



THE FLORIDA SURVEYOR

April 2022
Volume XXX, Issue 4



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Practice & Education Part IV
Local Proclamations



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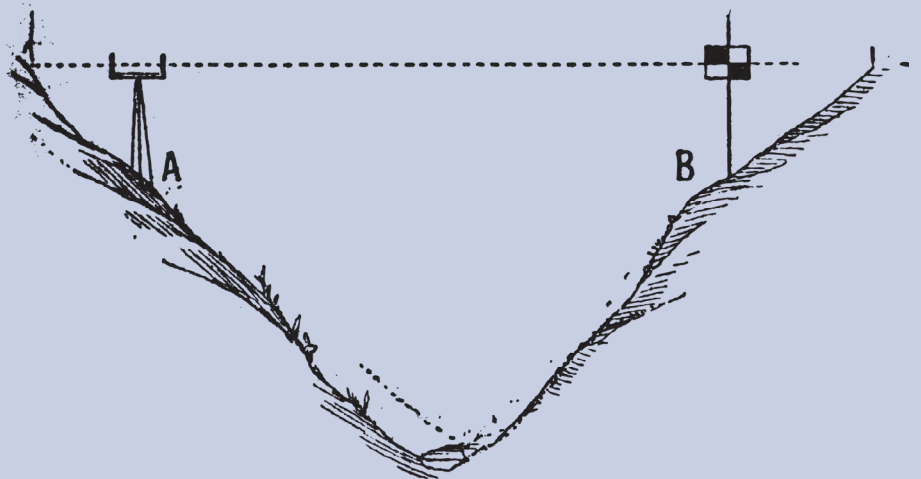
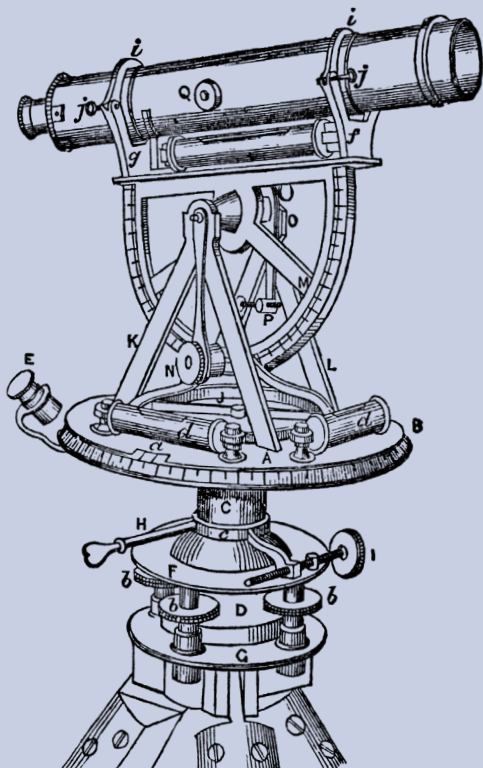
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PRESIDENT'S Message

Greetings from Washington, DC, where I recently attended the Spring NSPS meeting. I should be back in South Florida by now, but Mother Nature had plans otherwise as my flight this morning was canceled due to weather in Florida, so I'll give it another try tomorrow (April 4).

There have been some recent changes in NSPS, most especially in the Executive Director position. Curt Sumner, the NSPS Executive Director for the past 23 years, has retired (he is now ED Emeritus), and Tim Burch from Illinois has been hired as the new Executive Director. Like Curt, Tim is a licensed Surveyor, and, in fact, he was the NSPS President-Elect before he was hired for his new role (and he had to resign his position as President-Elect). Amanda Allred is now NSPS President (from New Mexico).

I attended more than a few Committee meetings while I was here, as well as the General Membership and Board of Directors meetings. I was impressed at the genuine desire of all in attendance to work towards the betterment of the profession, and I was able to interject the "Florida Perspective" in all of the meetings that I attended, and in all cases, it was warmly received.

Things have changed dramatically and for the better since I last attended the NSPS Spring meeting (2017). I really enjoyed this year's meeting and have met a lot of new friends.

Like FSMS, NSPS has recently started a Workforce Development Committee and I can see that our committee can glean a lot of information from the NSPS Committee (Tim Murphy, Chair), and most likely, vice-versa.

Back to Florida, we were able to stave off another attack on Chapter 472, Florida Statutes thanks to our lobbyist David Daniel and our Legislative Committee,



President
Lou Campanile, Jr.
(954) 980-8888
lou@campanile.net

headed by Jack Breed. We **will** see another attempt to introduce lessened educational requirements for PSM licensure into Ch. 472 next year, and this will be the time for all of us to band together and stave off any and all legislative attempts to deregulate our profession, as this is truly what we are facing.

FSMS has a Board meeting coming up in Tallahassee on Friday, April 22. This will be our last Board meeting with Tom Steckler as our Executive Director. Tom's employment contract terminates this month (yes, it has been 5 years already), and Tom has decided to retire. However, he has graciously agreed to continue serving as our ED until the close of our Annual Meeting in West Palm Beach (basically, July 23rd). At our February 4th Board of Directors' meeting, the FSMS Board voted unanimously to appoint Rebecca Culverson as our Executive Director beginning at the close of this year's Annual Meeting.

The next time you talk to or see Rebecca, please congratulate her on her pending promotion. She has served us fantabulously, and it is time!

67th Annual FSMS Conference at PGA National Resort & Spa, July 20-23
Check Out Our Exhibitor Opportunities!



2022 FSMS Officers



President-Elect

Howard Ehmke
(772) 286-8083
howard@gcyinc.com



Vice President

Jim Sullivan
(561) 687-2220
Jim.Sullivan@wginc.com



Secretary

Sam Hall
(352) 408-6033
surveysam17@outlook.com



Treasurer

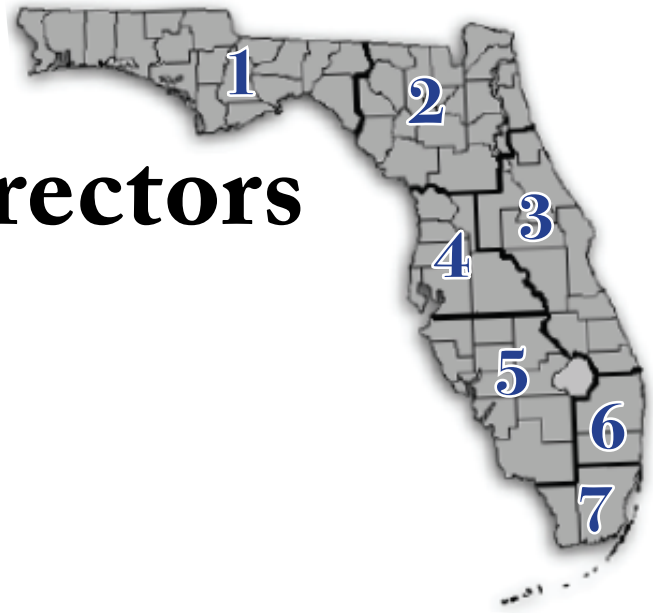
Bon Dewitt
(352) 392-6010
bon@ufl.edu



Immediate Past President

Hal Peters
(352) 304-9534
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2022 Districts & Directors



District 1 - Northwest

Bay, Calhoun, Escambia, Franklin, Gadsden, Madison, Okaloosa, Santa Rosa, Taylor, Wakulla, Walton, Washington

Eric Stuart

(850) 685-1149

eric.stuart@sam.biz

Chad Thurner

(850) 200-2441

chad.thurner@sam.biz

District 2 - Northeast

Alachua, Baker, Bradford, Clay, Columbia, Dixie, Duval, Gilchrist, Hamilton, Lafayette, Levy, Marion, Nassau, Putnam, Suwannee, St. Johns, Union

Nick Digruzzolo

(863) 344-2330

ndigruzzolo@pickettusa.com

Randy Tompkins

(904) 755-4235

randytompkins1@outlook.com

District 3 - East Central

Brevard, Flagler, Indian River, Lake, Okeechobee, Orange, Osceola, Seminole, Martin, St. Lucie, Volusia

Al Quickel

(407) 567-1566

alq.fsms@gmail.com

Robert Johnson

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boj@carterassoc.com

District 4 - West Central

Citrus, Hernando, Hillsborough, Pasco, Pinellas, Polk, Sumter

Greg Prather

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Alex Parnes

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District 5 - Southwest

Collier, Charlotte, DeSoto, Glades, Hardee, Hendry, Highlands, Lee, Manatee, Sarasota

Shane Christy

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Jeffrey Cooner

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District 6 - Southeast

Broward, Palm Beach

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Earl Soeder

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District 7 - South

Miami-Dade, Monroe

Jose Sanfiel

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Manny Vera, Jr.

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NSPS Director

Russell Hyatt

(941) 748-4693

russell@hyattsurvey.com

2022 Committees

Standing Committees

Nominating Committee	Howard Ehmke
Membership Committee	Nick DiGruttolo
Finance Committee	Bon Dewitt
Executive Committee	Lou Campanile, Jr.
Education Committee	Greg Prather
Annual Meeting Committee	Jim Sullivan
Legal Committee	Jack Breed
Strategic Planning Committee	Lou Campanile, Jr.
Ethics Committee	Shane Christy
Legislative Committee	Jack Breed
Surveying & Mapping Council	Randy Tompkins
Constitution & Resolution Advisory Committee	Eric Stuart

Special Committees

Equipment Theft	Manny Vera, Jr.
Awards Committee	Hal Peters
UF Alumni Recruiting Committee	Russell Hyatt
Professional Practice Committee	Lou Campanile, Jr.
Workforce Development Committee	Don Elder

Liaisons

CST Program	Alex Jenkins
FDACS BPSM	Don Elder
Surveyors in Government	Richard Allen
Academic Advisory UF	Bon Dewitt
FES	Lou Campanile, Jr.

Practice Sections

Geospatial Users Group	Earl Soeder
------------------------	-------------

2022

Chapter Presidents

District 1

Panhandle

David Glaze
davidpga@bellsouth.net

Gulf Coast

Frederic Rankin
erankin@dewberry.com

Chipola

Jesse Snelgrove
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District 2

FL Crown

Kathy Wade
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Indian River

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Volusia

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District 4

Ridge

Larry Sharp
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Tampa Bay

Charlie Arnett
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District 5

Charlotte Harbor

Derek Miller
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Collier-Lee

Steve Shawles II
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Manasota

Aaron Levine
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District 6

Broward

Benjamin Hoyle
benjamin.hoyle@kci.com

Palm Beach

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lpowers@zemangroup.com

FAU Geomatics

Brett Costanza
brettcostanza@hotmail.com

District 7

Miami-Dade

Frank Pauas-Suiero
fparuas@gpinet.com

Thoughts on Professional Practice and Education

Article 4: Business and Management in Education

by Knud E. Hermansen P.L.S., P.E., Ph.D., Esq.

THIS IS THE FOURTH ARTICLE

I have prepared in the series offering thoughts on professional practice and education. The focus of this article, I hope, will assuage some individuals that I offended by my last article and will give hope to friends that will see I am now writing with the sense that I appear to have lost with my last article.

I know I am not alone when I say I wish I knew as a young surveyor what I now know about running a business.

I can stand in front of a dozen or more surveyors that run their own surveying business, some for decades, and discuss rules and regulations that by law apply to them. What I reveal shocks many of them as they realize the deficiencies in their knowledge and business practice. They were unaware or confused about rules and regulations they should be adhering to or should have adhered to when running their business.

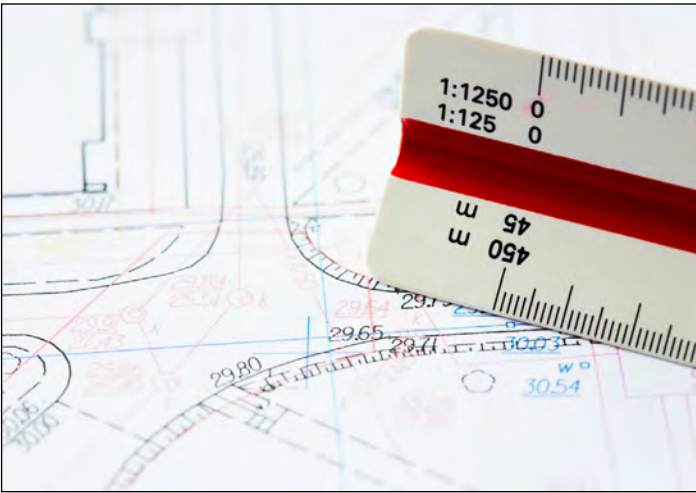
I might quickly add, I will not claim to know the entire plethora of knowledge on government regulations as applied to businesses. Who would know all the governing rules except for the most dedicated bureaucrat or regulator? Sadly, the federal, state, and local governments continue to do their best



to create more difficulties in starting and running a business – especially if you contract with the government.

