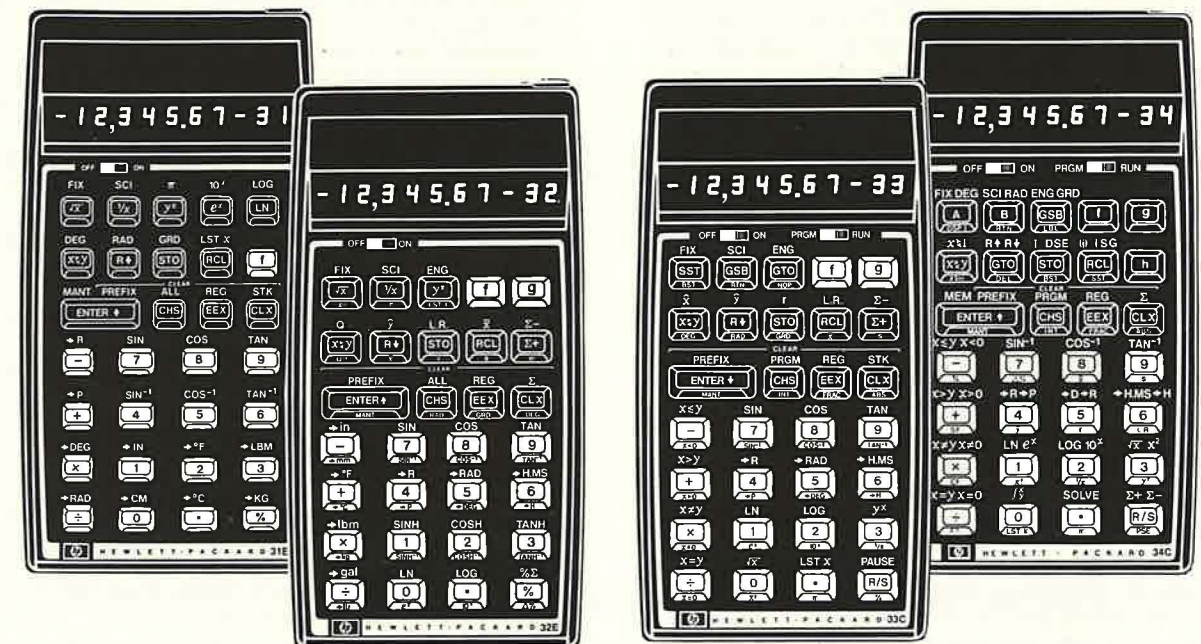
Part III, open book - 10 problems, selected from 11.

Part IV, not prepared by NCEE

Parts I, II, and III are entirely in multiple-choice format. Each of the Part III problems consists of five related multiple-choice questions. Thus the applicant must answer 175 questions in addition to those on the local exam if his Board uses all three parts of the national exam. He records each answer on special answer sheets using a soft pencil to darken a small area corresponding to the selected answer—a, b, c, d, or e.

The *Typical Questions* booklet shows a separate syllabus of topics for Fundamentals (Parts I and II) and Principles and Practice (Part III). Some topics, including property surveys, photogrammetry, and state plane coordinates, appear on both syllabi. When such topics are covered in Part I and Part II, the questions are "fundamental" in nature, requiring a theoretical background but only a modest amount

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Land Surveying Exams

of practical experience. They involve terminology, concepts, calculations, and practical problems of a basic nature that might be encountered in the first year after college. When the same or other topics appear in Part III, a higher level of professional background is expected. The examinee is required to sort out pertinent information in a situation, and use judgement and logic to arrive at conclusions.

Part IV, prepared by the individual Boards, generally departs from the multiple-choice format in order to test skills and abilities not readily covered by machine-scored exams, such as the ability to write a legal description, show some computations and a sketch, or write some short answers. As implied earlier, Part IV also covers laws and practices unique to the state or region.

Sources of Questions

The questions are prepared by registered land surveyors from all parts of the country. Some of the writers are professors, some are with government agencies, and some are in private practice. They are recruited in several ways. Usually, a Board member, a committee member, or the Land Surveying Coordinator will contact a widely-respected surveyor who is known to attach great importance to the registration process and who is thought to be "fussy" enough to write clearly and concisely. If the person agrees to submit some proposed questions, he or she is supplied with a special 20-page booklet, *Instructions to Question Writers*, and a supply of special forms designed for the purpose. The page heading on the form requires the person to indicate the syllabus topic being covered by the question, whether it is for Part I, II, or III, and the estimated number of minutes required to answer the question.

If the Coordinator finds the proposed question and solution to be acceptable, he authorizes an honorarium to be paid and then mails copies to two or more reviewers who check the solution, look for any use of local terminology, comment on the appropriateness, and edit or improve the wording (and the sketch, if there is one). The Coordinator then incorporates the various suggestions and places the item in the "Question Bank" for possible use.

The professional situations for Part III are especially difficult to prepare and are usually developed or finalized by a group of people at a special Question-Writing Workshop, rather than by mail. The most recent workshop was held at Georgia Institute of Technology in December 1979 and involved nine registered land surveyors from nine different states, all of whom had been found to be good writers or reviewers in the past, plus the Coordinator. One was from the U.S. Forest Service, five were from private practice, and three were professors. They included the Chairman and two other members of the Land Surveying Examinations Committee of NCEE who, of course, are members of Registration Boards. They worked in groups of two or three all day on Saturday, trying to "de-bug" or finalize several of the Part III problems previously submitted by others. As stated earlier, each problem involves a set of five related, but independent, questions in the multiple-choice format. On Sunday, the entire group reviewed the results of the subgroups' work. Most problems were then taken home by a participant for final editing and submission within ten days.

The Coordinator has the responsibility of assembling a balanced examination, covering the syllabus in proper proportion, from the Question Bank. The entire proposed exam is then reviewed by the Committee. Finally, the Coordinator arranges the drafting, typing, and printing and prepares a scoring template.

The Validity of the Exam

Despite the elaborate process briefly described above, there always remains, as with any other kind of examination, a concern for how well it is actually determining what it is supposed to (in this case, whether an examinee is at least minimally qualified to practice). Does it really ask the right questions? Was a particular question, as worded, and with the multiple-choice responses shown, answered correctly by most of the suitably qualified applicants and missed by the less qualified people, as expected? Where should the cut-off score recommended to State Boards (separating the qualified from the unqualified) be established on each new version of the examination? NCEE is devoting increasing attention to such matters. Considerable effort is going toward increasing the validity of individual questions and of the whole exam.

An "item analysis" of every question on the November 1979 exam was performed by computer. The program first scored the exam, then looked at how well the top 25%, bottom 25%, and middle 50% of the examinees did on each individual question, and how well the total group did (the "difficulty level" of the question). Data such as this enables NCEE to determine which questions should be retained in the Question Bank for possible re-use in future exams, and which ones should be revised.

In its continuing effort to improve the validity of examination content, the NCEE Committee on Land Surveying undertook a nationwide Task Analysis of the Profession in 1978. This involved a 20-page questionnaire filled out by about 400 registered land surveyors from all states and jurisdictions. Its purpose was to determine what professional activities and knowledge requirements actually are essential to a land surveyor's work and their relative importance. The results, again by a computer analysis, will provide the basis for test specifications for selecting and balancing the content of future exams, beginning in 1980.

The final step in the Task Analysis project will be the establishment of a "minimum passing standard" for future examinations. A specially appointed committee of experts, with guidance from authorities on testing procedures, will review the questions of one examination to determine what score would correspond to minimum competency in land surveying. Subsequent tests will be tied to the same standard by a statistical procedure known as "equating". The determination of the recommended cut-off score is, of course, an important part of the examination process, and NCEE is seeking the most modern technique known in the field of psychological testing.

It should be stressed that all registration matters are the responsibility of the individual Boards, not NCEE, and that the use of an NCEE-prepared exam is just one part of a Board's evaluation process for each applicant. The examination is, however, an impersonal and objective way of measuring the capabilities of applicants. NCEE recognizes the importance of continuously improving it.

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NO CHARGE for personalized custom logo on orders of 100 or more survey monuments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NO CHARGE for the easy to locate permanent ceramic magnet in every monument	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NO CHARGE for "Handling" or "Packing"	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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# HIGHLIGHTS OF 8TH ANNUAL RECOGNITION DINNER OF PURDUE STUDENT CHAPTER A.C.S.M. — I.S.P.L.S., APRIL 1980



Guest speaker for the evening was Edwin Brownell, Miami, Florida, national president of ACSM. He was introduced by Daniel DeRolf, Munster, IN, student chapter president.



Pamela Sostarich, left, of Louisville, KY, received the Faculty Award from Prof. Curtis as the Outstanding 1980 Graduating Senior among the twenty-three land surveying graduates during 1980.



Scholarship recipients are pictured with respective presenters. C.A. Budnick, left, ISPLS president, awarded Todd Beers, West Lafayette, with ISPLS Scholarship (\$1200) and Charles Hillery, right, awarded the Central Indiana Chapter Scholarship (\$300) to John Lyons, Madison, IN.



Pictured with Prof. McEntyre are other awardees. Raymond Beagles, left, Hanover, editor of the BLUNDER and Daniel DeRolf, right, Munster, president of student chapter, were recognized for outstanding contributions. Two other outstanding seniors receiving ACSM membership awards were Larry Rosenbalm, left center, Martinsville, and Dennis Warren, New Albany.



May 1980 graduates attending dinner included, seated left to right, Jay Poe, Pamela Sostarich, Paul Ogren, Daniel DeRolf, Michael DeBoy; standing, Mark Titus, Bryan Catlin, Larry Rosenbalm, Chris Marbach, and Randall Byers.



Several other seniors will be graduating in August or December, 1980. Attending the dinner were, seated left to right, Dennis Warren, Raymond Beagles, Dan Burnett; standing, Evan Evans, Michael Raimondi, and Gary Carlile.



1980-81 school year officers of Purdue Student Chapter, ACSM-ISPLS, are, seated left to right, C. J. Biewenga, chairman; Todd Beers, vice-chairman; Rita Brockman, treasurer; Jay Canine, secretary; standing, directors, Ken Buzbee, Jeff Meyerrose, and John Lyons.