The first time a surveyor hears the phrase ‘cash flow’ should not be during their first year of owning a business as they sit in their office, the time near midnight, the pay for employees due the next day. Having never heard of the term ‘cash flow,’ the new business owner cannot understand how they must pay sooner using what they won’t have until later.

The new graduate that is checking into the human resource manager at the onset of their surveying career should not wonder what is meant by a 401k, employer match, vesting periods, and pre-tax contributions.



This missive is not meant to discuss politics or even the various subjects that may fall under the concepts of 'business' and 'management' education. Rather, the focus is to advocate that relevant business and management topics be presented to students studying in a four-year surveying program.

Faculty would be disappointed when collecting alumni data to discover graduates described their job title as 'survey technician' ten years after graduation. After ten years, the graduate is expected to be licensed and in management. Yet, many survey

The first time a surveyor hears the phrase 'cash flow' should not be during their first year of owning a business as they sit in their office, ”

programs have failed to give students any relevant knowledge that would aid the graduate to take on management positions where survey graduates are expected to spend most of their professional careers.

I would opine the lack of adequate business and management courses in surveying programs stem from two conditions. The first condition arises because of the lack of business and management experience that faculty have. Many faculty do not have the experience, training, or knowledge to teach relevant business and management courses. Even survey programs at larger universities can't always draw on the business school faculty to help educate the surveying student in relevant business courses. While the business school faculty may be able to educate the surveying student regarding contracts, business entities, employee law, etc. topics such as mechanics liens, survey fee makeup, right of entry laws, road safety laws, Dig-safe, OSHA, federal contracting, and other such survey specific areas will not be covered in a course taught by the business school.

The second condition thwarting the introduction of business and management courses into a surveying program is

the difficulty in fitting more courses into a surveying degree program. Universities limit the maximum number of credits for a bachelor of science degree. ABET accreditation requires certain courses and credit hours. NCEES has established topics covered in the FS exam that must be covered in the academic program. Finally, the university requires all students at the university take certain courses for the regional accreditation the university maintains.

If the reader will indulge me, I will get upon a soapbox regarding the last limitation mentioned - that is University accreditation requirements. I have found it frustrating that regional accreditation often requires courses such as diversity, artistic expression, humanities, and other general education courses popular among liberal arts faculty but worthless in a business or a professional environment. (Not all general education is dismissed by practitioners. Course such as communication and writing courses are the exception. These courses and their content are appreciated by employers.)

For 30 years I have examined hundreds of employment-surveys prepared by alumni and survey employers sent by the University for program self-improvement. In those 30 years and after review of hundreds of documents, I have yet to see a single

employer or alumni say how useful artistic expression and similar courses have been toward their career. The mention of these courses is a common occurrence but only under a category where alumni cite courses of no use in their life and wasted tuition money.

Having given my opinion, I now offer advice by suggesting professional societies that advocate for surveying programs also look at the courses in the survey program to ensure there are business and management courses that provide the graduate with the knowledge to become leaders in both the profession, community, and a surveying business.

About the Author

Knud E. Hermansen

P.L.S., P.E., Ph.D., Esq.

Knud E. Hermansen began his surveying career in the United States Marine Corp. over 30 years ago. After completion of basic training, Knud was sent to surveying school and spent the next three years with the 2nd Topographic Platoon, 8th Engineer Battalion performing control surveys throughout the world. After his release from active duty as a sergeant, Knud worked for various consulting firms providing a wide range of services involving boundary surveys, site development, and engineering. During the last several years, Knud has provided consulting services in land surveying, civil engineering, and law.

Much of Knud's present consulting activities involve boundary disputes, easements, land development, liability, title, and contract issues.

Knud taught at Penn State University for four years before teaching at the University of Maine. He teaches in the Surveying Engineering Technology program, as well as the Construction Engineering Technology program. He currently teaches three to four courses a semester from basic surveying to construction law.

Courtesy of: The University of Maine: Surveying and Engineering Technology

† Other books and articles by Knud can be found at <https://umaine.edu/svt/faculty/hermansen-articles/>



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National Surveyors Week

March 20-26, 2022

Proclamation

WHEREAS, surveyors and mappers are counted among the founding leaders of our country and were instrumental in the formation of the layout of property boundaries in the United States, which have provided our citizens the opportunity for property ownership; and

WHEREAS, George Washington, Thomas Jefferson, and other former Presidents of the United States, served their fellow colonists as surveyors; and

WHEREAS, the citizens of Florida recognize the valuable contributions of the surveying and mapping profession to history, development, and quality of life in Florida, and the United States of America and make important decisions based on the knowledge and expertise of licensed surveyors and mappers; and

WHEREAS, the surveying and mapping profession requires specific education prerequisites, training, the knowledge of mathematics, the related physical and applied sciences, and requirements of law for evidence; and

WHEREAS, surveyors and mappers are uniquely qualified and licensed to determine and describe land and water boundaries for the management of natural resources and protection of private and public property rights; and

WHEREAS, the continued advancements in instrumentation have required the surveyor and mapper not only to be able to understand and implement the methods of the past, but also to learn and employ modern technology in finding solutions to meet the challenges of the future.

NOW, THEREFORE, I, Nicole Fried, Commissioner of Agriculture for the State of Florida, do hereby designate the week of March 20-26, 2022 as

FLORIDA SURVEYORS AND MAPPERS WEEK

and recognize the many contributions and the ongoing dedication of surveyors and mappers to the citizens of Florida and the United States of America.



IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Florida to be affixed at Tallahassee, the Capital, this 20th day of March, in the year two thousand twenty-two.

Nicole Fried
NICOLE FRIED
COMMISSIONER OF AGRICULTURE

Local Proclamations

Brevard County

Brevard



County

BOARD OF COUNTY COMMISSIONERS

Resolution

WHEREAS, surveying has been an essential element in the development of the human environment since the beginning of recorded history and it is a requirement in the planning and execution of nearly every form of construction with its most familiar modern uses in the fields of transportation, building and construction, communications, mapping, and the definition of legal boundaries for land ownership; and

WHEREAS, George Washington, Thomas Jefferson, Abraham Lincoln, and other former Presidents of the United States, served their fellow colonists as surveyors; and

WHEREAS, the surveying and mapping profession requires special education, training, the knowledge of mathematics, the related physical and applied sciences, and requirements of law for evidence; and

WHEREAS, the continual advancements in instrumentation have required the surveyor and mapper not only to be able to understand and implement the methods of the past, but also to learn and employ modern technology in finding solutions to meet the challenges of the future; and

WHEREAS, the citizens of Brevard County recognize the valuable contributions of the surveying and mapping profession to history, development, and quality of life in Florida and the United States of America and make important decisions based on the knowledge and expertise of licensed surveyors and mappers.

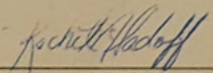
NOW, THEREFORE, BE IT RESOLVED, THAT THE BOARD OF COUNTY COMMISSIONERS OF BREVARD COUNTY, FLORIDA, in conjunction with National Surveyors Week, does hereby proclaim the week of March 20 through March 26, 2022, as

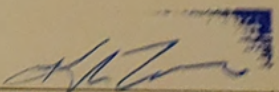
FLORIDA SURVEYORS AND MAPPERS WEEK

and recognizes the many contributions and the ongoing dedication of our present-day surveyors and mappers to the citizens of Brevard County.

DONE, ORDERED, AND ADOPTED in regular session, this 22nd day of March, 2022.

ATTEST:


RACHEL M. SADOFF, CLERK


KRISTINE ZONKA, CHAIR
BOARD OF COUNTY COMMISSIONERS
BREVARD COUNTY, FLORIDA



Local Proclamations

City of Chipley

PROCLAMATION

*A Proclamation
of the City of Chipley, Florida
Commemorating National Surveyors Week*

WHEREAS, surveyors and mappers are counted among the founding leaders of our country and were instrumental in the formation of the layout of property boundaries in the United States, which have provided our citizens the enjoyment of property ownership, and

WHEREAS, George Washington, Thomas Jefferson, and other former Presidents of the United States served their fellow colonists as surveyors; and

WHEREAS, the citizens of Florida recognize the valuable contributions of the surveying and mapping profession to the history, development, and quality of life in Florida and the United States and make important decisions based on the knowledge and expertise of licensed surveyors and mappers; and

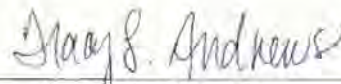
WHEREAS, the surveying and mapping profession requires special education, training, the knowledge of mathematics, the related physical and applied sciences, and requirements of law for evidence; and

WHEREAS, surveyors and mappers are uniquely qualified and licensed to determine and describe land and water boundaries for the management of natural resources and protection of private and public property rights; and

WHEREAS, the continual advancements in instrumentation have required the surveyor and mapper not only to be able to understand and implement the methods of the past, but also to learn and employ modern technology in finding solutions to meet the challenges of the future;

NOW, THEREFORE, BE IT PROCLAIMED that the City of Chipley, the Mayor and City Council do hereby recognize March 20-March 26, 2022 as **NATIONAL SURVEYORS WEEK**, and we call this observance to the attention of all of our citizens.

IN TESTIMONY WHEREOF, the Mayor has hereunto subscribed her name this 8th day of March 2022.



Tracy E. Andrews, Mayor

Local Proclamations

City of Fort Lauderdale

Office of the Mayor
City of Fort Lauderdale

Proclamation

In Recognition of
National Surveyors Week
March 20-26, 2022

- WHEREAS,** every March, a weeklong awareness campaign is conducted to emphasize the contributions of professional surveyors, introduce a new generation to the profession, and highlight the use of technology in surveying work; and
- WHEREAS,** National Surveyors Week was established by the National Society of Professional Surveyors as an annual celebration of the surveying profession and the vital services that they provide to the advancement and betterment of human welfare; **and**
- WHEREAS,** surveyors are responsible for making precise measurements to determine property boundaries and providing data relevant to the shape and contour of the earth's surface for engineering, mapmaking, and construction projects. They are skilled in several fields: geometry, trigonometry, regression analysis, physics, engineering, meteorology, programming languages, and the law; and
- WHEREAS,** surveyors have played a vital role in the growth and development of our city, state, and nation. Pioneers were encouraged to travel many miles to settle and stake land claims to build upon the foundation of our country; and
- WHEREAS,** three United States presidents served their fellow colonists as surveyors: George Washington, Thomas Jefferson, and Abraham Lincoln. In fact, Thomas Jefferson developed the Public Land Survey System that is still used today in describing and selling land acquired by the public to help fund and build our country; and
- WHEREAS,** surveyors in our area were instrumental to early exploration, development, building, and platting of lands, roads, bridges, and institutions in Broward County; and
- WHEREAS,** the City of Fort Lauderdale recognizes the valuable contributions of our local surveyors and relies on their mapping expertise to make daily decisions that impact development and quality of life in our city.

NOW, THEREFORE WE, as City Commissioners of the City Fort Lauderdale, do hereby proclaim March 20-26, 2022 as:

NATIONAL SURVEYORS WEEK

in the City of Fort Lauderdale and encourage everyone to celebrate these dedicated professionals for their innovative work and historical contributions.

DATED this 15th day of March 2022



Dean J. Trantalis

Mayor Dean J. Trantalis



"Fort Lauderdale: The City You Never Want To Leave"

Local Proclamations

City of Jacksonville



ONE CITY. ONE JACKSONVILLE

WHEREAS: Surveyors and mappers are counted among the founding leaders of our country and were instrumental in the formation of the layout of property boundaries in the United States, which have provided citizens the enjoyment of property ownership; and

WHEREAS: George Washington, Thomas Jefferson, and other former Presidents of the United States served their fellow colonists as surveyors; and

WHEREAS: The citizens of Florida recognize the valuable contributions of the surveying and mapping profession to the history, development, and quality of life in Florida and the United States of America and make important decisions based on the knowledge and expertise of licensed surveyors and mappers; and

WHEREAS: The surveying and mapping profession requires special education, training, the knowledge of mathematics, the related physical and applied sciences and requirements of law for evidence; and

WHEREAS: Surveyors and mappers are uniquely qualified and licensed to determine and describe land and water boundaries for the management of natural resources and protection of private and public property rights; and

WHEREAS: The continual advancements in instrumentation have required the surveyor and mapper not only to be able to understand and implement the methods of the past, but also to learn and employ modern technology in finding solutions to meet the challenges of the future.

NOW, THEREFORE, I, LENNY CURRY, by virtue of the authority vested in me as mayor of Jacksonville, Florida, do hereby proclaim March 20-26, 2022 as

FLORIDA SURVEYORS AND MAPPERS WEEK

in Jacksonville and encourage all citizens to recognize the contributions of the surveyors and mappers who serve Jacksonville and the state of Florida.