In an appreciated gesture, Prof. Curtis, right, and Prof. McEntyre, left, were presented with "Summer Camp lunch pails" by senior, Michael DeBoy, West Lafayette.



## LAMBDA SIGMA INITIATION

In December 1979, nine new undergraduate land surveying students and three graduate students were initiated into the Purdue University land surveying honorary, Lambda Sigma, which was founded in April 1978 on the Purdue campus in West Lafayette. The honorary is open to distinguished land surveying students in the top quarter of the junior class and the top third of the senior class. Recently, membership has been offered, retroactively, to qualified graduates of previous years. Prof. Kenneth Curtis serves as faculty advisor.



1979-80 school year officers of Lambda Sigma and members included, seated left to right, Pamela Sostarich, secretary; Larry Rosenbalm, president; Chris Marbach, vice-president; standing, Daniel DeRolf, treasurer; Paul Ogren, and Randy Brown.



New initiates in December 1979 included, seated left to right, Dennis Warren, Ray Buckel, Bryan Catlin; standing, Evan Evans, Earl Burkholder, Rodger Durham, David Bortner, and Mark Baird.



Other new initiates in December 1979 were, left to right, Todd Beers, Gary Carlile, Jay Canine, and Gerald Miller.



## INLAND MARINE INSURANCE COVERAGE

Some surveyors who use expensive tools away from their premises are sometimes confused as to the proper insurance coverage for their tools if they are stolen, damaged or destroyed away from the premises. It is important to know how your equipment is covered while doing a job as you probably have several thousand dollars worth of tools with you at a time. Unfortunately, the surveyors who can least afford a loss, such as newcomers to the profession and small operators, are the ones who often don't insure their equipment.

An Inland Marine Policy is an insurance trade name for a policy which covers property while it is both on and off the owners premises. The coverage is all risk whereby almost any type of loss to the property is covered including theft, breakage, mysterious disappearance, flood, fire, wind, and vandalism. Normally, the policy is written with a deductible.

Tools and equipment can be covered one of two ways. Either each piece of equipment is listed separately on the policy for a specific value, or all the tools are lumped together and one value for all the tools is shown on the policy. Normally, the premium will be lower if tools are listed separately on the policy.

Some surveyors believe that equipment away from their premises will be covered under their office contents policy. This is a mistaken belief as an office contents policy is designed to cover property while on the premises. Even if a contents policy is written to cover burglary and theft, it will not cover your equipment in the field. Also, some surveyors and contractors think their tools should be covered under their homeowners insurance if they keep their equipment at home. Almost all homeowners policies are not designed to cover business tools, only personal items. Your vehicle policy will not cover equipment left in your truck or van if it is stolen. The purpose of a vehicle policy is to provide coverage on the vehicle, not what is left inside of it.

Hundreds of years ago, a marine policy was developed to cover goods shipped in sailing ships. As business and commerce expanded, so did the need for an insurance policy to cover property whose situs on dry land changed. The policy originally developed for ocean-going cargo was modified and renamed to Inland Marine. The name change let the policyholder know that the policy was intended to cover things primarily located on dry land. Inland Marine policies are used by hundreds of different types of businesses including shippers, truckers, jewelers, laundries, contractors, and farmers.

NOTE: Several surveyors have had equipment theft which was not covered by their insurance. Emil Beeg, ISPLS Secretary-Treasurer asked his agent, Barth Anderson, Valparaiso, IN, to write a short note on "Inland Marine Insurance" and it is included here as an aid to other surveyors.

## UNIQUE CONCEPT IN CITY PLANNING CITY CENTER/PLANNING FOR INDIANAPOLIS

**WHAT:** A public planning center for downtown Indianapolis (Regional Center which is the area within the Inner Loop). Graphics, models, audio/visual presentations and maps detail past, present and future of downtown retailing, transportation, economic development, housing, entertainment/recreation. A unique program, one of the first in the country. The Urban Design staff of the Department of Metropolitan Development (DMD) has moved its offices and work room to the Center. With architects and interns, the staff will be working on downtown projects and a new Regional Center Plan.

**WHY:** To enlist broad citizen participation in updating the Regional Center Plan and to stimulate further interest in revitalizing downtown. Meeting space is available for groups. People throughout Central Indiana are encouraged to tour the Center. After studying data and displays, visitors will fill out questionnaires describing what they want downtown Indianapolis to be. Survey results will be used by an advisory group from the Greater Indianapolis Progress Committee (GIPC) that will work with city planners to update the Regional Center Plan. Exhibits and displays will change as developments occur, e.g., models and graphics of new projects will be displayed as they are prepared, the large Regional Center model and some audio/visual displays will be added to the Center after the opening.

**WHERE:** 146 Monument Circle at the corner of Meridian Street and the northwest quadrant of the Circle.

**WHEN:** Public hours are 10 a.m. to 2 p.m., Mondays through Fridays, and by appointment; call 633-3311. The Center will be open through March, 1981. The hope is that displays will become part of a visitor/planning center after City Center closes.

**WHO:** Sponsors are GIPC, DMD, and Commission for Downtown, privately funded with support from businesses, endowments and civic organizations.

**REGIONAL CENTER PLAN:** A comprehensive set of standards and goals for the development of all areas of the Regional Center. It will take into account such trends as the growing downtown work force; the impact of the proposed shopping mall, new office buildings and White River Park; the increasing interest in preservation and the growing market for downtown housing. The plan will prepare for changes predicted for the future and insure orderly growth and an aesthetically and socially pleasing environment.

# ACSM membership



**Let your voice be heard professionally  
through the collective voice of ACSM.  
Become part of your national organization.  
JOIN ACSM NOW!**

### What is ACSM?

ACSM serves as the national professional organization for the land surveyor, the control surveyor-geodesist, and the cartographer. Three ACSM Divisions within the national organization function in the specific interests of the three principal professional categories.

### What are ACSM's principal aims

- to advance the sciences of surveying and cartography,
- to promote public understanding and use of surveying and cartography

- to encourage improvement of university and college curriculums for surveying and cartography
- to speak on the national level as the collective voice of the professions embodied within ACSM
- to provide publications to serve the surveying and cartography community

### What are the benefits?

- Technical Journals: Surveying and Mapping, quarterly; The American Cartographer, semiannually
- News-oriented quarterly: ACSM Bulletin, Newsletter: ACSM NEWS
- Technical monographs and other publications

- ACSM-sponsored workshops on current and advanced state-of-the-art subjects
- National conventions, spring and fall of each year
- International meetings, through ACSM's national participating membership
- Group Insurance programs
- Opportunity to benefit from your contributions of experience and thoughts to the creation of both local and national positions on subjects of interest and concern to your profession





# The President Invites you to Join ACSM Today!

Edwin R. Brownell, President of ACSM, cordially invites you to become a member of the American Congress on Surveying and Mapping. You will join 9,000 other members advancing their professions through our vital and growing association. Membership in ACSM will keep you abreast of the latest technical information and professional news. Membership will provide you the opportunity for expression of opinion and for publication of technical articles. You will receive each year six professional journals, quarterly news magazines and newsletters. Technical publications and a special membership group insurance program will also be available to you at member prices. By attending one or both of our national meetings each year you can participate in the sessions, see the latest in instrumentation for the profession, and receive a copy of the technical papers that are presented.

For all of these benefits and more, please accept President Brownell's invitation to join ACSM now. Just fill out the application on the opposite page and mail it to ACSM today. We know you will enjoy being a member.

For additional information, call or write:



**AMERICAN CONGRESS ON SURVEYING AND MAPPING**  
210 Little Falls Street  
Falls Church, VA 22046  
(703) 241-2446



AMERICAN CONGRESS ON SURVEYING AND MAPPING  
210 Little Falls Street  
Falls Church, VA 22046 (703) 241-2446

## APPLICATION FOR MEMBERSHIP

NAME: \_\_\_\_\_  
Mr., Mrs., etc. first middle last

ADDRESS: \_\_\_\_\_

\_\_\_\_\_ city (country) state ZIP

PHONE: ( ) \_\_\_\_\_ BIRTHDATE: month \_\_\_\_\_ day \_\_\_\_\_ year \_\_\_\_\_ Highest Academic Degree Attained: \_\_\_\_\_

I would like to become a member of the American Congress on Surveying and Mapping in the following grade for which I believe I am qualified (please check as appropriate).

☐ **MEMBER** — in one of the following Divisions:

☐ **LAND SURVEYS** — for registered land surveyors or land surveyors practicing at the professional level under special authority. State(s) where registered \_\_\_\_\_

☐ **CONTROL SURVEYS** — for persons having a bachelor's or higher degree qualifying them for professional positions in the fields of control surveys, geodetic or precise plane surveys, geodesy, geophysics, astronomy, earth environmental or space physics, precision measurements, photogrammetry, or related fields. Persons licensed as professional engineers, land surveyors, photogrammetrists, or planners.

☐ **CARTOGRAPHY** — for persons with a bachelor's or higher degree qualifying them for professional positions in the fields of cartography, mapping and charting.

For a more detailed description of Division Member qualifications, please see the following page.

☐ **INDIVIDUAL AFFILIATE** — for those who are not eligible to be a Division Member but who have achieved professional status in other fields.

☐ **ASSOCIATE** — for those at the pre-professional level such as technical or in-training status, who are not eligible to be Members or Affiliates. (Please select one Division):

☐ Land Surveys, ☐ Control Surveys, ☐ Cartography

☐ **STUDENT** — for persons enrolled at undergraduate or graduate levels on a full-time basis as defined by the school. Student applicants must have the following signed by a faculty member:

I certify the applicant is a full-time student.

\_\_\_\_\_  
Faculty Member date Educational Institution

Membership is on a calendar year basis and entitles the member to all of the periodicals published during the year. Membership dues include \$15.00 (\$7.50) for annual subscriptions to SURVEYING AND MAPPING at \$6.00 (\$3.00), ACSM BULLETIN at \$6.00 (\$3.00), and THE AMERICAN CARTOGRAPHER at \$3.00 (\$1.50). (Student rates in parentheses.)