IN WITNESS THEREOF, this 11th day of Nov.,
in the year Two Thousand 22

1 0

Local Proclamations

Lake County



PROCLAMATION 2022 - 23

WHEREAS, surveyors and mappers are counted among the founding leaders of our country and were instrumental in the formation of the layout of property boundaries in the United States which have provided our citizens the enjoyment of property ownership; and

WHEREAS, George Washington, Thomas Jefferson and other former Presidents of the United States, served their fellow colonists as surveyors; and

WHEREAS, the citizens of Florida recognize the valuable contributions of the surveying and mapping profession to history, development, and quality of life in Florida and the United States of America and make important decisions based on the knowledge and expertise of licensed surveyors and mappers; and

WHEREAS, the surveying and mapping profession requires special education, training, the knowledge of mathematics, the related physical and applied sciences, and requirements of law for evidence; and

WHEREAS, surveyors and mappers are uniquely qualified and licensed to determine and describe land and water boundaries for the management of natural resources and protection of private and public property rights; and

WHEREAS, the continual advancements in instrumentation have required the surveyor and mapper not only to be able to understand and implement the methods of the past, but also to learn and employ modern technology in finding solutions to meet the challenges of the future.

NOW, THEREFORE, in conjunction with National Surveyors Week, the Board of County Commissioners of Lake County, Florida, proclaims that:

1. The week of March 20 - 26, 2022, shall be proclaimed as "FLORIDA SURVEYORS AND MAPPERS WEEK."
2. The Board of County Commissioners recognizes the many contributions and the ongoing dedication of surveyors and mappers to the citizens of Florida and the United States.
3. A copy of this Proclamation shall be spread upon the minutes of this meeting.
4. This Proclamation shall become effective upon adoption.

DONE AND PROCLAIMED this 22nd day of March 2022 in regular session of the Board of County Commissioners of Lake County, Florida.



BOARD OF COUNTY COMMISSIONERS LAKE COUNTY, FLORIDA

Sean M. Parks
SEAN M. PARKS, CHAIRMAN

Kirby Smith
KIRBY SMITH, VICE-CHAIR

Douglas B. Shields
DOUGLAS B. SHIELDS, DISTRICT 1

Leslie Campione
LESLIE CAMPIONE, DISTRICT 4

Josh Blake
JOSH BLAKE, DISTRICT 5

ATTEST:

Gary J. Cooney
GARY J. COONEY, CLERK TO THE
BOARD OF COUNTY COMMISSIONERS
LAKE COUNTY, FLORIDA

APPROVED AS TO FORM AND LEGAL
SUFFICIENCY:

Melanie Marsh
MELANIE MARSH
COUNTY ATTORNEY

Local Proclamations

Madison County



Madison County Proclamation given at County Board Meeting during National Surveyors Week.

Local Proclamations

Manatee County



The Manasota Chapter had 10 local surveyors attend the Manatee County Board meeting on March 8 to receive the Proclamation for National Surveyors Week.



Local Proclamations

Orange County



Office of the
Orange County Mayor

Proclamation

WHEREAS, surveyors and mappers are among the founding leaders of our country and were instrumental in the formation of the layout of property boundaries in the United States which have provided our citizens the enjoyment of property ownership; and

WHEREAS, George Washington, Thomas Jefferson and other former Presidents of the United States, served their fellow colonists as surveyors; and

WHEREAS, the residents of Orange County recognize the valuable contributions of the surveying and mapping profession to history, land development, and quality of life in Florida and the important decisions based on the knowledge and expertise of licensed surveyors and mappers; and

WHEREAS, the surveying and mapping profession requires special education and training, including the knowledge of mathematics, related physical and applied sciences, and requirements of law for evidence; and

WHEREAS, surveyors and mappers are uniquely qualified and licensed to determine and describe land and water boundaries for the management of natural resources and protection of private and public property rights; and

WHEREAS, continuing advancements in instrumentation have required surveyors and mappers to have the ability to understand, as well as implement the methods of the past, and to learn and employ modern technological solutions to meet future challenges.

NOW, THEREFORE, I, Jerry L. Demings, by virtue of the authority vested in me as Orange County Mayor, do hereby proclaim the week of March 20 through March 26, 2022, as

FLORIDA SURVEYORS AND MAPPERS WEEK

in Orange County, Florida, in recognition of the many contributions and ongoing dedication of surveyors and mappers to local residents of Orange County and the State of Florida.

DONE AND ORDERED this 15th day of March 2022.

Handwritten signature of Jerry L. Demings in blue ink.

JERRY L. DEMINGS, ORANGE COUNTY MAYOR



Local Proclamations

City of Orlando



SPECIAL SHOUT-OUT to Heather Marie Krick for such an Amazing Job at getting our Proclamations signed. Surveyors Week would not have been as successful without you. Thank You So Much Heather for your hard work and dedication to the profession!

Proclamation

CITY OF ORLANDO - OFFICE OF THE MAYOR

- WHEREAS,** surveyors and mappers are counted among the founding leaders of our country and were instrumental in the formation of the layout of property boundaries in the United States, which have provided citizens the enjoyment of property ownership; and
- WHEREAS,** George Washington, Thomas Jefferson and other former Presidents of the United States served their fellow colonists as surveyors; and
- WHEREAS,** the citizens of Florida recognize the valuable contributions of the surveying and mapping profession to the history, development and quality of life in Florida and the United States of America and make important decisions based on the knowledge and expertise of licensed surveyors and mappers; and
- WHEREAS,** the surveying and mapping profession requires special education, training, the knowledge of mathematics, the related physical and applied sciences and requirements of law for evidence; and
- WHEREAS,** surveyors and mappers are uniquely qualified and licensed to determine and describe land and water boundaries for the management of natural resources and protection of private and public property rights; and
- WHEREAS,** the continual advancements in instrumentation have required the surveyor and mapper not only to be able to understand and implement the methods of the past, but also to learn and employ modern technology in finding solutions to meet the challenges of the future;

NOW, THEREFORE, I, Buddy Dyer, Mayor of the City of Orlando; do hereby proclaim the week of March 20-26, 2022, as

“Florida Surveyors and Mappers Week”

in the City of Orlando.

IN WITNESS WHEREOF, I hereunto have set my hand and caused the Seal of the City of Orlando to be affixed this 20th day of March, 2022.




Buddy Dyer
MAYOR

Local Proclamations

Osceola County

OSCEOLA COUNTY



Proclamation

WHEREAS, surveyors and mappers are counted among the founding leaders of our country and were instrumental in the formation of the layout of property boundaries in the United States, which have provided citizens the enjoyment of property ownership; and

WHEREAS, George Washington, Thomas Jefferson and other former Presidents of the United States served their fellow colonists as surveyors; and

WHEREAS, the citizens of Florida recognize the valuable contributions of the surveying and mapping profession to the history, development and quality of life in Florida and the United States and make important decisions based on the knowledge and expertise of licensed surveyors and mappers; and

WHEREAS, the surveying and mapping profession requires special education, training, the knowledge of mathematics, as well as the related physical and applied sciences and requirements of law for evidence; and

WHEREAS, surveyors and mappers are uniquely qualified and licensed to determine and describe land and water boundaries for the management of natural resources and protection of private and public property rights; and

WHEREAS, the continual advancements in instrumentation have required the surveyor and mapper not only to be able to understand and implement the methods of the past but also to learn and employ modern technology in finding solutions to meet the challenges of the future.

NOW, THEREFORE, BE IT PROCLAIMED that the Osceola County Board of County Commissioners does hereby proclaim the March 20-26, 2022 to be known as


FLORIDA'S SURVEYING AND MAPPER WEEK

DONE AND ADOPTED by the Osceola Board of County Commissioners at their regular Board meeting on the 21st day of March 2022.

BOARD OF COUNTY COMMISSIONERS OF OSCEOLA COUNTY, FLORIDA


Brandon Arrington, Chairman


Viviana Janez, Vice Chairwoman


Peggy Choudhry, Commissioner


Cheryl A. Greb, Commissioner


Ricky Booth, Commissioner

Local Proclamations

Pasco County



BY THE BOARD OF COUNTY COMMISSIONERS

RESOLUTION NO. 22-088

A RESOLUTION BY THE BOARD OF COUNTY COMMISSIONERS OF PASCO COUNTY, FLORIDA, DECLARING MARCH 21 THROUGH MARCH 27, 2022, NATIONAL SURVEYOR'S WEEK IN PASCO COUNTY

WHEREAS, surveyors play an essential role in Pasco County; they are instrumental in developing our community. Surveyors are needed any time there is new construction, transportation, or mapping in Pasco County; and

WHEREAS, surveyors also play an important role in our local government; they are instrumental in defining legal boundaries throughout our community; and

WHEREAS, the surveyor profession is one of the oldest professions in the United States and has literally shaped our country as we know it today. Surveyors and mappers are among the founding fathers of the United States. In fact, three of the four men who are eternalized on Mt. Rushmore were surveyors. They were instrumental in the formation of the United States' land boundary and property system; and

WHEREAS, George Washington, the first official County Surveyor in the Colonies, Thomas Jefferson, Abraham Lincoln, and other former Presidents of the United States, served their fellow colonists as surveyors; and

WHEREAS, the surveying and mapping profession requires special education, training, and knowledge of advanced mathematics, physical and applied sciences and boundary law; and

WHEREAS, surveyors and mappers are uniquely licensed to determine and describe land and water boundaries for the management of natural resources and protection of private and public property rights; and

WHEREAS, the continued advancements in instrumentation have required surveyors and mappers to not only be able to understand and implement the methods of the past, but also to employ cutting edge technology in finding solutions to meet the challenges of the future; and


WHEREAS, the citizens of Florida recognize the valuable contributions of the surveying and mapping profession to the history and development of our state. Every day, Floridians make important decisions based on the knowledge and experience of licensed professional surveyors and mappers.


NOW, THEREFORE, BE IT RESOLVED by the Board of County Commissioners of Pasco County, Florida, that said Board hereby declares March 21 through 27, 2022, as National Surveyor's Week in Pasco County and encourages all citizens to recognize the many contributions and the ongoing dedication of professional surveyors and mappers in our community.

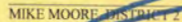
DONE AND RESOLVED in regular session with a quorum present and voting this 22nd day of March 2022.




ATTEST:

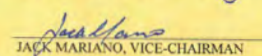

NIKKI ALVAREZ-SOWLES, ESQ.
CLERK & COMPTROLLER


RONALD E. OAKLEY, DISTRICT 1


MIKE MOORE, DISTRICT 2


BOARD OF COUNTY COMMISSIONERS
OF PASCO COUNTY, FLORIDA



KATHRYN STARKEY, CHAIRMAN


JACK MARIANO, VICE-CHAIRMAN


CHRISTINA FITZPATRICK, DISTRICT 4

Local Proclamations

Pinellas County



PROCLAMATION

PINELLAS COUNTY BOARD OF COUNTY COMMISSIONERS

FLORIDA SURVEYORS & MAPPERS WEEK

WHEREAS, surveyors and mappers are counted among the founding leaders of our country and were instrumental in the formation of the layout of property boundaries in the United States which have provided our citizens the enjoyment of property ownership; *and*

WHEREAS, George Washington, Thomas Jefferson, and other former Presidents of the United States, served their fellow colonists as surveyors; *and*

WHEREAS, the citizens of Pinellas County recognize the valuable contributions of the surveying and mapping profession to history, development, and quality of life in Florida and the United States of America and make important decisions based on the knowledge and expertise of licensed surveyors and mappers; *and*

WHEREAS, The Florida Surveying and Mapping Society's Tampa Bay Chapter has at least ninety active Florida licensed Professional Surveyors and Mappers and twenty-seven Florida licensed Surveying and Mapping Businesses are located in Pinellas County; *and*

WHEREAS, the surveying and mapping profession requires special education, training, the knowledge of mathematics, the related physical and applied sciences, and requirements of law for evidence; *and*

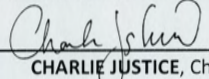
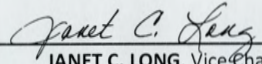
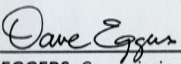
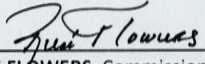
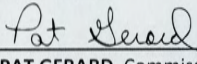
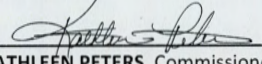
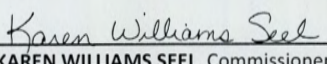
WHEREAS, surveyors and mappers are uniquely qualified and licensed to determine and describe land and water boundaries for the management of natural resources and protection of private and public property rights; *and*


WHEREAS, the continued advancements in instrumentation have required the surveyor and mapper not only to be able to understand and implement the methods of the past, but also to learn and employ modern technology in finding solutions to meet the challenges of the future.

NOW, THEREFORE, BE IT PROCLAIMED by the Pinellas County Board of County Commissioners that the week of March 20-26, 2022, be recognized as

FLORIDA SURVEYORS & MAPPERS WEEK

IN WITNESS WHEREOF, we have set our hands and caused the seal of Pinellas County, Florida, to be affixed this 8th day of March 2022.

 _____ CHARLIE JUSTICE, Chair	 _____ JANET C. LONG, Vice Chair	
 _____ DAVE EGGERS, Commissioner	 _____ RENÉ FLOWERS, Commissioner	 _____ PAT GERARD, Commissioner
 _____ KATHLEEN PETERS, Commissioner	 _____ KAREN WILLIAMS SEEL, Commissioner	



Local Proclamations

City of Sanford



CITY OF
SANFORD
FLORIDA

PROCLAMATION

WHEREAS, surveyors and mappers are counted among the founding leaders of our country and were instrumental in the formation of the layout of property boundaries in the United States which have provided our citizens the enjoyment of property ownership; and

WHEREAS, George Washington, Thomas Jefferson and other former Presidents of the United States, served their fellow colonists as surveyors; and

WHEREAS, the citizens of Florida recognize the valuable contributions of the surveying and mapping profession to history, development and quality of life in Florida and the United States of America and make important decisions based on knowledge and expertise of licensed surveyors and mappers; and

WHEREAS, the surveying and mapping profession requires special education, training, the knowledge of mathematics, the related physical and applied sciences, and requirements of law for evidence; and

WHEREAS, surveyors and mappers are uniquely qualified and licensed to determine and describe land and water boundaries for the management of natural resources and protection of private and public property rights; and

WHEREAS, the continual advancements in instrumentation have required the surveyor and mapper not only be able to understand and implement the methods of the past, but also to learn and employ modern technology in finding solutions to meet the challenges of the future.

NOW, THEREFORE, I, ART WOODRUFF, by virtue of the authority vested in me as Mayor of the City of Sanford, Florida, do hereby officially proclaim, the week of March 20-26, 2022, as

"FLORIDA SURVEYORS AND MAPPERS WEEK"

and recognize the many contributions and the ongoing dedication of surveyors and mappers to the citizens of Florida and the United States



IN WITNESS WHEREOF, I have hereunto set my hand and caused the Seal of the City of Sanford, Florida to be affixed this 14th of March in the year of our Lord two thousand and twenty two.



ART WOODRUFF, MAYOR

Local Proclamations

Sarasota County



- WHEREAS,** surveyors and mappers are counted among the founding leaders of our country and were instrumental in the formation of property boundaries, which provide our citizens the enjoyment of property ownership; and
- WHEREAS,** we recognize the valuable contributions of the surveying and mapping profession to history, development, and quality of life in Florida and nationwide, and make important decisions based on the knowledge and expertise of licensed surveyors and mappers; and
- WHEREAS,** surveyors and mappers are uniquely qualified and licensed to determine and describe land and water boundaries for the management of natural resources and protection of private and public property rights.

NOW, THEREFORE, WE THE BOARD OF COUNTY COMMISSIONERS OF SARASOTA COUNTY, FLORIDA,
do hereby proclaim March 20 through March 26, 2022, to be:

NATIONAL SURVEYORS WEEK

PRESENTED this 1st day of March, 2022.

Alan Maio, Chairman
Sarasota County District 4 Commissioner

Ron Cutsinger, Vice Chairman
Sarasota County District 5 Commissioner

Michael A. Moran
Sarasota County District 1 Commissioner

Christian Ziegler
Sarasota County District 2 Commissioner

Nancy C. Detert
Sarasota County District 3 Commissioner

Karen E. Rushing
Clerk of the Circuit Court and County Comptroller

Local Proclamations

Seminole County

**PROCLAMATION
of the
SEMINOLE COUNTY BOARD OF COUNTY COMMISSIONERS
PROCLAIMING THE WEEK OF MARCH 20 – 26 AS
FLORIDA SURVEYORS AND MAPPERS WEEK, 2022,
IN SEMINOLE COUNTY, FLORIDA**

WHEREAS, surveyors and mappers are counted among the founding leaders of our country, and were instrumental in the formation of the layout of property boundaries in the United States, which have provided citizens the enjoyment of property ownership; and

WHEREAS, George Washington, Thomas Jefferson and other former Presidents of the United States served their fellow colonists as surveyors; and

WHEREAS, the citizens of Florida recognize the valuable contributions of the surveying and mapping profession to the history, development and quality of life in Florida and the United States of America and make important decisions based on the knowledge and expertise of licensed surveyors and mappers; and

WHEREAS, the surveying and mapping profession requires special education, training, the knowledge of mathematics, the related physical and applied sciences, and requirements of law for evidence; and

WHEREAS, surveyors and mappers are uniquely qualified and licensed to determine and describe land and water boundaries for the management of natural resources and protection of private and public property rights; and

WHEREAS, the continued advancements in instrumentation have required the surveyor and mapper not only to be able to understand and implement the methods of the past, but also to learn and employ modern technology in finding solutions to meet the challenges of the future.

NOW, THEREFORE, BE IT PROCLAIMED that we, the Seminole County Board of County Commissioners does hereby proclaim the week of March 20-26, 2022 as

FLORIDA SURVEYORS AND MAPPERS WEEK

BE IT FURTHER PROCLAIMED by the Board of County Commissioners of Seminole County, Florida, that this Proclamation be spread upon the Official Minutes by the Clerk of the Circuit Court in and for the County of Seminole.

ADOPTED this 22nd day of March 2022.



Bob Dallari, Chairman
Seminole County, Board of County Commissioners



Local Proclamations

City of Tavares



America's Seaplane City™

PROCLAMATION

WHEREAS, surveyors and mappers are counted among the founding leaders of our country and were instrumental in the formation of the layout of property boundaries in the United States which have provided our citizens the enjoyment of property ownership; and

WHEREAS, George Washington, Thomas Jefferson and other former Presidents of the United States, served their fellow colonists as surveyors; and

WHEREAS, the citizens of Florida recognize the valuable contributions of the surveying and mapping profession to history, development, and quality of life in Florida and the United States of America and make important decisions based on the knowledge and expertise of licensed surveyors and mappers; and

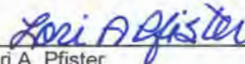
WHEREAS, surveyors and mappers are uniquely qualified and licensed to determine and describe land and water boundaries for the management of natural resources and protection of private and public property rights; and

NOW, THEREFORE, BE IT RESOLVED that in conjunction with National Surveyors Week, the City of Tavares does hereby proclaim the week of March 20 through 26, 2022, as

FLORIDA SURVEYORS & MAPPERS WEEK

and, recognize the many contributions and the ongoing dedication of surveyors and mappers to the citizens of Tavares.

PASSED AND DULY ADOPTED on this 16th day of March 2022.



Lori A. Pfister
Mayor, City of Tavares

Local Proclamations

City of Venice



On Right: Bob Strayer and Dave Panfil receive their Proclamation for National Surveyors Week from Ron Feinsod, Mayor of Venice.

Office of the Mayor



Proclamation

WHEREAS, surveying has been an essential element in the development of the human environment since the dawn of recorded history and is instrumental in the definition of legal boundaries for land ownership as well as the planning and execution of nearly every form of construction with its most familiar uses in the field of transportation, land development, communications, energy delivery and mapping; and

WHEREAS, surveyors and mappers are counted among the founding leaders of our country including George Washington, Thomas Jefferson, Abraham Lincoln, among many others and were instrumental in the formation of the layout of property boundaries in the United States which have provided our citizens the enjoyment of property ownership; and

WHEREAS, the surveying and mapping profession requires special education and training including the knowledge of mathematics, trigonometry and geometry as well as the related physical and applied sciences tempered by the requirements of law for evidence and possession; and

WHEREAS, surveyors and mappers are uniquely qualified and licensed to determine and describe land and water boundaries for the management of natural resources and protection of private and public property rights.

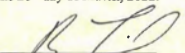
Now, Therefore, I, Ron Feinsod, Mayor of the City of Venice, Florida, on behalf of the Venice City Council do hereby proclaim the week of March 20-26, 2022 as

National Surveyors Week

in the City of Venice and invite all Citizens of this City to join surveyors and mappers in using their own talents for the good of the community as well as recognizing and appreciating the talent of others.

In Witness Whereof, I have hereunto set my hand and caused the Seal of the City of Venice to be affixed this 20th day of March, 2022.




Ron Feinsod, Mayor

**Duncan
Parnell**

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Orlando, FL 407-601-5816
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Around the State



Joint Chapter Meeting of Palm Beach Chapter and FAU Student Chapter with Special Guest Speaker Rick Pryce. Great Turnout with 45 in attendance.



Strategic Planning Retreat in Gainesville, FL. Thank You to All who attended and shared their voices on the issues most vital to the Profession.



Nick and Cathy Campanile attending the strategic retreat with their precious "Princess Phoebe."

Tom's Tip of the Month



Getting over a painful experience is much like crossing monkey bars. You have to let go at some point in order to move forward.

C.S. Lewis

OVERCOMING

PassItOn.com

THE FOUNDATION FOR A BETTER LIFE.

THE FLORIDA SURVEYOR is the official publication of the Florida Surveying and Mapping Society, also known as FSMS. It is published monthly for the purpose of communicating with the professional surveying community and related professions who are members of FSMS. Our award winning publication informs members eleven months out of the year about national, state, and district events and accomplishments, as well as articles relevant to the surveying profession. In addition, continuing educational courses are also available.