<b>DUES:</b>	<b>1980</b>
<b>Member</b>	<b>\$36.30</b>
<b>Affiliate</b>	<b>\$29.70</b>
<b>Associate</b>	<b>\$22.00</b>
<b>Student</b>	<b>\$ 7.70</b>

Please make check or money order payable to ACSM. (For applicants in foreign countries, please draw and remit in U.S. dollars payable at a bank in the United States.)

Date \_\_\_\_\_ Signature of Applicant \_\_\_\_\_

5-4





## AMERICAN CONGRESS ON SURVEYING AND MAPPING

### Qualifications for Division Member

#### MEMBER

Any person who has attained professional qualification by education and/or experience in any of the various fields of surveying, mapping or charting, the criteria for which will be determined by each Division of primary interest subject to approval by ACSM Board of Direction, and administered by the Committee on Admissions, may become a Member of ACSM.

#### DIVISIONAL CRITERIA FOR CORPORATE MEMBER

##### Cartography Division —

Graduation with a bachelor's or higher degree from an accredited college or university in a discipline or area of study which would qualify the applicant for a professional position in the field of mapping or charting

or

eight years of active experience in mapping or charting, with a minimum of four years in recognized professional activities. The cited record of these qualifications having been verified and approved by the Cartography Division Membership Committee. Up to four years of higher education may be substituted for experience.

##### Control Surveys Division —

(a) Any person may become a member who is professionally qualified in the mathematical, physical or applied sciences or engineering arts, with specialist interests in control surveys, geodetic or precise plane surveys, geodesy, geophysics, optical or radio astronomy, earth environmental or space physics, specialized precision measurements and related adjustments and computations, or the development of optical, electromagnetic, mechanical, photogrammetric or other appropriate means of metrology, and who

(1) Has graduated with a bachelor or higher degree from an accredited college or university in a discipline related to the fields noted in the foregoing item (a), or;

(2) Is a licensed Professional Engineer, or a licensed Land Surveyor, or a licensed Photogrammetric Engineer, or a licensed Planner, competent and experienced in one of the fields noted in the foregoing item (a), or;

(3) Has attained professional grade competence in one of the fields noted in the foregoing item (a) by specialized education or self study, with not less than 8 years of experience in the fields of item (a) and the cited record of these qualifications having been verified and approved by the Control Surveys Division Membership Committee. Up to 4 years of higher education may be substituted for experience.

##### Land Surveys Division —

1. Any person registered to practice Land Surveying in those political areas where such registration is a legal requirement.
2. Any person practicing Land Surveying under an engineer's registration in those political areas where such registration to practice Land Surveying is a legal requirement.
3. Any person practicing Land Surveying under an engineer's registration in those political areas where such practice is permitted under such registration and where such practice conforms with the guide lines established in 6 below.
4. Any person practicing Land Surveying in those political areas where no legal registration to practice Land Surveying is required who meets the guide lines established in 6 below.
5. Any person practicing Land Surveying by virtue of his employment in public services who meets the guide lines established in 6 below.
6. The phrase "practicing Land Surveyor" as used in 3, 4 & 5 above shall refer to one who has been in responsible charge for a period of not less than 8 years (up to 4 years of higher education of a satisfactory character may be substituted) in any field of service identified as Land Surveying in any existing or future State statute governing the registration of Land Surveyors. The cited record of these qualifications having been verified and approved by the Land Surveys Division Membership Committee.

See reverse for qualifications for individual affiliate, associate, and student membership.

The American Congress on Surveying and Mapping also offers sustaining membership to commercial firms and professional institutions interested or engaged in surveying and mapping, the manufacture of instruments or equipment for this work, or the reproduction or compilation of maps. Dues are \$330 for 1980 and include up to three free subscriptions, 10% reduction in exhibit space rental for most conventions, reduced advertising rates in ACSM periodicals, and other benefits. For more information, write: ACSM, 210 Little Falls Street, Falls Church, VA 22046 or call (703) 241-2446.



## AMERICAN CONGRESS ON SURVEYING AND MAPPING

### ACSM Signs Agreement With AIPG

The American Congress on Surveying and Mapping (ACSM) has signed a Memorandum of Understanding (MOU) with the American Institute of Professional Geologists (AIPG) calling for mutual respect for and support of each other's professional endeavors.

The agreement signed by ACSM President Edwin R. Brownell and AIPG President James R. Dunn on April 16 and 30 respectively reads as follows:

"The American Institute of Professional Geologists (AIPG) and the American Congress on Surveying and Mapping (ACSM), whose respective memberships include professionals who are licensed, registered, certified, or otherwise qualified in their specific areas of expertise to serve the public, affirm to each other that

professional persons should not perform services in areas for which they are not qualified, and

the separate areas of expertise involved in the professions of geology and surveying should be applied to common projects in a mutually supportive way.

AIPG and ACSM agree therefore, in a spirit of mutual cooperation, and in the best interests of the general public,

to respect and not infringe upon each other's separate areas of professional expertise and endeavors, and

not to oppose pertinent policies, procedures, and positions of each other's organization which are consistent with the intent of these affirmations."

ACSM was represented in the negotiations leading up to the MOU by William G. Wallace, Chairman, Legislative Liaison Committee and W.A. Radlinski, Executive Director. The talks also resulted in an AIPG policy statement which specifically addresses the Surface Mining Control and Reclamation Act of 1977. The policy states that

"AIPG fully supports the rights of land surveyors to their appropriate practice of cadastral and topographic surveying and mensuration and the preparation of maps, plats, and profiles depicting topography, property boundaries, and the location of certain other surface features and underground workings. Accordingly, AIPG also supports the rights of land surveyors to have the "lead" or primary role for the preparation and certification of documents pertaining to such work. On the other hand, the "lead" or primary role for preparation and certification of geological and geotechnical documents is the sole responsibility of professional geologists or of registered professional engineers qualified in the earth sciences."

President Brownell said that "I expect all members of ACSM to comply with the spirit and intent of the MOU which I have signed and the policy statement with which I agree." "Members of ACSM who are not qualified geologists are not to engage in professional geologic work," he went on to say, "just as geologists are not to do any land surveying if they are not also registered land surveyors." Brownell was complimentary of the cooperative attitude of AIPG officials and felt that the agreement will eliminate past misunderstandings among society members and the Members of the U.S. Congress. More importantly, he said, "the MOU will help to insure that clients and the public get the kind of service they are entitled to."

### ACSM Executive Director to Speak in London

W. A. Radlinski, Executive Director, American Congress on Surveying and Mapping (ACSM), has accepted an invitation from the Royal Institution of Chartered Surveyors (RICS) to deliver an address during the Centenary Celebration of RICS in London, August 25-27, 1981.

The Institution was incorporated by Royal Charter on August 26, 1881, thirteen years after its foundation in 1868. To mark the centenary, there will be a program of six addresses dealing with major aspects of the surveyors work. One, dealing with "the Surveyor in Society", will be incorporated in a service of thanksgiving at Westminster Abbey, and is expected to be given by the Dean of Westminster. Radlinski will give the address on "the Surveyor in Outer Space". He has been asked to cover the present and future uses of satellites for surveying the earth, the surveyors involvement in the exploration of outer space, the extent to which the moon and planets have been mapped, and other related topics.

The other address are "the Surveyor and the Environment"; and "the Surveyor in the Microelectronic Age". They are intended to focus attention on topics which will

be of interest not only to the profession, but also to a wider public audience.

Radlinski, who became the Executive Director of ACSM on May 7, 1979 after a 30-year career with the U.S. Geological Survey, is an Honorary Member of RICS, one of only two Americans so honored and the only one from the map making profession.

### Wallace Chairs ACSM Legislative Liaison Committee

William T. Wallace of Florida has succeeded Donald E. Bender as Chairman of the ACSM Legislative Liaison Committee. The committee was established in March, 1978 by the ACSM Board of Direction to be composed of three land surveyors, one control surveyor, and one cartographer. Its basic charge is to keep abreast of federal legislation that would affect the well-being and professionalism of the surveyor and cartographer. Don was its first chairman and served ably in this position until his resignation from the committee for personal reasons on December 1, 1979.

Bill Wallace brings to the chairmanship of the Legislative Liaison Committee a background of substantial involvement in land surveying and legislative work in Florida. He is the Immediate Past President of the Florida Society of Professional Land Surveyors. Having been honored with a number of awards, he is most recently the recipient of the FSPLS Surveyor of the Year Award.

Bill's legislative activities include assisting in the creation of two committees, Engineers and Land Surveyors, on the state board, and in the creation of a separate state board for land surveyors. He has worked in preventing amendments to the Florida Consultant's Competitive Negotiation Act which would have permitted professionals to be chosen by the bidding process. On the national level, he assisted Senators Church and Chiles with the Federal Procurement Act.

A professional land surveyor registered in Florida, Bill has had surveying experience for over 25 years, beginning his training in high school while working for his father. Bill is now Senior Vice President, Director, and stockholder of Gee & Jenson Engineers-Architects-Planners, Inc. of West Palm Beach, Florida. He is the principal in charge of the surveying, land development, transportation, and data processing departments.

### ACSM Hires Educational Director

Dr. Marshall W. Davies has been appointed by ACSM President Edwin R. Brownell as the first Education Director for the American Congress on Surveying and Mapping. He will report on April 7, 1980, to the National Office in Falls Church, Virginia to begin his full-time direction of the educational activities of ACSM.

Under the general supervision of the ACSM Executive Director, he will be responsible for developing, organizing, and managing a coordinated continuing education program of short courses, workshops, and correspondence courses to meet the needs of members of ACSM and its Affiliates and Sections.

Among his other responsibilities, Dr. Davies will be establishing and maintaining a procedure for recording educational credit units of members. He will be encouraging Affiliates to establish professional development programs to meet special regional and statewide requirements. And he will be the manager of any certification programs that ACSM may establish.

Dr. Davies will also represent ACSM in matters pertaining to formal education of professionals, as well as technicians, and continuing professional development. In this regard, he will serve as liaison between ACSM and the Accreditation Board for Engineering and Technology, Inc. (ABET), formerly ECPD, the National Council of Engineering Examiners (NCEE), and other professional organizations, universities, and schools.