2022 SUSTAINING

3002 Surveying
833-352-3002

A

**Accuright Surveys
of Orlando, Inc.**
407-894-6314

**Agnoli, Barber
& Brundage, Inc.**
239-597-3111

**AIM Engineering
& Surveying**
239-332-4569

Airworks
857-990-1060

**Allen &
Company, Inc.**
407-654-5355

Allen Engineering
321-783-7443

**American
Consulting
Professionals,
LLC.**
813-435-2600

**American
Surveying, Inc.**
813-234-0103

Ameritt, Inc.
813-221-5200

**Arc Surveying
& Mapping, Inc.**
904-384-8377

Ardurra, Inc.
239-292-7773

**Associated
Land Surveying
& Mapping, Inc.**
407-869-5002

**Atlantic Drafting
& Surveying**
386-264-8490

**Avirom &
Associates, Inc.**
561-392-2594

**Axis Geospatial
SE, LLC.**
410-822-1441

B

Banks Engineering
239-939-5490

**Barnes, Ferland
and Associates,
Inc.**
407-896-8608

**Barraco &
Associates, Inc.**
239-461-3170

**Bartram Trail
Surveying, Inc.**
904-284-2224

**Bello & Bello
Land Surveying
Corporation**
305-251-9606

**Benchmark
Surveying & Land
Planning, Inc.**
850-994-4882

**Berntsen
International**
608-443-2772

Betsy Lindsay, Inc.
772-286-5753

**Biscayne
Engineering
Company, Inc.**
305-324-7671

**Boatwright and
Durden Land
Surveyors, Inc.**
904-241-8550

**Bock & Clark
Corporation**
330-665-4821

**Bowman
Consulting Group**
703-454-1000

**Bradshaw-Niles &
Associates, Inc.**
904-829-2591

**Brown &
Phillips, Inc.**
561-615-3988

**BSE
Consultants, Inc.**
321-725-3674

**Buchanan
& Harper, Inc.**
850-763-7427

C

**Calvin, Giordano,
& Associates**
954-921-7781

**Carlson
Environmental
Consultants, PC**
561-371-2402

**Carter
Associates, Inc.**
772-562-4191

FIRMS DIRECTORY

**Caulfield
& Wheeler**
561-392-1991

**Chastain-Skillman,
Inc.**
863-646-1402

**CHW Professional
Consultants
(Causseaux, Hewett
& Walpole, Inc.)**
352-331-1976

**CivilSurv Design
Group, Inc.**
863-646-4771

**Clary &
Associates, Inc.**
904-260-2703

**Clements
Surveying, Inc.**
941-729-6690

**Clymer Farner
Barley, Inc.**
352-748-3126

**Coastal
Engineering
Associates, Inc.**
352-796-9423

**Colliers
Engineering
& Design**
732-383-1950

**Collins Survey
Consulting, LLC.**
863-937-9052
**Compass
Engineering &
Surveying, Inc.**
727-822-4151

**Cousins Surveyors
& Associates, Inc.**
954-689-7766

CPH, Inc.
407-322-6841

**Craven-Thompson
& Associates, Inc.**
954-739-6400

**Cross Surveying,
LLC.**
941-748-8340

**Culpepper &
Terpening, Inc.**
772-464-3537

Cumbey & Fair
727-324-1070

**Dagostino
Geospatial, Inc.**
239-352-6085

**DeGrove
Surveyors, Inc.**
904-722-0400

**Dennis J. Leavy
& Associates**
561-753-0650

**DMK
Associates, Inc.**
941-475-6596

**Donald W.
McIntosh
Associates, Inc.**
407-644-4068

**Donoghue
Construction
Layout, LLC.**
321-248-7979

**Douglass, Leavy
& Associates, Inc.**
954-344-7994

DRMP, Inc.
407-896-0594

**DroneView
Technologies**
248-321-9417

**DSW Surveying &
Mapping, PLC.**
352-735-3796

**Duncan-Parnell,
Inc.**
407-601-5816

**Durden Surveying
& Mapping, Inc.**
904-853-6822

E

**Echezabal &
Associates, Inc.**
813-933-2505

ECHO UES, Inc.
888-778-3246

**Eda
Consultants, Inc.**
352-373-3541

**E.F. Gaines
Surveying
Services, Inc.**
239-418-0126

**Eiland &
Associates, Inc.**
904-272-1000

**Element
Engineering
Group, LLC.**
813-386-2101

D

2022 SUSTAINING

**Engenuity
Group, Inc.**
561-655-1151

**Engineering
Design &
Construction, Inc.**
772-462-2455

**ER Brownell &
Associates, Inc.**
305-860-3866

**ETM Surveying
& Mapping**
904-642-8550

**Exacta Land
Surveyors, Inc.**
866-735-1916

F

**Ferguson
Land Surveyors**
727-230-9606

**First Choice
Surveying, Inc.**
407-951-3425

**Florida Design
Consultant, Inc.**
727-849-7588

**Florida
Engineering &
Surveying, LLC.**
941-485-3100

FLT Geosystems
954-763-5300
**Fortin, Leavey,
Skiles, Inc.**
305-653-4493

**FTE Engineers
& Planners**
800-639-4851

**F.R. Aleman &
Associates, Inc.**
305-591-8777

**F.R.S. &
Associates, Inc.**
561-478-7178

G

**Gary Allen
Land Surveying**
850-877-0541

GCY, Inc.
772-286-8083

**GeoData
Consultants, Inc**
407-732-6965

Geoline Surveying
386-418-0500

**Geomatics
Corporation**
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**Geo
Networking, Inc.**
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**GeoPoint
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**Germaine
Surveying, Inc.**
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**GPI
Geospatial, Inc.**
407-851-7880

**Gustin, Cothorn
& Tucker, Inc.**
850-678-5141

H

**H.L. Bennett &
Associates, Inc.**
863-675-8882

**Hanson
Professional
Services, Inc.**
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**Hanson, Walter &
Associates, Inc.**
407-847-9433

Hole Montes, Inc.
239-254-2000

HUB International
850-386-1111

**Hyatt Survey
Services**
941-748-4693

I

**I.F. Rooks &
Associates, LLC.**
813-752-2113

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J

John Ibarra & Associates, Inc.
305-262-0400

Johnson, Mirmiran & Thompson, Inc.
813-314-0314

Johnston's Surveying, Inc.
407-847-2179

K

KCI Technologies
954-776-1616

Keith and Associates, Inc.
954-788-3400

Kendrick Land Surveying
863-533-4874

L

L&S Diversified, LLC.
407-681-3836

Land Precision Corporation
727-796-2737

Landmark Engineering & Surveying Corporation
813-621-7841

Langan Engineering
973-560-4900

Leading Edge Land Services, Inc.
407-351-6730
Leiter Perez & Associates, Inc.
305-652-5133

Lengemann Corp.
800-342-9238

Leo Mills & Associates
941-722-2460

Long Surveying, Inc.
407-330-9717

M

Manuel G. Vera & Associates, Inc.
305-221-6210

Marco Surveying & Mapping, LLC.
239-389-0026

Massey-Richards Surveying & Mapping, LLC.
305-853-0066

Masteller, Moler & Taylor, Inc.
772-564-8050

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Surveying

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Fig. 25 N. 2.

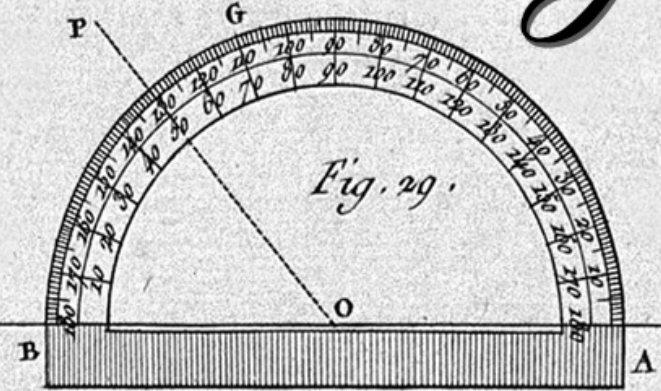


Fig. 29.



Fig. 16.

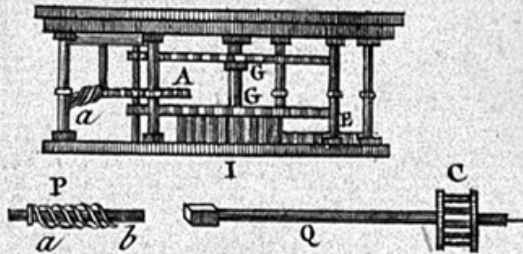


Fig. 23.

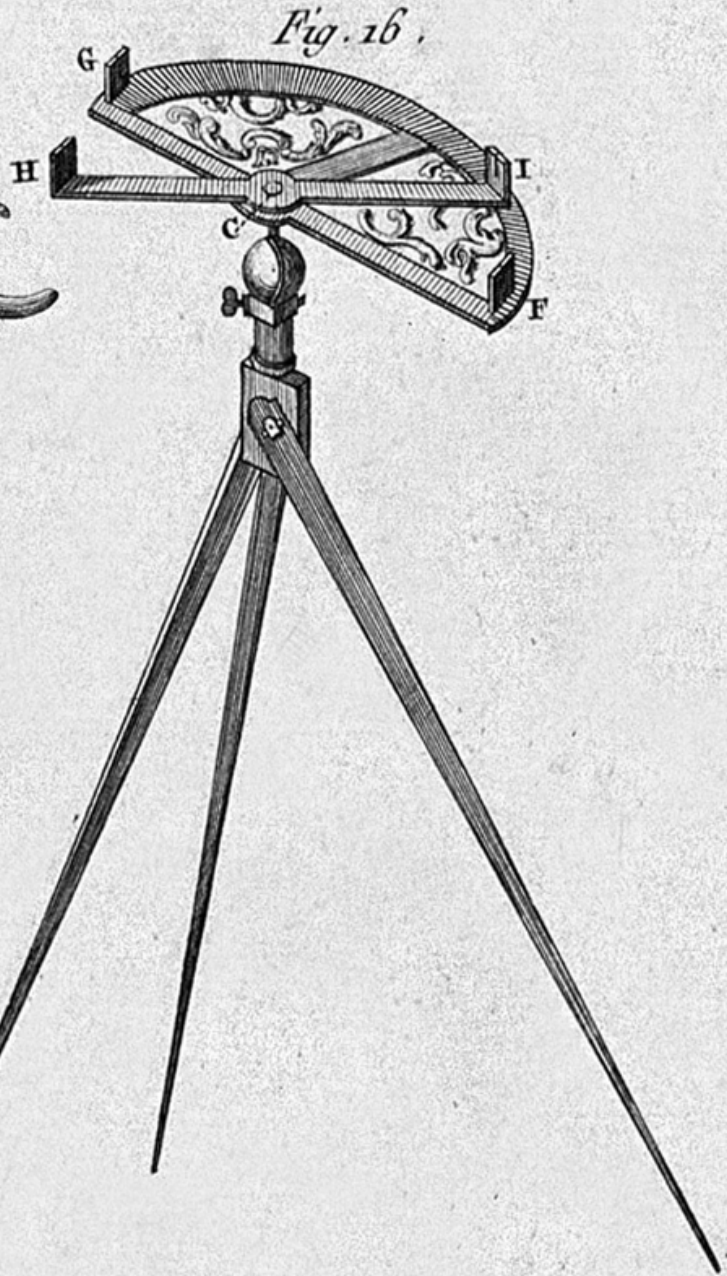


Fig. 16.

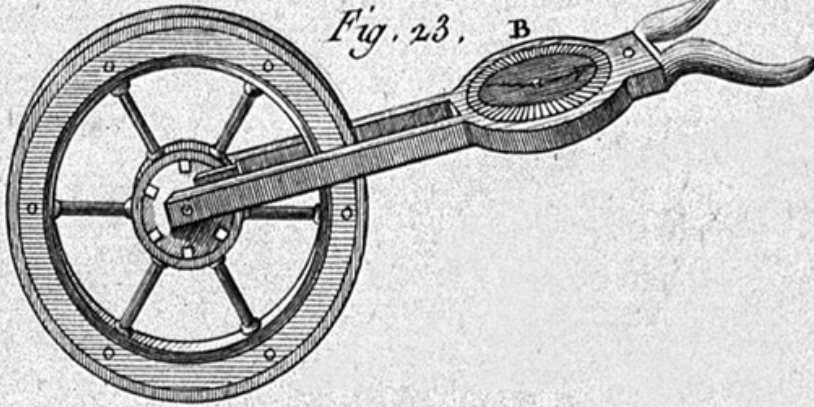
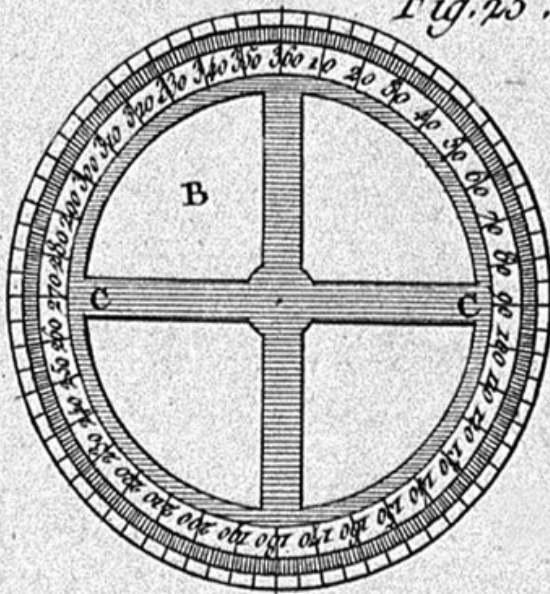


Fig. 25.



Maps — The Necessary Medium to World Progress

By: Lloyd A. Brown, Librarian Peabody Institute, Baltimore, Md.
(Previously published by the ACSM)

The history of maps and map-making is the record of man's attempt to understand the world he lives in: its size and shape, its movements, and its adaptability to the needs of the human race. It is the story of daring explorations and ruthless exploitation, of endless struggle and conquest, man against man, and man against the elements of distance, direction, and time. It is the history of an ancient art that grew to be a science.

In its present state of near perfection, the modern map or chart is often mistaken for one of the logical by-products of twentieth-century technology, a scientific achievement that would have been quite impossible prior to this age. Nothing could be farther from the truth, for even though map-making evolved slowly and painfully, by trial and error, from remote beginnings, every essential element and problem of scientific cartography was thoroughly appreciated and understood by the great minds of antiquity.

In fact, the modern map is little more than a triumph of coordination, a happy combination of land surveying, mathematics, and astronomy, ancient principles which have been skillfully brought together to fill a modern need. This merger of what the layman might consider unrelated knowledge has been in progress

for at least five thousand years and is still in progress.

A MEDIUM TO PROGRESS

Yet – in spite of the technical accomplishments of modern cartography, I sometimes wonder if modern man appreciates as fully as his progenitors of two or three thousand years ago the significance of The Map as a medium to world progress as well as a tool with which the world's business is conducted. The most obvious facts of life are the ones most easily overlooked or readily forgotten!