Davies received his Ph.D. in Higher Education in 1974 from the University of Toledo, Toledo, Ohio. He most recently was a consultant to the Volunteer Development Institute, Arlington, Virginia where he developed and conducted adult education workshops in the Washington area. Prior to this work he was the Academic Program Director for the Washington Center for Learning Alternatives for two years. From 1974 to 1977, he was the Coordinator of Curriculum Research for the Division of Experimental Programs of George Washington University.

ACSM President Brownell, commenting on the appointment, said: "We are delighted to have a man of Dr. Davies background to be the first ACSM Education Director". He went on to say that he expects Dr. Davies to establish a program of surveying and cartography workshops as his first priority. "We want our education program to be of the highest quality, and responsive to practical needs. We are confident that Dr. Davies can meet these goals", he said.

Davies, 38, lives in Adelphi, Maryland with his wife Janet and their two children, ages 4 and 1. He may be contacted at the ACSM National Office (703) 241-2446.



THE COUNTY SURVEYOR'S OFFICE  
IN INDIANA

Jack Irwin  
Marion County Surveyor  
Indianapolis, Indiana

(This paper was presented at the ISPLS Annual Meeting, Indianapolis, February, 1980)

I realize that our agenda poses the question "County Surveyor - is the office necessary?" I choose not to debate this issue with this society but to discuss the nature of the office and try to understand and resolve some of its major problems.

The Office of County Surveyor was established by the Indiana Constitution of 1851, as amended in 1952 as per article 6, Section 2. The basic change made by the 1952 amendment was the extension of the term of office from two years to four years. This is probably due to a recognition that a surveyor must have certain qualifications that are not necessary in other offices; and when a qualified person is in office, he should be allowed to remain as long as the voters are willing to elect him. Another indication that the County Surveyor must have certain qualifications is shown by the Legislature in the statutes regulating salaries. They grant a higher salary to a person filling the office who is registered than to a person who is not registered. (1.)

The duties of County Surveyor are varied. He not only has his duties as Land Surveyor, but also has responsibility for drainage matters in the County. Some of his duties and responsibilities on legal drains are: (2.)

1. Serve as a member of the county drainage board (but without a vote).
2. Call meetings of the drainage board.
3. Receive documents for the drainage board.
4. Recommend a classification of existing legal drains and order of work priority of the drainage board.
5. Be responsible for investigating, evaluating and surveying; for preparing reports, plans and specifications; and for making cost estimates.
6. Prepare and make public, standards of design, construction and maintenance.
7. Superintend all construction, reconstruction and maintenance, and recommend needed maintenance.
8. Catalog and maintain a record of engineering plans for legal drains and for private and mutual drains.
9. Cooperate with other agencies and units of government interested in water resources.
10. Receive requests to place private structures in legal drains and requests to connect private drains.
11. Remove obstructions in legal drains and in the right of way.

The Indiana drainage laws is something that your County Surveyor soon learns inside and out.

Let us leave the subject of drainage alone for now and consider the corner perpetuation program.

In March 1965 the Indiana General Assembly passed the "Perpetual Corner Record Act of 1965". Basically this act promulgated the following requirements.

1. Starting with the year 1966 the County Surveyor shall check and establish or re-establish and reference at least 5% of all original government corners in his County annually, so that within 20 years or less, all the original corners will be established or re-established.
2. The County Surveyor may take checks and references for these corners turned in to him by a private registered land surveyor and enter these in the corner record book.
3. The County Surveyor shall be responsible for the preparation, maintenance, and custody of a corner record book.

It appears the corner perpetuation act is well and good and by January 1986 all of the original corners would have been perpetuated and recorded in each corner record book in every county of this State, but we have one giant program, in most instances, your County Surveyor has his hands tied behind his back, that is, the Legislature failed to provide for the enforcement and funding for the corner perpetuation act.

Chances are the State Legislature will not revise the corner perpetuation act of 1965. It is just not a popular issue with the general public. For example, a County Surveyor told me that one of his County Councilman said "We will not provide funding for Corner perpetuation unless we are mandated by the Legislature".

So what can we do?

1. We can try to educate our County Councils and State Legislature on the importance of the corner perpetuation act, for the benefits will be for everyone in the county.
2. Work with your County Surveyor, if you have corner ties in your office, let him record them for public use. When this happens again and again, the County Surveyor will soon attain a significant set of files for your use that will enable you to hold your costs down, thus a benefit to you and your clients.
3. Another possibility would be for the I.S.P.L.S. and C.S.A. to sponsor a bill that would require all metes and bound surveys in the state to be filed with the County Surveyor and charge a filing fee that would go into a fund for the corner perpetuation program.

In summation, when you consider the lack of funding for corner perpetuation because of its rather invisible nature to the public, together with the highly visible nature of drainage problems within the counties, I believe you can realize why the corner perpetuation program is falling seriously behind schedule. If this Society as a whole and you as individuals will work with your local County Surveyor, we may be able to move towards getting the corner perpetuation back on track.

(1.) Engineering Bulletin Series No. 93, Page 75

(2.) Summary of Indiana Drainage Laws (Purdue University) Extension Circular 538, Page 4

COUNTY	SURVEYOR	ADDRESS	TELEPHONE	SURVEYOR'S LICENSE		APPROXIMATE PERPETUATION PROGRAM COMPLETED(%)
				YES	NO	
Adams	Ford, Michael	R. R. #3, Decatur, In. 46733	219-724-3318		X	65%
Allen	Sweet, William L.	6th Floor C C Bldg. Ft. Wayne, In. 46802	219-423-7625	X		15%
Bartholomew	Darnall, Gene	4 33rd St. Columbus, In. 47201	812-379-4531	X		10%
Benton	Helterbran, Paul	Court Square Kentland, Earl Park 47944	219-474-5877			0
Blackford	Wilson, Ben H.	RR 2, Montpelier (Hartford City C.H.) 47348	317-348-1203	X		
Boone	Overholser, D. Kent	RR 6, Lebanon Boone Co. Court House 46052	317-482-1110			35%
Brown	Allen, Robert	State Road 46E, Box 21 Nashville, In 47448	812-988-4889	X		
Carroll	Ritzler, Charles	1014 E. Main St. Delphi, In. Ct. House 46923	317-564-3310	X		
Cass	Murphy, Charles	200 Court Parks, Logansport, In. 46947	219-722-5050	X		
Clark	Blankenbeker, Rollyn	8 Cypress Dr. (C-C Bldg.) Jeffersonville 47130	812-283-4451	X		30%
Clay	Miller, Dorman	324 S. Chicago Ave. Brazil, In. 47834	812-448-1830	X		30%
Clinton	Snyder, Don E.	2504 Wilshire Dr. Frankfort, In. 46041	317-654-4641		X	15-20%
Crawford	Cundiff, Kenneth W.	R R 1 Milltown, In. 47118	812-633-4990			
Daviess	Gress, Gilbert	E. Side Park Rd. Ct. House Washington 47501			X	
Dearborn	Krauss, Dennis	RR 2, Sunman, Cty. Seat Lawrenceburg 47025	812-537-1948			
Decatur	Hellmich, William	RR 10 Greensburg, In. 47240	812-663-6003		X	
DeKalb	Wolf, David	RR 1 Box 45 Garrett, In. (Ct. House) 46706	219-925-2222	X		0%
Delaware	Hiatt, Stanley	RR 6 100 W. Main, Muncie, In. 46706	317-747-7806	X		
Dubois	Fromme, Thomas J.	1151 Justin St. Jasper, In. 47546	812-482-2171		X	20%
Elkhart	Pharis, Ray	26184 Hilly Lane, Elkhart, In. 46526	219-293-3895	X		20%
Fayette	Gobin, Jerry	426 W. 3rd Connersville, In. 47331	317-825-7466		X	10%
Floyd	Hunter, Charles	903 Oakwood Dr. C-C New Albany 47150	812-944-6183			
Fountain						
Franklin	Gillespie, Joseph	459 Main St. RR 4 Brookville, In 47012	317-647-5651			
Fulton	Daake, Robert	RR 5 Ct. House, Rochester, In 46975	219-223-3317		X	0%
Gibson	Morrison, Harry	RR 1 Ct. House Princeton, In 47570	812-385-4853	X		66%
Grant	Fish, Alan K.	1107 West 6th St. Marion, In. 46952	317-668-8871		X	50%
Greene	Dixon, William	Bloomfield Ct. House, Worthington, In. 47424	812-384-3162			
Hamilton	Ward, Kenton C.	107 Waterman Dr. Noblesville, In. 46060	317-773-6110			
Hancock	DeReamer, Brad	818 School St. Ct. House, Greenfield, 46140	317-462-6640	X		7%
Harrison	Haun, Warren	Ct. House RR 2, Corydon, In. 47112	812-738-3206			
Hendricks	Lewis, Richard R.	641 Elm Drive, Plainfield, In				
Henry	Woods, Donald M.	1116 Broad (Ct. House) New Castle, In 47362	317-529-4802	X		65%
Howard	Raquet, Carl	13 Greenhills, Greentown, In. 46901	317-457-5319	X		20%
Huntington	Land, William H.	1428 Poplar St. Ct. House Huntington 46750	219-356-6714	X		
Jackson	Lucas, Jesse	RR 2 Ct. House Brownstown, In. 47220	812-358-4512			
Jasper	Kingman, Michael	RR 6 Rensselaer 47978	219-866-7232			
Jay	Davidson, Richard	RR 4, Ct. House Portland, In. 47371	219-726-8784	X		49%
Jefferson	Loehler, Fred W.	RR 1 (Ct. House Madison) Hanover, In. 47250	812-365-3235		X	30%
Jennings						
Johnson	Prince, Marlin	222 King Arthur Drive, Franklin, In 46131	317-736-6751			
Knox	Walters, Robert	Ct. House, Westphalia, In. 47591	812-882-6906			
Kosciusko	Brower, Charles	Warsaw Ct. House 46580	219-267-4444	X		49%
La Grange	Madden, John J.	206 S. High (Ct. House) LaGrange, In. 46761	219-463-2812	X		60%
Lake	Manich, Steve W.	2293 N. Main Ct. House Crown Point 46307	219-663-0760	X		86%
LaPorte	Hendricks, Charles	RR 6 Box 173 LaPorte, In. 46350	219-362-4106	X		35%
Lawrence	Arena, Michael	711 1st St. Ct. House Bedford, In. 47421	812-279-2159	X		25%
Madison	Manship, John Jr.	16 E 9th St. Anderson, In. 46016	317-646-9241	X		30%
Marion	Irwin, Jack A.	1922 CG Building, Indpls, In. 46204	317-633-3355	X		95%
Marshall	Kleinke, Frank E.	601 N. Center, Plymouth, In. 46563	219-936-3428	X		35%
Martin	Crew, Victor P.	RR 4 Loogootee 47581 (Shoals)	812-295-2615			
Miami	Hunt, Byron	RR 1 Amboy Ct. House, Peru 46970	317-473-6832			
Monroe	Graham, Raymond	3215 N. Smith Pike Bloomington, In. 47401	812-336-4062	X		
Montgomery	Yount, Don	Court House, Crawfordsville, In. 47933	317-362-5868	X		1%
Morgan	McCracken, Reginald	110 S. Main Martinsville, In. 46151	317-342-8802	X		0%
Newton	Vanderwall, Darwin	Court House Square, Kentland 47951	219-474-5877		X	50%



COUNTY	SURVEYOR	ADDRESS	TELEPHONE	SURVEYOR'S LICENSE		APPROXIMATE PERPETUATION PROGRAM COMPLETED (%)
				YES	NO	
Noble	Weber, Leslie	Weber Road Albion 46701	219-636-2131			80%
Ohio						
Orange	Atkinson, Bruce W.	RR 3 (Ct. House Annex Paoli) Paoli 47454	812-723-2280	X		
Owen	Wheeler, W. Don	RR 4 Spencer 47460	812-829-9028			
Parke	Ayers, Lewis G.	314 W. York Rockville 47872		X		
Perry	Voges, Hubert J. Jr.	1041 15th St. Tell City Cannelton 47520	812-547-2591			
Pike	Denton, Robert	RR 2 Oakland City Ct. House Petersburg 47567	812-354-9736		X	10%
Porter	Tanke, William S.	Court House Valparaso 46383	219-464-8661	X		49%
Posey	Leffel, John H.	126 E. 3rd St. Mt. Vernon 47620	812-838-4121	X		20%
Pulaski	Absher, David L.	Court House Winamac 46996	219-946-3253			33%
Putnam	Stanley, Alan	Court House Greencastle 46135	317-653-5603	X		5%
Randolph	Patty, Carlos Vernon	Court House Winchester 47394	317-584-7761		X	33%
Ripley	Fischvogt, Jerold	RR 1 Versailles 47042	812-667-5746			
Rush	Stoten, Lowell	Court House Rushville 46173	317-932-3184		X	0%
St. Joseph	McNamara, John	C-C Building South Bend 46601	219-284-9631	X		30%
Scott	Barrett, Ronald	249 S. Second St., Austin (Scottsburg) 47170	812-794-3534			
Shelby	Whitlock, John	12114 Briarway S. Dr. 46259	317-862-3100	X		
Spencer	Ryan, William Robert	Court House, Rockport 47635	812-649-2212			
Starke	Smrt, Joseph	302 E. Water Street Knoch 46534	219-772-3944	X		19%
Steuben	Mason, Donald G. Jr.	717 S. Wayne Angola 46703	219-665-5117			
Sullivan	Page, Sherrill E.	Court House, Sullivan 47882	812-268-4029	X		0%
Switzerland	Markland, Phillip N.	RR 2 Rising Sun Vevay 47043	812-534-3245			
Tippecanoe	Spencer, Michael	20 N. 3rd Lafayette 47901	317-423-9228			20%
Tipton	Rayl, Bradley	2036 Melody Lane Anderson 46072	317-675-2793	X		
Union	Brown, Albert O.	RR 3 Liberty 47353	317-458-5060			
Vanderburgh	Brenner, Robert	C-C Evansville 47708	812-426-5210			
Vermillion	Perry, Larry	RR 3 Clinton 47966	317-832-3494			
Vigo	Schilling, Charles A.	Court House Terre Haute 47801	812-238-8380	X		50%
Wabash	Underwood, Herbert	Court House Wabash 46992	219-563-3781	X		
Warren	Allen, Arthur A.	Court House Williamsport 47993	317-762-2611			
Warrick	Feldbusch, Michael	Court House Boonville 47601	812-897-0880		X	32%
Washington	Trueblood, Lawrence	RR 4 Court House Salem 47167	812-883-4604	X		10%
Wayne	Craig, Donald G.	Court House Richmond 47374	317-966-7541			
Wells	Jacobs, Joe	Court House Bluffton 46714	219-824-0218			
White	Milligan, James	Court House Monticello 47960	219-583-7883	X		25%
Whitley						

## The tripod: step-child of the family

The tripod, the support of a precision instrument which is always transported and handled with great care, is itself usually neglected in its maintenance and handling. Many defects in surveying are attributable to this neglect.

J. Šolc has investigated the influence of the tripod upon measuring accuracy and has published his report in the Czech periodical *Geodet. a Kartogr. Obz.* Prague N° 2/1977 (pp 28–34). The author investigated the usual types of geodetic tripods under various local and seasonal conditions. This revealed that the torsional influences in tripods are similar to those found in observation towers. Despite the much smaller dimensions, the torsion is of about the same order. Metal tripods, however, show a considerably greater susceptibility

to torsion (16°/10 min) than wooden tripods (8° to 10°/10 min). In the morning, at the start of a survey or with wet tripods, values up to ten times these amounts were found. In urban areas, in summer, up to 60–70°/10 min have been recorded. The sense of rotation also sometimes changes. The plate level of a theodolite on the tripod may deviate by as much as 5–6 divisions. Pillar set-ups, on the other hand, show deviations of 1–2 divisions only.

In practice, the effect of tripod torsion may be disregarded when measuring angles in traverses and tacheometry, but not where greater accuracy is required and especially where longer periods of observation on the tripod are involved. In order

to minimize the influence of torsion, J. Šolc recommends the following:

- protect the tripod against the influence of unfavourable weather conditions
- never store the tripod in a wet state or in damp locations
- renovate the protective paint or varnish from time to time
- give the tripod time to adapt to the prevailing weather conditions before starting to observe
- protect not only the instrument, but also the tripod against strong sunlight
- take shots always in both faces and keep an even rhythm in observing
- re-centre the plate level after each arc
- set up the instrument on solid pillars when high accuracy is required.

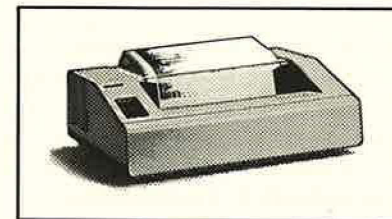
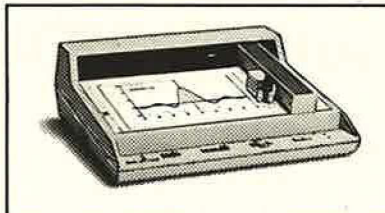
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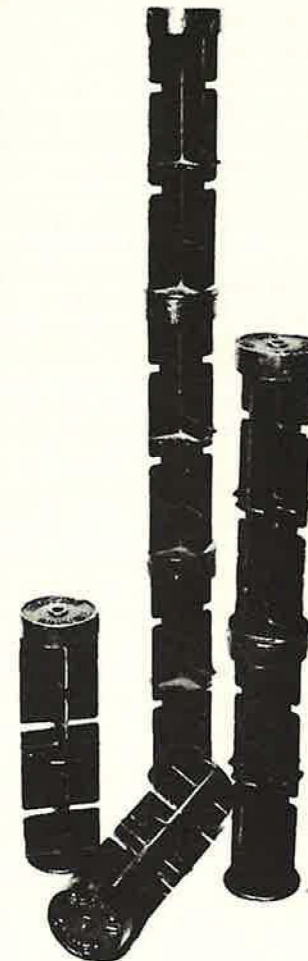
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# 1792 Ohio River Low-Water Mark Held As Kentucky-Ohio Boundary

State of Ohio  
v.  
Commonwealth of Kentucky

"knowledgeable surveyors have the ability to perform the task [setting the boundary between states at the low-water mark . . . of 1792 in the 1980's]"

In 1966, the State of Ohio instituted action against the State of Kentucky under the Supreme Court's original jurisdiction, asking in its complaint that the Court declare and establish the low-water mark on the northerly side of the Ohio River in 1792 as the boundary line between the two states; however Kentucky, in its answer, alleged that the boundary line was the current low-water mark on the northerly side of the Ohio River.

Ohio later moved for leave to file an amended complaint that would assert, primarily, that the boundary between the states was the middle of the Ohio River, and, only alternatively, the 1792 low-water mark on the northerly shore.

The motion was referred to a Special Master who filed a report in due course, recommending that Ohio's petition for leave to amend be denied. Upon the filing of Ohio's exceptions and Kentucky's reply, a hearing was set, the Special Master's recommendation was adopted, Ohio's motion for leave to amend was denied, and the case was remanded. This Special Master later resigned and The Honorable Robert Van Pelt was appointed as Special Master for the case. After the hearing, Van Pelt filed his report recommending that the boundary between Ohio and Kentucky "is the low-water mark on the northerly side of the Ohio River as it existed in 1792."

The Court stressed the fact that a large volume of history had been reviewed in this case, but that the well-recognized and "accepted rules of accretion and avulsion attendant on a wandering river . . . do not apply here." The Court then pointed out that the boundary of 1792 may be difficult to establish, but, "as the Special Master's report intimates, knowledgeable surveyors have the ability to perform the task." The Court adopted the report, remanding the matter to the Special Master for drawing an acceptable decree.

Justice Blackmun delivered the opinion of the Court, in which Chief Justice Burger and Justices Brennan, Stewart, Marshall, and Stevens joined.