The development of cartography has occupied the minds of the greatest philosophers and scientists of all ages and why? Because from the very beginning these men recognized The Map as the blueprint of conquest, the way to wealth. The Map has shown men where to go, how to go, and what they would find when they got there. It has proved itself to be the key to plenty and poverty in man's eternal struggle for the land (“Theatre of human endeavor”) – who shall possess it and how it can best be exploited; for no nation has ever accomplished very much, either politically or economically, without a knowledge of its own backyard; and certainly, no political power could seriously entertain dreams of empire

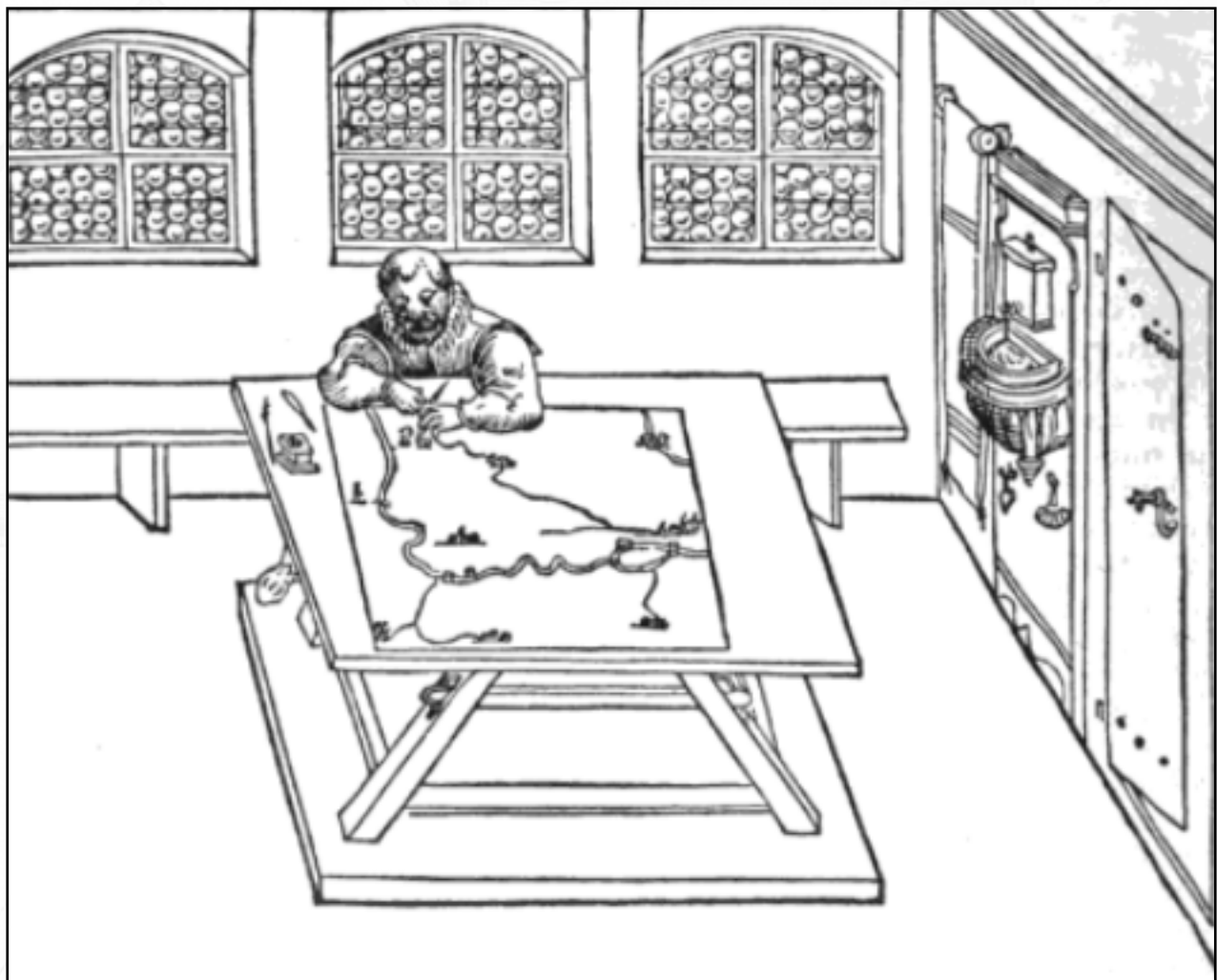
without knowing in advance the size, shape, and desirability of its neighbors' back yard.

AN INDEX OF PROGRESS

The Map is not only a medium to world progress; it is a pretty fair index of progress as well. The rise of many a nation has coincided with the vigorous development of its cartographic resources; so much so, that it is a great temptation to draw sweeping conclusions in this regard. Disregarding the elements of cause-and-effect, history shows that cartography has ranked high among the empire-building nations of the world. At the height of its

power, the Roman Empire boasted a complete series of maps in its land holdings, its lines of communication, and for all we know a cartographic picture of its natural resources, as well as its long-range scheme of land utilization. Do not think for one minute that the Romans were ignorant of maps and charts, or that their efforts in the field of cartography were primitive.

The same is true of Spain and Portugal during the period of exploration, except that those two powers were burgeoning maritime nations, and were more interested in accurate sailing charts than



The earliest woodcut picture of a cartographer at work. From Paul Pfintzing's *Methodus Geometrica*, Nurnberg, 1598. (From *The Story of Maps* by Lloyd A. Brown.)

they were in the development of maps. To that end, Spain organized as early as 1503, the Casa de la Contratación de las Indias. The Casa, as it was later called, functioned as a combination Board of Trade and Hydrographic Office. In Spain, foreign trade was practically synonymous with the art of navigation and the compilation of charts, and the Casa directed all such activities.

Veitia Linaje, a contemporary historian, wrote that its jurisdiction was as large as its territory was boundless. Its authority was so extraordinary that it supplied the place of a Grand Council. By decree of August 8, 1508, the Casa set up a separate geographical or cosmographical department, probably the first Hydrographic Office in history. One of its chief functions was to organize under a supervisory junta the charting of the New World. To this end, a master chart (Padron Real) was begun under the supervision of a

commission of pilots. One of its first directors was Amerigo Vespucci. The importance of the Casa, its Hydrographic Office, and its master chart cannot be overestimated. No political intrigue, no alliance, holy or otherwise, no invasion of foreign soil, could be carried out without the master chart to guide the politician and the military man. Naturally, the other nations of Europe showed more than a passive interest in the evolution of the Padron Real, and for many years a genuine Spanish chart, presumably based on secret information known only to members of the Casa and their pilots, was considered a prize worth far more than its weight in gold.

Another indicator of maritime supremacy and an expanding sphere of influence was the development of charts and coast pilots in the Netherlands during the 16th and 17th centuries. Holland and Belgium made them and the rest of the world

bought or stole them. Plagiarism of a good map or chart was practically a foregone conclusion the minute it came off the press. Occasionally it was possible to bribe the engraver before the plate was made, thereby scooping up the author as well as the publisher. Of course, this procedure was commendable only if you happened to be on the receiving end of the deal.

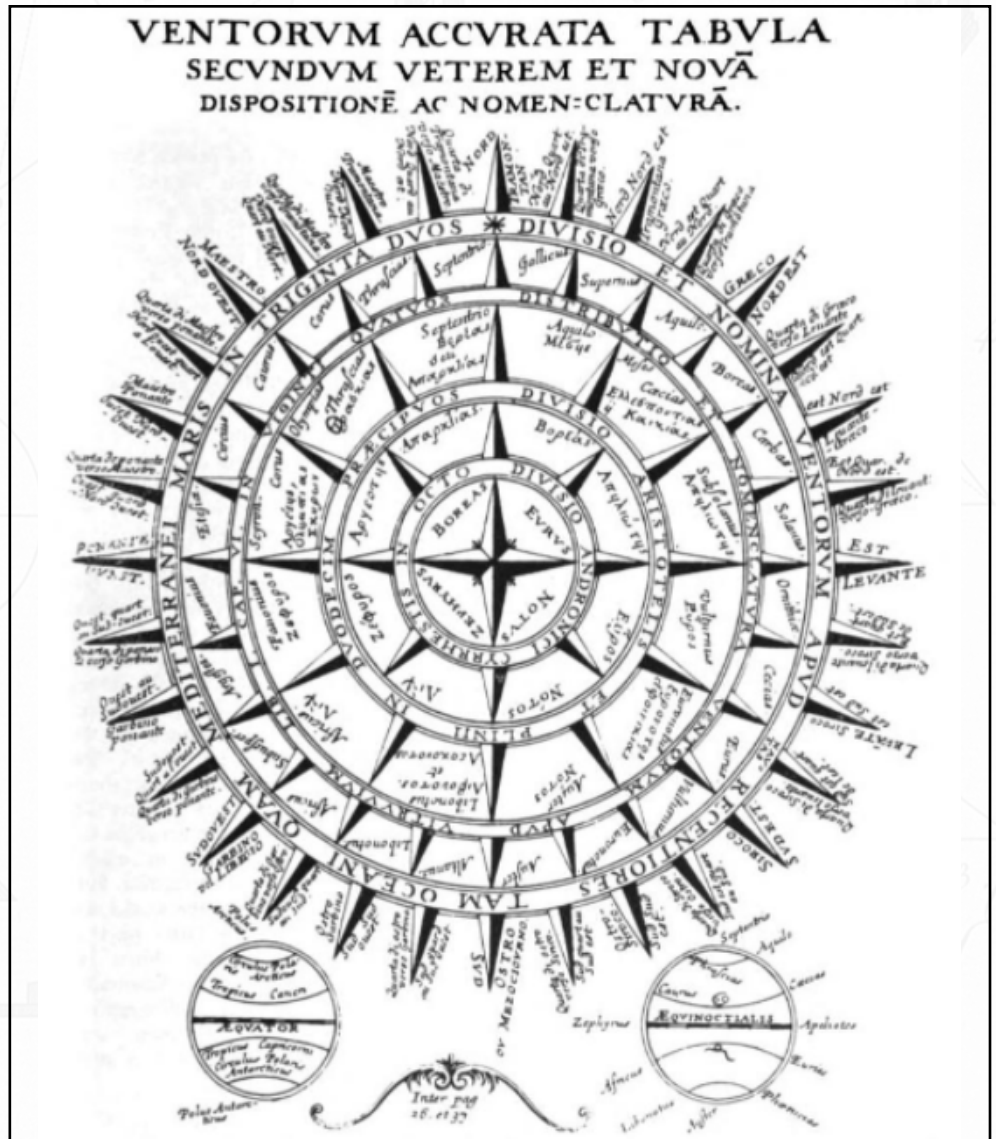


The resurvey of France under Cassini and Picard resulted in the above improved profile (*shaded*). (From *The Story of Maps* by Lloyd A. Brown.)

If we look into the cartographic achievements

of France during the 17th century, what do we find? In the background is the most opulent court of Europe and the most extravagant. And back of the throne of Louis XIV we find Jean Colbert, a clever minister who insisted that France could not dominate Europe without better maps, and that better maps would not be forthcoming until the nation could assemble 'a body of scientists close to the throne, men with the know-how and ingenuity to solve, among other things, the eternal and infernal problem of finding the longitude, both on land and sea. Colbert was able to sell the idea to his monarch, and in 1667 the Académie Royale des Sciences (now the Institut de France) was founded. First, and always foremost, on the agenda of that great scientific organization was the improvement of maps and charts – by order of Jean Colbert and His Majesty, Louis XIV. What the Institut did in the next twenty-five years was revolutionize cartography and make absolutely worthless nearly all of the maps and charts which had been made up to that time. That France did not remain preeminent in world politics as well as science, was no fault of the members of the Institut de France or their great contributions to cartography.

A seventeenth-century composite wind rose showing the evolution of direction from Homer's four wind rose to the 32-point card found on modern compasses. (From *The Story of Maps* by Lloyd A. Brown.)



England, of course, was far from backward in her pursuit of empire and the cartographic aids with which to extend her trade routes. And like France, England flourished as her cartographic methods improved and her map resources increased. Again, I say it is a great temptation to draw sweeping conclusions, but regardless of cause and effect, it can be said that the phenomenal growth of the British Empire in the 18th century would have been greatly retarded had it not been for the great strides made in cartography

during this period by English scientists. After getting off to a relatively slow start, England fast made herself felt in the world of maps while her merchant adventurers sailed the seas, planting the British flag and surveying irons in far-flung corners of the world. While her armies and the navy fought for and won new colonies, her engineers and scientists struggled mightily to produce better maps and charts and better equipment to make them with. In the latter part of the 18th century, she developed a marine chronometer which would give a navigator his longitude within 1 1/4 nautical miles instead of the usual twenty. She developed a theodolite that would measure seconds of arc, a precision instrument of the finest workmanship, second to none. She produced the Drummond Light, a sharp and powerful beam that solved a knotty surveying problem – how to make accurate observations over long distances in the murky weather. Then came the Ordnance Survey, a model that the rest of the world was glad to follow; and in the latter part of the century the Hydrographic Office, organized as a department of the Admiralty, which began life with one hydrographer, one assistant, and one draughtsman. Britannia now ruled the waves and a good share of *terra firma* as well.

THE STATE OF MAPPING IN THE UNITED STATES

Now if, as I maintain, The Map is an index of, as well as a medium of progress, the logical conclusion of this brief historical sketch would be a summary tracing for you the preeminence of the United States in the

world of maps as of this date, and pointing with pride to our vast arid, flourishing counterpart of Britain's Ordnance Survey. But this, as you can guess is not so to be, for good, if not sufficient reasons.