Claiming that the majority's "curious" decision frustrated the terms of the Virginia Cession of 1784, which first established the Ohio-Kentucky border, and that such a decision is contrary to the common-law rules of riparian boundaries, Justice Powell filed a dissenting opinion in which Justices White and Rehnquist joined.—JRK, ed.

The full text of the case follows as appeared in the Daily Appellate Report, pp. 236-237.

## CONFLICT OF LAWS

### 1792 Ohio River Low-Water Mark Is Held to Be Kentucky-Ohio Boundary

Cite as 80 Daily Journal D.A.R. 236  
(U.S. Sp. Ct., Jan. 21, 1980)

NOTE: Where it is feasible, a syllabus (headnote) will be released, as is being done in connection with this case, at the time the opinion is issued. The syllabus constitutes no part of the opinion of the Court but has been prepared by the Reporter of Decisions for the convenience of the reader. See *United States v. Detroit Lumber Co.*, 200 U.S. 321, 337.

## SUPREME COURT OF THE UNITED STATES

### Syllabus

#### OHIO v. KENTUCKY

#### ON EXCEPTION TO REPORT OF SPECIAL MASTER

No. 27, Orig. Argued December 3, 1979  
Decided January 21, 1980

**Held:** The boundary between Ohio and Kentucky is the low-water mark on the northerly side of the Ohio River as it existed in 1792 when Kentucky was admitted to the Union, not the current low-water mark on the northerly side of the river. Historical factors establish that the boundary is not the Ohio River just as a boundary river, but is the northerly edge. Thus, the accepted rules of accretion and avulsion attendant upon a wandering river that are applicable in customary situations involving river boundaries between States, do not apply here. *Indiana v. Kentucky*, 136 U.S. 479, controls this case. pp. 2-6.

Exceptions to Special Master's Report overruled, Report adopted, and case remanded.

Blackmun, J., delivered the opinion of the Court, in which Burger, C.J., and Brennan, Stewart, Marshall, and Stevens, J.J., joined. Powell, J., filed a dissenting opinion in which White and Rehnquist, J.J., joined.

#### No. 27, Orig.

State of Ohio, Plaintiff,  
v.  
Commonwealth of Kentucky.

On Bill of Complaint.

[January 21, 1980]

MR. JUSTICE BLACKMUN delivered the opinion of the Court.  
The State of Ohio, in 1966, instituted this action, under the Court's original jurisdiction, against the Commonwealth of Kentucky. By its bill of complaint as initially filed, Ohio asked that the Court declare and establish that the boundary line between the two

States is "the low water mark on the northerly side of the Ohio River in the year 1792." Leave to file the bill of complaint was granted. 384 U.S. 982 (1966). In due course, Kentucky filed its answer and a Special Master was appointed. 385 U.S. 803 (1966). In its answer, Kentucky alleged that the boundary line is the current low-water mark on the northerly side of the Ohio River.

Ohio later moved for leave to file an amended complaint that would assert, primarily, that the boundary between Ohio and Kentucky is the middle of the Ohio River, and, only alternatively, is the 1792 low-water mark on the northerly shore. That motion was referred to the Special Master. 404 U.S. 933 (1971). The Special Master held a hearing and in due course filed his report recommending that Ohio's petition for leave to amend be denied. 406 U.S. 915 (1972). Upon the filing of Ohio's exceptions and Kentucky's reply, the matter was set for hearing. 409 U.S. 974 (1972). After argument, the Special Master's recommendation was adopted, Ohio's motion for leave to amend was denied, and the case was remanded. 410 U.S. 641 (1973).

The Honorable Robert Van Pelt, who by then had been appointed Special Master following the resignation of his predecessor, thereafter filed his report on the case as shaped by the original pleadings. That report was received and ordered filed. 439 U.S. 1123 (1979). Kentucky lodged exceptions to the report, and Ohio filed its reply. Oral argument followed.

The Special Master recommends that this Court determine that the boundary between Ohio and Kentucky "is the low-water mark on the northerly side of the Ohio River as it existed in the year 1792;" that the boundary "is not the low-water mark on the northerly side of the Ohio River as it exists today;" and that such boundary, "as nearly as it can now be ascertained, be determined either a) by agreement of the parties, if reasonably possible, or b) by joint survey agreed upon by the parties, [emphasis supplied]" or, in the absence of such an agreement or survey, after hearings conducted by the Special Master and the submission by him to this Court of proposed findings and conclusions. Report of Special Master 16.

We agree with the Special Master. Much of the history concerning Virginia's cession to the United States of lands "northwest of the river Ohio" was reviewed and set forth in the Court's opinion concerning Ohio's motion for leave to amend its 1966 complaint. 410 U.S. at 645-648. Upon the denial of Ohio's motion, the case was left in the posture that the boundary between the two States was the River's northerly low-water mark. The litigation, thus, presently centers on where that northerly low-water mark is—is it the mark of 1792 when Kentucky was admitted to the Union, 1 Stat. 189, or is it a still more northerly mark due to the later damming of the river and the consequent rise of its waters?

It should be clear that the Ohio River between Kentucky and Ohio, or, indeed, between Kentucky and Indiana, is not the usual river boundary between States. It is not like the Missouri River between Iowa and Nebraska, see, e.g., *Nebraska v. Iowa*, 143 U.S. 359 (1892), or the Mississippi River between Arkansas and Mississippi. See *Mississippi v. Arkansas*, 415 U.S. 289 (1974), and 415 U.S. 302 (1974). See also *Iowa v. Illinois*, 147 U.S. 1 (1893); *Missouri v. Nebraska*, 196 U.S. 23 (1904); *Minnesota v. Wisconsin*, 252 U.S. 273 (1920); *New Jersey v. Delaware*, 291 U.S. 361 (1934); *Arkansas v. Tennessee*, 310 U.S. 563. In these customary situations the well-recognized and accepted rules of accretion and avulsion attendant upon a wandering river have full application.

A river boundary situation, however, depending upon historical factors, may well differ from that customary situation. See, for example, *Texas v. Louisiana*, 410 U.S. 702 (1973), where the Court was concerned with the Sabine River, Lake, and Pass. And in the Kentucky-Ohio and Kentucky-Indiana boundary situation, it is indeed different. Here the boundary is not the Ohio River just as a boundary river, but is the northerly edge, with originally Virginia and later Kentucky entitled to the river's expanse. This is consistently borne out by, among other documents, the 1781 Resolution

of Virginia's General Assembly for the cession to the United States ("the lands northwest of the river Ohio"), 10 W. Hening, Laws of Virginia 564 (1822); the Virginia Act of 1783 ("the territory . . . to the north-west of the river Ohio"), 11 W. Hening, Laws of Virginia 326, 327 (1822); and the deed from Virginia to the United States ("the territory to the northwest of the river Ohio") accepted by the Continental Congress on March 1, 1784, 1 Laws of the United States 472, 474 (B. & D. ed. 1815). The Court acknowledged this through Mr. Chief Justice Marshall's familiar pronouncement with respect to the Ohio River in *Handly's Lessee v. Anthony*, 5 Wheat. 374, 379 (1820):

"When a great river is the boundary between two nations or states, if the original property is in neither, and there be no convention respecting it, each holds to the middle of the stream. But when, as in this case, one State is the original proprietor, and grants the territory on one side only, it retains the river within its own domain, and the newly-created State extends to the river only. The river, however, is its boundary."

The dissent concedes as much. *Post*, at 2. The dissent then, however, would be persuaded by whatever is "the current low-water mark on the northern shore." *Post*, at 3. But it is far too late in the day to equate the Ohio with the Missouri, with the Mississippi, or with any other boundary river that does not have the historical antecedents possessed by the Ohio, antecedents that fix the boundary not as the river itself, but as its northerly bank. *Handly's Lessee*, in our view, supports Ohio's position, not the dissent's. If there could be any doubt about this, it surely was dispelled completely when the Court decided *Indiana v. Kentucky*, 136 U.S. 479 (1890). There Mr. Justice Field, speaking for a unanimous Court, said:

"[Kentucky] succeeded to the ancient right and possession of Virginia, and they could not be affected by any subsequent change of the Ohio River, or by the fact that the channel in which that river once ran is now filled up from a variety of causes, natural and artificial, so that parties can pass on dry land from the tract in controversy to the State of Indiana. Its water might so depart from its ancient channel as to leave on the opposite side of the river entire counties of Kentucky, and the principles upon which her jurisdiction would then be determined is precisely that which must control in this case. *Missouri v. Kentucky*, 11 Wall. 395, 401. Her dominion and jurisdiction continue as they existed at the time she was admitted into the Union, unaffected by the action of the forces of nature upon the course of the river.

"Our conclusion is, that the waters of the Ohio River, when Kentucky became a State, flowed in a channel north of the tract known as Green River Island, and that the jurisdiction of Kentucky at that time extended, and ever since has extended, to what was then low-water mark on the north side of that channel, and the boundary between Kentucky and Indiana must run on that line, as nearly as it can now be ascertained, after the channel has been filled." *Id.*, at 508, 518-519.

The fact that *Indiana v. Kentucky* concerned a portion of the Ohio River in its Indiana-Kentucky segment, rather than a portion in its Ohio-Kentucky segment, is of no possible legal consequence; the applicable principles are the same, and the holding in *Indiana v. Kentucky* has pertinent application and is controlling precedent here. The Court's flat pronouncements in *Indiana v. Kentucky* are not to be rationalized away so readily as the dissent, *post*, at 3-5, would have them cast aside. Kentucky's present contentions, and those of the dissent, were rejected by this Court 90 years ago.

We are not disturbed by the fact that boundary matters between Ohio and Kentucky by the Court's holding today will turn on the 1792 low-water mark of the river. Locating that line, of course,



may be difficult, and utilization of a current, and changing, mark might well be more convenient. *But knowledgeable surveyors, as the Special Master's report intimates, have the ability to perform this task* [emphasis supplied]. Like difficulties have not dissuaded the Court from concluding that locations specified many decades ago are proper and definitive boundaries. See, e.g., *Utah v. United States*, 420 U.S. 304 (1975), and 427 U.S. 461 (1976); *New Hampshire v. Maine*, 426 U.S. 363 (1976), and 434 U.S. 1 (1977). The dissent's concern about the possibility, surely extremely remote, that the comparatively stable Ohio River might "pass completely out of Kentucky's borders," *post*, at 3, is of little weight. Situations where land of one State comes to be on the "wrong" side of its boundary river are not uncommon. See *Wilson v. Omaha Indian Tribe*, 442 U.S. — (1979); *Owen Equipment & Erection Co. v. Kroger*, 437 U.S. 365, 369, n. 5 (1978); *Missouri v. Nebraska*, *supra*.

Finally, it is of no little interest that Kentucky sources themselves, in recent years, have made reference to the 1792 low-water mark as the boundary. Informational Bulletin No. 93, issued by the Legislative Research Committee of the Kentucky General Assembly states:

"Kentucky's North and West boundary, to-wit, the low river mark on the North shore of the Ohio River as of 1792, has been recognized as the boundary based upon the fact that Kentucky was created from what was then Virginia." *Id.*, at 3.

See also the opinion of the Attorney General of Kentucky, OAG 63-847, contained in Kentucky Attorney General Opinions 1960-1964. See also *Perks v. McCracken*, 169 Ky. 590, 184 S. W. 891 (1916), where the court stated that the question in the case was "where was the low-water mark at the time Kentucky became a state."

The exceptions of the Commonwealth of Kentucky to the Report of the Special Master are overruled. The Report is hereby adopted, and the case is remanded to the Special Master so that with the cooperation of the parties he may prepare and submit to the Court an appropriate form of decree.

#### No. 27, Orig.

State of Ohio, Plaintiff,  
v.  
Commonwealth of Kentucky. } On Bill of Complaint.  
[January 21, 1980]

MR. JUSTICE POWELL, with whom MR. JUSTICE WHITE and MR. JUSTICE REHNQUIST join, dissenting.

The Court today holds that the present boundary between Ohio and Kentucky is the low-water mark of the northern shore of the Ohio River when Kentucky was admitted to the Union in 1792. This curious result frustrates the terms of the Virginia Cession of 1784 that first established the Ohio-Kentucky border, ignores Chief Justice Marshall's construction of that grant in *Handly's Lessee v. Anthony*, 18 U.S. (5 Wheat.) 374 (1820), is contrary to common-law rules of riparian boundaries, and creates a largely unidentifiable border. Accordingly, I dissent.

#### I

In 1784 the Commonwealth of Virginia ceded to the United States all of its territory "to the northwest of the river Ohio." 1 Laws of the United States 472, 474 (1784). As this Court recently observed, the border question "depends chiefly on the land law of Virginia, and on the cession made by that State to the United States." *Ohio v. Kentucky*, 410 U.S. 641, 645 (1973), quoting *Handly's Lessee v. Anthony*, 18 U.S. (5 Wheat.), at 376. The 1784 Cession was construed definitively in *Handly's Lessee*, a case involving a

dispute over land that was connected to Indiana when the Ohio River was low, but which was separated from Indiana when the water was high. The Court held that since the 1784 Cession required that the river remain within Kentucky, the proper border was the low-water mark on the northern or northwestern shore. Consequently, the land in issue belonged to Indiana.

Chief Justice Marshall, writing for the Court, pointed out that Virginia originally held the land that became both Indiana and Kentucky. Under the terms of the Virginia Cession, he stated, "These States, then, are to have the [Ohio] River itself, wherever that may be, for their boundary." *Id.*, at 379 [emphasis supplied]. The Chief Justice found support for that conclusion in the original Cession:

"[W]hen, as in this case, one State [Virginia] is the original proprietor, and grants the territory on one side only, it retains the river within its own domain, and the newly-created State [Indiana] extends to the river only. The river, however, is its boundary." *Ibid*.

Such a riparian border, the Chief Justice emphasized, cannot be stationary over time. He wrote: "Any gradual accretion of land, then, on the Indiana side of the Ohio, would belong to Indiana. . . ." *Id.*, at 380. This rule avoids the "inconvenience" of having a strip of land belonging to one State between another State and the river.

"Wherever the river is a boundary between States, it is the main, the permanent river, which constitutes that boundary; and the mind will find itself embarrassed with insurmountable difficulty in attempting to draw any other line than the low water mark." *Id.*, at 380-381.

Because the boundary between Ohio and Kentucky was established by the same events that drew the line between Indiana and Kentucky, the holding in *Handly's Lessee* should control this case.<sup>1</sup> The Ohio River must remain the border between the States and within the domain of Kentucky. The *only* way to ensure this result is to recognize the current low-water mark on the northern shore as the boundary.

The approach taken by the Court today defeats the express terms of the Virginia Cession and ignores the explicit language of Chief Justice Marshall in *Handly's Lessee*.<sup>2</sup> The Court's holding that the boundary forever remains where the low-water mark on the northern shore of the river was in 1792, regardless of the river's movements over time, may produce bizarre results. If erosion and accretion were to shift the river to the north of the 1792 low-water mark, today's ruling would place the river entirely within the State of Ohio. The river would thus pass completely out of Kentucky's borders despite the holding in *Handly's Lessee* that the Ohio "river itself, wherever that may be, [is the] boundary." *Id.*, at 379. The river would not be the boundary between the two States nor would Kentucky as successor to Virginia "retain[]" the river within its own domain" as Chief Justice Marshall declared that it must. Similarly, if the river were to move to the south of the 1792 line, Ohio would be denied a shore on the river. Sensible people could not have intended such results, which not only would violate the plain language of the 1784 Cession, but also would mock the congressional resolution accepting Ohio into the Union as a State "bounded . . . on the South by the Ohio river." 2 Stat. 173 (1802).

#### II

The Court, like the Special Master, disregards the teaching of *Handly's Lessee*. Instead, the Court relies heavily on the decision in *Indiana v. Kentucky*, 136 U.S. 479 (1890), where Mr. Justice Field wrote that with respect to Kentucky's northern border, the State's "dominion and jurisdiction continue as they existed at the time she was admitted into the Union [1792] unaffected by the action of the forces of nature upon the course of the river." *Id.*, at 508; *ante*, at 3. Kentucky argues, with some force, that the Court in 1890 found no change from the 1792 boundary because that case concerned the

abandonment of a channel by the river, the sort of avulsive change in course that ordinarily does not alter riparian boundaries. There is no sign of an avulsive change in the length of the Ohio River at issue in this case. Moreover, *Indiana v. Kentucky* went on to find that Indiana had acquiesced in Kentucky's prescription of the land at issue. There has been no showing before us that Kentucky has acquiesced to Ohio's claim that the 1792 low-water mark establishes the entire boundary between the two States. See n. 3, *infra*. Absent such a showing, I do not believe the holding in *Indiana v. Kentucky* should be applied here.

In any event, the force of Mr. Justice Field's opinion as a precedent may be questioned on its face. The decision cannot be reconciled with *Handly's Lessee* or with any normal or practical construction of Virginia's Cession in 1784. Indeed, the Court's opinion is essentially devoid of reasoning. After reproducing the passages in *Handly's Lessee* that establish that Kentucky must retain jurisdiction over the river, Mr. Justice Field states abruptly that, nevertheless, the boundary should be set at the low-water mark "when Kentucky became a State." 136 U.S., at 508. Mr. Justice Field apparently was unaware that, in effect, he was overruling the case on which he purported to rely. His conclusion is based simply on the startling view that when Kentucky "succeeded to the ancient right and possession of Virginia" in 1792, the new State received a boundary that "could not be affected by any subsequent change of the Ohio River." *Ibid*. The opinion offers no further explanation for its holding.

Of course, Kentucky did succeed to Virginia's rights in 1792. After the Cession of 1784, Virginia was entitled to have the river within its jurisdiction and to have the northern low-water mark as the boundary between it and that part of the Northwest Territory that became Ohio and Indiana. Kentucky's entry into the Union could not, without more, replace those rights with the immutable boundary found by Mr. Justice Field. Neither Mr. Justice Field in 1890 nor the State of Ohio in this litigation pointed to any suggestion by Congress in 1792 that it intended such a result.

#### III

Today's decision also contravenes the common law of riparian boundaries. In a dispute over the line between Arkansas and Tennessee along the Mississippi River, this Court noted:

"[W]here running streams are the boundaries between States, the same rule applies as between private proprietors, namely, that when the bed and channel are changed by the natural and gradual processes known as erosion and accretion, the boundary follows the varying course of the stream." *Arkansas v. Tennessee*, 246 U.S. 158, 173 (1918).

See *Boneli Cattle Co. v. Arizona*, 414 U.S. 313 (1973). This rule has an intensely practical basis, since it is exceedingly difficult to establish where a river flowed many years ago. Physical evidence of the river's path is almost certain to wash away over time, and documentary evidence either may not survive or may not be reliable.

The Court suggests that the Ohio-Kentucky boundary should not be determined by reference to previous river boundary deci-

sions because the border in this case is not "the river itself but . . . its northerly bank." *Ante*, at 3. This contention contradicts Chief Justice Marshall's statement, quoted by the Court, that with respect to Kentucky's northern border, "[t]he river, however, is its boundary." *Ante*, at 4. In addition, the Court does not explain why established principles of riparian law are inapplicable simply because the northern low-water mark, not the center of the river, is the boundary. Since both lines shift over time, it is only sensible to adopt the common-law view that borders defined by those lines will move with them.<sup>3</sup>

#### IV

Following today's decision, all boundary matters between Ohio and Kentucky will turn on the location almost 200 years ago of the northern low-water mark of the Ohio River. This cumbersome and uncertain outcome might be justified if it were dictated by unambiguous language in the Virginia Cession. But since the Court's decision is not only unworkable but also does violence to that deed as it has been construed by this Court, I cannot agree with the Court's ruling today.

#### REFERENCES

<sup>1</sup>Both parties to the litigation agree that the boundary between Kentucky and Ohio is controlled by the same legal and historical considerations that define the boundary between Indiana and Kentucky.

<sup>2</sup>Chief Justice Marshall, the author of *Handly's Lessee*, would seem a particularly reliable interpreter of the 1784 Cession. The Chief Justice was not only a practicing lawyer in Richmond in 1783 and 1784, but also served as a member of the General Assembly of Virginia that approved the Cession. I. A. Beveridge, *The Life of John Marshall*, (1919), 202-241.