However, my theme is not to criticize the present state of mapping in the United States, but to point out a few of the not-so-obvious reasons why my country, the greatest nation on earth, has not caught up with the rest of the enlightened world in compiling a self-portrait which is sufficiently accurate and detailed to meet the requirements of every private citizen as well as the various civil and military agencies concerned with the efficient utilization of the land we live in. And, my reasons for choosing this theme are no more or less than those expressed by Major General William Roy, who did more than any other one man to launch Britain's Ordnance Survey in the 18th century. The honor of his country was concerned, he said, "in having at least as good a map of this, as there is of any other country. Compared with the greatness of the object," he wrote, "the annual expense to the public would be a mere trifle not worthy of being mentioned." I have not the slightest doubt that you share with me the General's sentiments in this regard.

A LOOK AT THE PAST

In order to understand our present situation, we must take a long look at the past. From the time Columbus made his first landfall in the New World, the history of the Western hemisphere has been the record of a mammoth land grab, with the participants often in the dark

about what they were grabbing and how it was bounded. The speed with which the New World was explored and settled was something the likes of which the Old World had never seen or dreamed about, and the men who took on the responsibility of mapping as they explored were unable to cope with the situation. As the result, over a period of four hundred years, there has been an urgency that has never been abated. The maps have never caught up with the expansion of the country.

For a long time, North America was no man's land, or rather, anybody's land for the taking. Then, gradually, one by one the powers of Europe began to penetrate the interior, staking out claims and daring other powers to contest them. Many maps were made, but they were rather crude, disjointed affairs, and they were definitely not for public consumption. They were made by Spaniards, Portuguese, French, English, German, Polish, Swedish, and Swiss cartographers, to mention a few, and each map varied in detail and accuracy according to the standards and training of the man who made them. The only thing these surveys had in common was the territory they were supposed to portray. Place names varied with the language and fancy of the individual. Each map and chart had its own system of linear measure, often based on some ancient and venerated units that had little if anything to recommend them. The net result of all this confusion was that up to the year 1700 there were no surveys of any large part of North America worthy of the name, and scientific observation was the exception rather than the rule. Royal grants

that generously included all land lying between two parallels and extending from the Atlantic Ocean to the Pacific meant nothing, because no human knew, within several hundred miles, how far it was between them; and of course, no one had come even close to measuring the distance between the western coast of Europe and the eastern coast of America. Boundary lines either followed rivers, because rivers were not supposed to change their courses, or they were marked by blazes on trees or rock piles that were easily moved or knocked down entirely. Possession was ten points of the law instead of nine, and a stockade, solidly built and heavily manned, was a far better title to a tract of land than any deed written on paper or parchment.

In the 18th century, things took a turn for the better. Cartography was put on a scientific basis, chiefly by the Institut of France and England's Royal Society. The remapping of Europe at that time amounted to a pilot operation whereby new methods were tested before they were brought to the vast proving ground of North America.

By the time the Revolutionary War broke out in 1776, both France and England were vigorously engaged in mapping the colonies and provinces of North America. The British were doing it systematically as far inland as they dared claim. On the coast, both nations were busy mapping the coasts and harbor of Colonial America. Both were engraving and publishing large-scale charts while the Revolutionary War was in progress.



The Definitive Treaty of Peace signed and sealed in 1783 established for the first time the boundaries of the United States, and the best available map to show those boundaries was a large-scale map of the British Dominions in North America published 28 years before the Treaty was signed, and needless to say, it was woefully inadequate. However, that map constitutes our title deed to the United States. On that map, compiled from the most reliable sources, are many place names that would be difficult to identify today, and in the Treaty itself are place names that were theoretically on the ground, but which had not been specifically located. The cost of merely locating and properly identifying those places, a long tedious process, has run into millions of dollars over the course of years.

WHY MAP THE WILDERNESS?

Now we come to a curious paradox in the mapping of the United States. While there has always been an atmosphere of urgency connected with our scattered mapping projects, especially among our military leaders from George Washington to Omar Bradley, there has been, at the same time, a feeling among our people that the United States, from ocean to ocean, was more land than any country would ever use, that it contained millions of square miles that would never be needed for any purpose whatsoever. Those were the days when you burned acres of virgin timber, hardwood at that, to open up land that would produce corn, wheat, or just grass. The coasts were important and therefore pretty well mapped, but the wilderness of the plains and the Rockies had little to offer civilized people except for desolation, starvation,

and hostile Native Americans.

The discovery of gold in California changed all that, and in 1849, the entire country found itself in a most embarrassing situation. The only available maps of the overland route to the goldfields at the other end of the country were little “Tourist guides” with small folding maps that were overly optimistic in the information they purveyed, and woefully short on detail. They made the old Santa Fe Trail look like a four-lane highway and the whole journey like a Sunday school picnic. But such was the lust for gold that people took almost anything in the form of a map and started for California without delay. The West and ways to get there had not been well mapped; there had been no urgent need for a careful survey of the interior up to that time, and all the existing maps of the United States were full of errors; in fact, vast areas of the country were virtually unknown. Rather than brave the wilderness of the United States, most of the gold hunters took one of two alternate routes. The first began at Vera Cruz and crossed through Mexico. From Vera Cruz you went from San Blas to Acapulco on the Pacific coast. This was the short way, only about sixty days, but all those who took the route across Mexico were advised to go in parties of not less than fifty because the chances of being massacred by bandits were excellent.

The other choice was to go by sea, a nice restful voyage down around Cape Horn in the teeth of the filthiest weather known to man. It was an eighteen thousand mile voyage, and if you made it at all it might take as long as five months to get

to San Francisco Bay, where your captain had to improvise because there were no charts of the harbor. But in spite of these inconveniences and hazards, the ships were crowded, and more than one skipper sailed out of New York harbor with nothing better than an elementary school atlas to guide him around the Horn and up the west coast.

Government support of a national mapping project in the United States was slow in coming. There was just more land than people knew what to do with, and a good map of the country could wait. Besides, it would cost a lot, and taxes would inevitably go up. Lacking the incentive of European countries to keep abreast of belligerent neighbors and defend their boundaries, the loosely united Federal government composed of delegates from widely scattered areas, failed to see the strategic importance of mapping the new country as a whole. The Coast Survey (now the Coast and Geodetic Survey) was first proposed by Thomas Jefferson and authorized by Congress in 1807, but thirty-six years went by before it was given a stable organization and funds to make it run. The Geological Survey evolved from a long series of temporary organizations as late as 1879, and immediately this agency was handed the colossal task of coordinating the mapping activities of the country, classifying the vast public lands, and at long last, “examining the geological structure and mineral resources of the national domain” – just about a hundred years after France ordered a close examination of her mineral resources and the compilation of geological maps. ■

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NGS News

Surveyors Week is March 20–26

[National Surveyors Week](#) is March 20–26, 2022, and [Global Surveyors Day](#) is Tuesday, March 22! These events are perfect opportunities to introduce students to the many career paths open to professional surveyors, and to get involved in your professional community. Every year during this week NGS works with our local, state, and regional partners to highlight how surveying and accurate location science play a critical role in helping people navigate their everyday lives on land, sea, and in the air.



Land surveying has been a core part of the NGS mission since the 1800s. NGS programs support the work of surveyors, and underpin numerous precise positioning, scientific, and engineering applications.

Follow Surveyors Week on Social Media

Throughout Surveyors Week, the National Ocean Service (NOS), of which NGS is a part, will post related content on its social media accounts.

Follow NOS on [Facebook](#) or [Twitter](#) for posts on National Surveyors Week, and use the hashtags **#SurveyorsWeek** and **#NationalSurveyorsWeek** in your posts.



Surveying: At the Heart of Every Project

Tim Burch, Executive Director of the National Society of Professional Surveyors, has written this [insightful article](#) about how surveyors are intrinsically involved in many projects having to do with development, construction, and infrastructure.



NGS is also involved in a national level project with the U.S. Census Bureau involving the [2020 Center of Population](#) that will improve the geodetic infrastructure of Hartville, Missouri. A new commemorative survey mark will give local and regional surveyors a new starting point for the many everyday applications of geodesy, from housing and road construction to floodplain mapping and precision agriculture projects.

As we celebrate National Surveyors Week, please keep in mind the vital roles that surveyors play before, during, and after every development and infrastructure project conducted by architects, engineers, and construction professionals.



Map of the U.S. Mean Center of Population from 1790 to 2020. Source: U.S. Census

NGS releases new version: NCAT 2.1

The NGS Coordinate Conversion and Transformation Tool is a one-stop solution for coordinate conversion and transformation. **NCAT** revamps and modernizes the Geodetic Toolkit. It allows users to easily convert between different coordinate systems and/or transform between different reference frames and/or datums, in a single step. NCAT incorporates the capabilities of many NGS computer programs, which originally were stand-alone products, such as VERTCON and NADCON.

NCAT conversions and transformations can be done interactively using single or multi-point conversions directly on the NCAT page. NCAT is also available as a download or [an API](#) (application programming interface).

Version 2.1 adds:

- an option to specify units for heights,
- an option to customize data exported,
- more FAQs, and
- a link to the source code on github.

Video [tutorials](#) and in-depth [Frequently Asked Questions](#) lists are available online for surveyors and geodesists new to the software.

NGS Coordinate Conversion and Transformation Tool (NCAT)
National Geodetic Survey

NGS Home | About NGS | Data & Imagery | Tools | Surveys | Science & Education

Single Point Conversion | Multipoint Conversion | Web services | Downloads | Tutorial & FAQs | About NCAT

Convert/Transform from: Horizontal Horizontal+height XYZ

Select the type of horizontal coordinate: Geodetic lat-long SPC UTM USNG



Enter lat-lon in decimal degrees
 Lat:
 Lon:

or degrees-minutes-seconds
 Lat:
 Lon:

or drag map marker to a location of interest

Input reference frame (historically called 'horizontal datum'):

Output reference frame (historically called 'horizontal datum'):

Don't see a reference frame in the list? Click here to learn more.

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Exam Date on April 23, 2022

where: Southeastern Surveying and Mapping
6500 All American Blvd.
Orlando, FL 32810

when: Thursdays, 5 - 6 pm

- Cost is Free
- Topics will vary each week
- Exam Levels 1-3
- Examples of Study Topics:
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Public Land Survey System, and Basic
First Aid

For More Info Contact Alex Jenkins CST, IV
at ajenkins@southeasternsurveying.com
or (407) 292-8580



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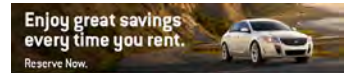


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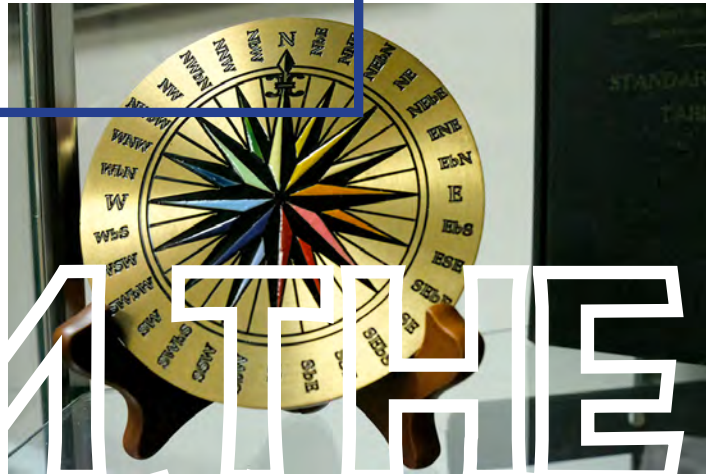
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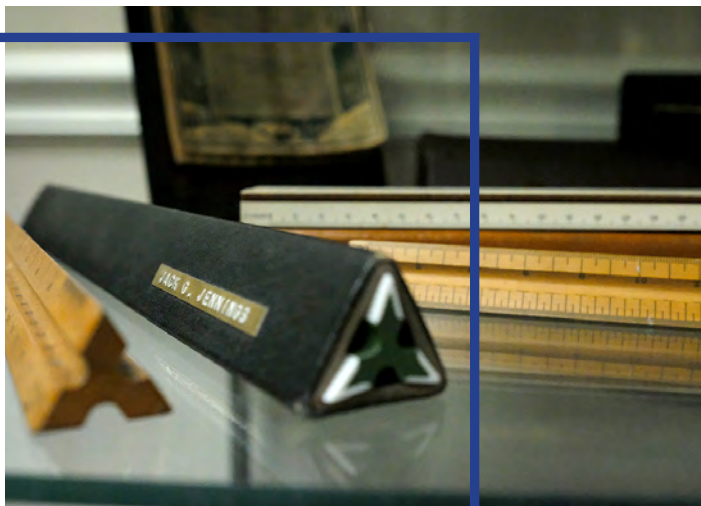
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FROM THE ARCHIVES



Words, Thought, and Landscape

By DONALD J. ORTH

U.S. GEOLOGICAL SURVEY

IN 1893 one of John Müller's pack dogs had pups. Not necessarily an exciting event (except perhaps for the dog), but one that shortly led to the creation of a new topographic term. John Müller made one of the richest gold strikes in the "Yukon diggings" of Alaska on a stream soon named for him by other prospectors. He reared the pups for the purpose of freighting, because in that northern area the dog was what the horse or camel was in other regions of the world. "Old Müller," or Miller as the other miners called him, kept his pups a short distance from his camp, up a short, steep-sided ravine. According to Josiah Spurr [1]¹, field geologist, writing a couple of years later, the miners began referring to the ravine as "the place where Miller keeps his pups." But this epithet was soon shortened to a proper name. The ravine came to be called just "Millers Pup," and the word *pup* also became a common name used to refer to other similar, short, dry ravines, tributary to a main valley. Names like Deception Pup, Louie Pup, Fifteen Pup, and Fortyseven Pup became common in the gold fields of Alaska and Canada. By process of language a word took on new meaning and *pup* joined a host of other common names like *canyon*, *hill*, *ridge*, *mound*, *creek*, and *mesa* that Americans use to communicate information and

ideas about certain things seen and experienced on the surface of the earth. These particular names, called topographic terms, play a significant role in controlling the way we think and see the world around us.

The surface of the earth, with its variety of form and feature, is the fundament upon which all terrestrial events, cultural and natural, take place. Man has always had an innate curiosity about the nature of the landscape on that surface. In fact, throughout most of his history an intimate knowledge of the nature of the land was essential for survival. He undoubtedly gave names to landscape features at an early stage of language. Early man saw himself as a part of nature. The natural world was understood in terms of human experience, not merely contemplated or understood, but sensed emotionally [2]. The landscape was not empty but redundant with "life" —the dark shadowy *canyon*, the eerie *valley* on the side of the *mountain*, the friendly sunny *hill*, the strangely deep *pond*, the threatening *desert*. The natural landscape was experienced as life confronting "life."

As man became more scientifically sophisticated, natural phenomena were considered with increasing impartiality.

The Greek and Roman writers—Herodotus, Hippocrates, Pliny, Aristotle, and Ptolemy—were already practical and speculative. Today, modern man views the phenomenal world with almost complete detachment. He knows the landscape is the result of complex interactions between a number of means. Of these the geological processes are important because they determine the primary landscape—the physical form of the earth's surface. Earth scientists tell us this landscape is the result of various processes set in motion by two somewhat opposing forces. One derives its energy from within our comparatively fluid planet with its shifting crust, and the other is due to unequal distribution of solar energy on the surface of that planet. The first tends to build up the physical surface by uplift and deformation, and the latter tends to wear the surface down to a common level by weathering, erosion, and deposition. Added to the primary landscape are the secondary topographic elements of water (standing or flowing), vegetation (or lack of vegetation), and the works of man and other animals.

The number of terms used to refer to recognized features on the earth's surface is large. In this country over 500 are, or have been used for physical features alone. Many of these terms of course, are either obsolete in everyday language or their use is limited to relatively small geographical areas. But even obsolete and rare terms survive in the more than three and a half million place names scattered throughout the

United States. Like Bald Knob, Brushy Prairie, Grand Mesa, or Wabash River, most of our place names consist of two words, a specific name and a topographic name. Place names, however are more conservative and change slower than other parts of language. This allows topographic terms used in place names to outlive their use in everyday language. Obsolete and limited regional terms add color to our place name heritage. Who can resist being curious about features called Grande Rigolette, Burnt Vly, Dishrag Bolly, Big Lick Draft, Ash Swale, Hogeye Dingle, Big Swag, or Mollies Butt.

The origins of our topographic names, for the most part, can be traced to the various language of the people who explored and settled this nation. Because English became our national language, the majority of these names can be traced to the British Isles. Most of the common basic-feature words of English origin, such as *river*, *hill*, *bay*, *lake*, and *ridge* are widely used throughout the United States. Other European languages have contributed topographic terms to our vocabulary, but their use is normally confined to those areas settled by people speaking the particular language. Some non-English terms like *canyon*, *prairie*, *savannah*, and *butte* have been fully accepted into our language because no common English words adequately applied to the kinds of features they represented. A survey of maps and literature shows that from the French we have borrowed terms like *coulee*, *chute*, *rigolette*, *sny*,

portage, brule, prairie, butte, and dalles. The Spanish gave us *banco, arroyo, cañada, cerro, mesa, ojo, rincon,* and *rio.* And the Dutch left us *hook, kill, gut,* and a few more. Very few of our terms were derived from the languages of the original inhabitants. *Bayou* seems to originally have been a Choctaw word, borrowed and nullified by the French in the lower Mississippi area. *Pingo* is an Eskimo word meaning “hill” that is used in English to refer to certain kinds of ice mounds.

Many of the common topographic names brought from Europe rely on metaphor and description for meaning. Metaphor especially has intrigued rhetoricians for centuries. It gives us the ability to take a particular trait from one thing and apply it to another. By comparison we can refer to the unfamiliar in familiar terms. Because our body is most familiar to us, we lean heavily on anatomical comparisons for many of these terms. We speak of the *mouth, head, and elbow* of a *river*; the *brow, face, nose, foot, shoulder,* or *head* of a *mountain*; *neck* of *land*; *arm* of a *bay.* At the lower end of the scale metaphorical names grade into general word descriptions as in *branch, fork, bend, point,* and *bottom.*

Topographic names, like other names in our language, are more than a neutral medium of exchange between men that in no way affects behavior. Most of us here today are interested in the physical landscape. As cartographers

we are particularly interested in how the “essence” of that landscape can best be communicated to map users. Although one of our goals is to visually portray topographic relief on maps, few of us realize that language is responsible for concepts of what land forms are. Animals can communicate with each other in various but limited ways. However, only man has a forebrain or cortex that makes language and thought possible. Through language man can express his experiences in symbols called words, and through these words he can share ideas and thoughts with his fellow man [3]. Scholars have recognized for a long time though, that language is more than a means of communication. It is also the foundation upon which we think and conceive reality. Common names used everyday to refer to parts of the physical landscape, for example, have the power to mold our thinking and control the way we see that landscape. Because this may have a bearing on map design, let us briefly consider the semantic nature of names and how they work.

We are told that human contact with the world begins, not with thought, but by a process called perception. It involves an interaction between our nervous systems and certain assumed reality outside them. The ability to see things is our main contact with reality. The world we observe, though, is one of endless variety, in which no two parts are ever alike. The physical relief

is a topographic constant with outward and inward projecting surfaces. We make sense out of this continuum by organizing variables into meaningful patterns. We sort things into groups or classes by picking out certain common characteristics. Topographic features, for example, are classed according to any combination of similarities based on relative size, height, depth, steepness, wetness, vegetation, length, shape, usefulness, and possibly a few others. But a class of things has little or no value unless we can refer to it in some way. Naming is a necessary part of classifying. In fact, to give a name is to classify. When we talk or write about a *peak*, *river*, *ridge*, *bottom*, or *cliff* we really are referring to classes of landscape features that exist because they have been named. They are not natural divisions of the landscape, only divisions created by man to suit particular social needs.

For the most part we do not do our own naming and classifying, but learn existing systems at an early age. Names are the basis of language, and when we learn our language we automatically learn the way things are classed. Once a firm mental concept of what something should look like is accepted by an individual, it is not easily changed [4]. Word and image form a mental “set” in which things of a certain kind always look one way as opposed to another way. If a person learns that a swamp is a low, wet, “wooded” area, he will resist

calling another low, wet area “without trees” by the same name. Mature individuals often carry throughout their lives the topographic concepts established early in their childhood. There is a logical language obstacle to the perception of landscape features in any other way but that with which we are familiar.

This explains why people with different cultural backgrounds and languages view the world and define its parts differently. European explorers, for example, often failed to understand how the American Indian named things. Minor features like large *rocks*, stream *bluffs*, or small *hills* were given a name, while *mountains* and other major features would often remain unnamed. Like many other native peoples, the Indian had a habit of giving different names to sections of the same river. His concept of what was significant was not the “whole” river, as we think of it, but sections of the stream and bordering land that had their own particular characteristics. For long and large rivers, this conceptual system was very practical. Learning how people use and apply place names is often a good guide to understanding how they define the landscape. Needless to say, when Indian place names were adopted by the explorer or settler their applications were changed to fit European ideas of how nature should be sorted out and named.

It is the property of language to allow a certain amount of variation in name

meaning. Individual differences in learning mental concepts are unavoidable and should be expected. Even persons in the same family have somewhat different ideas about the meanings of terms. The nature of this variation is complex and normally does not cause major problems in everyday language. We are told that “the meanings of specific words are less important than we fondly fancy. Sentences, not words, are the essence of speech” [5]. A sailor may think of a point as the farthest tip of land extending into the sea. A farmer, however, living on the coast, may refer to the whole peninsula, including its tip, as a point. These two concepts for the same word can be logically related and probably would pose no problem in sentence context.

Often, though, variation in the meaning of a topographic name is extended to a point where one may conclude that the name has been transferred to a conceptually distinct feature. A good example of such an extension is *creek*, a term brought by early colonists from England and used in its normal sense meaning tidal *inlet*. Soon after settlement the term was extended to apply also to streams flowing into tidal *inlets*. Once the new concept was established, the term began to be used for inland streams considered smaller than a *river*. *Bayou*, in its original sense was a sluggish channel or distributory in the flood plain of a large *river*, but its meaning has been extended to include

oxbow lakes and full flowing streams in topographically different areas. *Lick* is another term that has had its meaning stretched to include flowing streams.

In any culturally defined category, distinctions between the meanings of terms are determined by the needs of the culture group to refer to particular phenomena. Often this need involves the desire to refer to a group of separately named features by a single term. Such a conceptually related group of features is called a “topocomplex,” and the term often used to identify it is borrowed from one of its parts. Most features with watercourse names are topocomplexes in that the name not only includes flowing water, but also the bed and confining banks of the stream [6]. A bend can include the “bend” of the stream and the land area within the curve. Again, as in other forms of variation in term meaning, there is seldom any problem in understanding meaning when a topocomplex term is used in the context of a sentence.

A problem arises, though, when scientists and other professional people require more stable and permanent meanings for terms to suit certain descriptive and analytical needs. The scientist and layman deal with the same world, but differ in the way they need to refer to it. To avoid colloquial terminology with its variable meanings, professional people have attempted to standardize meaning by using coined

terms, or names borrowed from other languages. Some of these terms like *cuesta*, *col*, *plateau*, *monadnock*, *escarpment*, *nunatak*, and *outlier* often feed back into general usage through use in place names.

Perhaps the most perplexing decisions made by cartographers involve place names. The problem simply stated is “What is being named?” Three major obstacles may limit this ability to accurately apply names to a map. First, he may not understand the inherent looseness with which people use and apply names. One person may say Old Bald and another Baldy Mountain. Names like Dogleg Hollow and Dogleg Run are often used interchangeably, the choice of term depending on which particular feature the speaker wants to refer to. Secondly, the cartographer may not be aware that his concept of name “meaning” may differ from that in local usage. And lastly, even if aware of these things he must still fit the name to arbitrary point, line, and area symbols that in no way can portray the world as personally seen and experienced. Human logic and vision allow us to define the landscape in various minute ways often associated with terms that have discriminatory meaning. Knob, top, bald, mountain, lead, and butt may look like the same kind of feature on a topographic map, but each has a distinctive difference recognized by the local on-the-ground user. Perhaps cartographers could use naming habits

as a guide to what the average map user sees as significant in his landscape. Certainly the symbols presently used on maps often are not adequate to identify all that is referred to by common terms.

As cartographers, we are interested in visual communication by the use of maps. Knowing how maps communicate this information is important to us. Often, however, methods of portrayal and technological processes tend to channel our thinking to the practical concern of designing and producing a map. We see our profession as contained and give little attention to how our work relates to other forms of human expression. Logically maps fall into two different areas of communication. Like pictures they are part iconographic, and like language they are part conventional. Significant contributions to the design of maps could be anticipated from any of these two areas of interest.

If there is a lesson at all in this brief incursion into topographic semantics, it is that how and what we show on a map is strongly influenced by concepts developed within language. Maps, like language, cannot possibly communicate all we may wish to express. And often what we think we have expressed is not understood the very same way by others. One man's *mountain* may be another man's *hill*. ■

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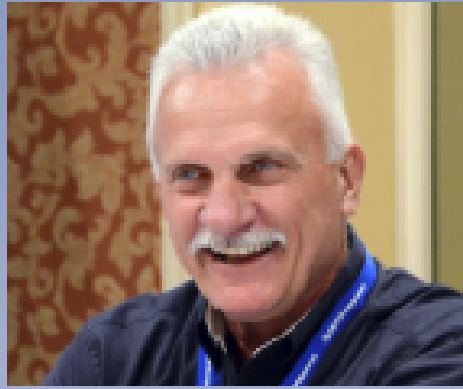
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