<sup>3</sup>The Court seeks support for today's decision from a recent statement by the Legislative Research Committee of the Kentucky General Assembly and a 1963 opinion of the Kentucky Attorney General. *Ante*, at 6. Although both documents refer to the 1792 low-water mark as the proper boundary, they are hardly authoritative pronouncements that should control our outcome. Indeed, other legislative and judicial statements refer to the northern low-water mark without any mention of the 1792 line. See 57 Stat. 248 (1943) (interstate compact between Indiana and Kentucky defining the boundary as the "low-water mark on the right side of [the Ohio] river"); *Commonwealth v. Henderson County*, 371 S. W. 2d 27, 29 (Ky. 1963) (Kentucky's boundary is "north or northwest low water-mark of the Ohio River"); *Louisville Sand & Gravel Co. v. Ralston*, 266 S. W. 2d 119, 121 (Ky. 1954) ("our state boundary is along the north bank of the Ohio river at low-water mark," quoting *Willis v. Boyd*, 224 Ky. 732, 7 S. W. 2d 216, 218 (1928)).

Under the doctrine of prescription and acquiescence, it may be proved that one party has recognized through its actions a riparian boundary claimed by another party. See *Michigan v. Wisconsin*, 270 U.S. 295, 308 (1926). That question, however, is one of fact. The Special Master did not request evidence from the parties on this issue, so it is not properly before us now. We cannot decide such a question on the basis of particular shards of evidence that may come to our attention. In view of the conflicting evidence on the claim of prescription and acquiescence, the correct course would be to return this litigation to the Special Master for findings of fact on that question. ■

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**POINT — COUNTERPOINT**  
(Response to Gary Kent from Emil Beeg)

As I reviewed your thoughts on the surveying problem, I came to the same general conclusion that you did with the information which was given. This general conclusion kept falling apart when I would add a "what if" type of statement or additional information to the data that was given. I could see that each additional "what if" could change the location for the centerline division. I think that this problem should be looked at as follows: A) Fee title of the roadway, and B) the intent of the original divider of the lot.

A) What has happened to the fee title of the roadway and when did it happen? One of three things could have happened to the fee title.

- 1) By "common law" the roadway is now in the ownership of the County, City, State, etc. (Public)
- 2) The roadway is now in the ownership of all of the lot owners in the subdivision but not the general public. (Semi-public)
- 3) By non-use, the roadway fee has reverted back to ownership of the adjoining "lot" owners. (Private)

There is case law with good sets of examples of all three of the above in books by Clark, Skelton, Brown and Eldridge, and McEntyre and Dean.

B) What was the intent of the original divider of the lot when the West half was sold and the status of the roadway fee at the time of sale?

- 1) If the roadway fee is in public ownership, I see no problem in dividing the lot in half from the right of way line. The only question would be if the possession line and the deed line are not one and the same.
- 2) If the lot was sold sometime in the past and the roadway fee is or was in semi-public and/or private ownership, the ownership may be to the centerline(s) and the intent of the transaction may not have been to place the line half-way between the right of way lines. We are right back to "what if" situations. Information, information, and more information is what you need to solve the problem.

And do not forget that the owner of the East half will "hire a REAL surveyor to do it RIGHT!"

NOTE: The original presentation of this problem appeared on page 20-21 of the Hoosier Surveyor, Vol. 7, No. 1, Winter 1980



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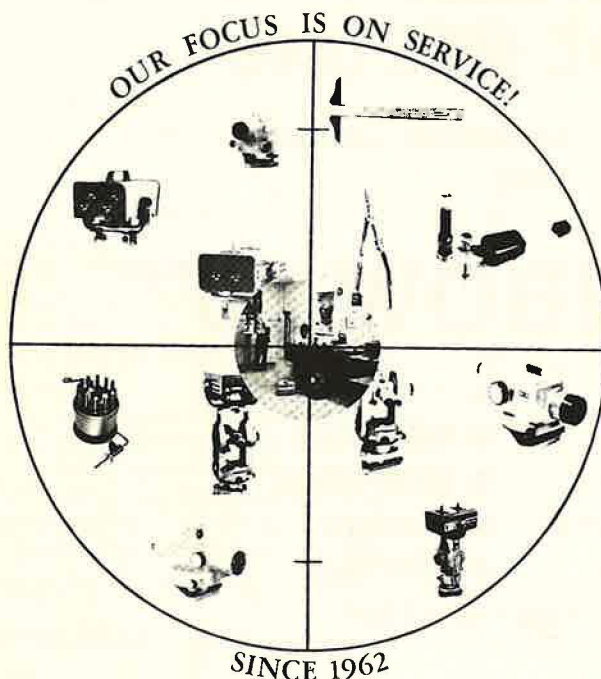


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Marshall Neil Franklin of Buda has been elected as a Director of ACSM.

Currently secretary-treasurer of Travis Associates, an Austin-based consulting engineering and surveying firm, Franklin retired in 1976 from the firm he founded in Indianapolis, Indiana and moved to Texas.

A 1951 graduate of Purdue University with a degree in civil engineering, Franklin is a registered land surveyor in Indiana and a registered professional engineer in Indiana, Ohio, Wisconsin, and Texas.

#### THE COMMON LAW OF BUSINESS BALANCE

It's unwise to pay too much but it's worse to pay too little. When you pay too much, you lose a little money — that is all.

When you pay too little you sometimes lose everything, because the thing you bought was incapable of doing the things it was bought to do.

The common law of business balance prohibits paying a little and getting a lot — it can't be done.

If you deal with the lowest bidder, it is well to add something for the risk you run, and if you do that you will have enough to pay for something better.

John Ruskin  
1819-1900

### SURVEYORS AND STATESMEN GOES TO PRESS

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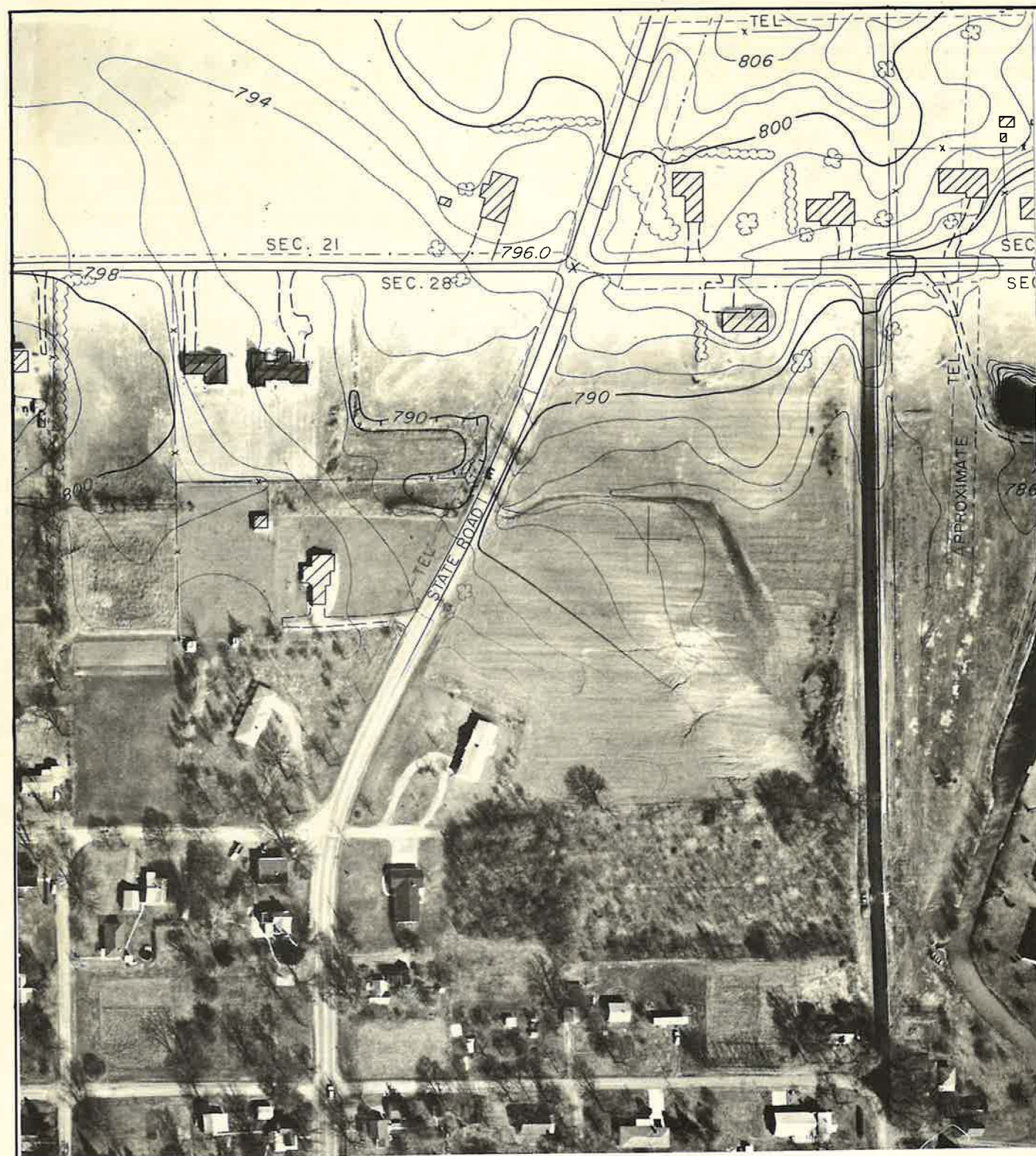
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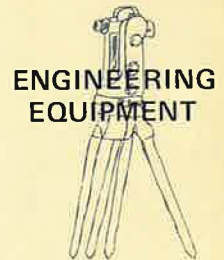
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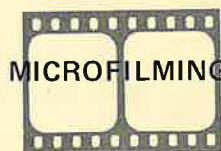
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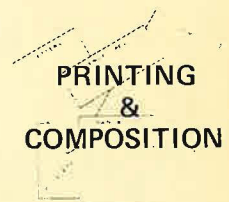
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