Houston Archeological Society

THE PROFILE

Vol 10, Issue 10

Thursday, October 21st, 2021, at 6:30 p.m.
"The Cannons of San Jacinto"
James Woodrick

The October monthly meeting of the Houston Archeological Society will be held on Thursday, October 21st. This meeting will feature a program by historian and author, Jim Woodrick, who will give a presentation entitled The Cannons of San Jacinto. Due to an abundance of concern over the recent surge in Covid, this meeting will be held virtually only via both Zoom and YouTube. The business meeting will open at 7:00 p.m. (HAS members are invited to tune in 30 minutes early – at 6:30 - to socialize.) HAS members will receive the Zoom link to the meeting and program shortly. The YouTube Livestream presentation will begin at approximately 7:15 and the link to the program is https://youtu.be/T9T4KC3kW2A.

Three cannons played a critical role at San Jacinto – two in Sam Houston's army and one in Santa Anna's. The Texian cannons are known as the Twin Sisters, and the Mexican cannon as the Golden Standard. Over the years much confusion has existed as to the caliber and material of the Twin Sisters. Were they 6-pounders, or 4's? Were they iron or brass? The Texans who wrote about the Golden Standard all thought it was bigger than what the professional Mexican army officers knew they had. What happened to these cannons after San Jacinto? Were the Twin Sisters buried in Harrisburg after the Civil War? Was the Golden Standard lost at sea? The digital revolution has now made available archival documents that were virtually impossible for historians to access only a few years ago. Through these records we now know the factual story of the San Jacinto artillery, from the origins of the cannons, how they were used in the battle, and what ultimately happened to them.

James Victor Woodrick was raised in Austin County, Texas, attended Bellville schools and graduated in 1961. During the next five years he attended the University of Texas at Austin and graduated with a Master of Science degree in Chemical Engineering. During a 28-year career with DuPont, Jim held positions in technology, operations, business and manufacturing management in Victoria, Alvin, Houston and Orange, Texas, and in Wilmington, North Carolina and Wilmington, Delaware. He served eight years as Plant Manager at DuPont's facilities at Chocolate Bayou (Alvin) and Sabine River Works (Orange). After DuPont Jim served for ten years as President of Texas Chemical Council, the trade association representing the state's chemical industry. Jim has had a lifelong interest in history, particularly that of Texas and Spanish Colonial Mexico, and has published several books on those subjects. He was a founder and served as historian on the Bernardo Archaeological Project in 2010.

If you have any questions about this meeting, please contact HAS President Linda Gorski at president@txhas.org.

President's Message – Linda Gorski

HAS Members,

It always gives me great pleasure to announce our new Board of Directors for the coming year – and this year is no exception. You have voted for a wonderful team to lead the Society this year and I'd like to introduce them to you.

Larry Golden – Vice President – Larry is responsible for coming up with the programs for the year and I'm sure you'll agree that he has done a fabulous job!!! Not only that, but Larry is also an expert on glassware, ceramics and pottery so is an invaluable member of our team in the field and in the lab as well.

Bob Sewell – Treasurer – Bob not only handles all the Society's financial matters but also publishes our monthly newsletter, The Profile and keeps up our website. Oh – and did I mention he frequently acts as field director on our projects??? He's an invaluable member of the team!!!

Diana Cooper – Secretary – Diana joins our Board this year as secretary, replacing Beth Kennedy. Diana has been active with the Society in the field for several years and we look forward to her taking this role.

Dub Crook – Director at Large – Dub is in his third term as a member of the HAS Board as Director at Large. Dub is also the editor of our Journals and Reports and writes terrific monthly articles for our newsletter, The Profile. Dub also does an enormous amount of public outreach for HAS especially for adult and academic groups.

Frank Kozar – Director at Large – Frank has been a member of the Board for past year and is an invaluable member of our team – especially in the field. The man has everything you could ever possibly need at a dig in his SUV!!! I like to call him Radar O'Reilly because he is one step ahead of me all the time!

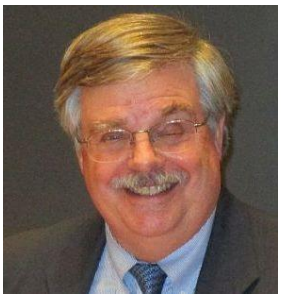
Leonie Waithman – Director at Large – Leonie joins our Board for the first time but has been an active member of the society for several years, especially on field projects. We're delighted to welcome her to the Board!

And, finally, me – Linda Gorski (see photo above – it's an absolute privilege to serve another year as president of HAS. I look forward to working with you again as we dig up Texas history, one trowel full at time!

Larry Golden, Vice President

Diana Cooper, Secretary

Bob Sewell, Treasurer



Dub Crook, Director-at-Large

Frank Kozar, Director-at-Large

Leonie Waithman, Director-at-Large

Thanks again for your terrific support of the Houston Archeological Society!!! Hope to see you soon!

Linda Gorski, President, Houston Archeological Society

Houston Archeological Society
Monthly Meeting Minutes
September 16, 2021

WELCOME to our HAS Monthly Meeting! Due to an upsurge in the pandemic, we are once again holding our meeting via Zoom! We are so glad everyone can join us tonight **(Linda Gorski).**

Treasurer's Report (Bob Sewell): Bob reported amounts in the HAS checking and savings accounts. If any member is interested in more information about HAS finances, please see Bob.

Membership (Bob Sewell): Our membership currently stands at 241! In 2019, membership rose to 250; in 2020, it dropped to 195, so we are doing very well with our total number for this year!

Website and Newsletter (Bob Sewell): Our website is going great with no outages. We may have a few updates coming up. Also, thanks to everyone who has contributed articles; it's nice to have contributors other than our core group, so if you are interested in submitting an article, Bob can help if needed. Articles should be short, entertaining, and of interest to members. **Hats:** The company that manufactures the hats is continuing to have trouble getting supplies. It could be November before anything happens. If you want to get on the list, email Bob at treasurer@txhas.org. Hat color choices are blue, khaki, and green and require a $10.00 donation to HAS.

New Business

Publications (Dub Crook): HAS Report #36 (Lone Oak Site Phases I and II) came out in April and has been given out. The next Lone Oak Report (#37) on Phase III of the site (a lithics workshop) will be out in October. In December, our next journal will be published, which will have six articles, including two large papers on the Cotton Field site. Next year we will have one issue of the journal and several more special reports. These publications are part of your membership. If you are new and would like to receive copies, please email Linda.

Election of Board Members: Thanks to our Nominating Committee (Sharon Menegaz, Kathleen Kelly, Liz Coon-Nguyen)! Beth Kennedy reports 63 votes, all positive, in support of the following slate of officers: Linda Gorski (President); Larry Golden (Vice-President); Bob Sewell (Treasurer); Diana Cooper (Secretary); Directors at Large: Leonie Waithman (new three-year term), Frank Kozar (2 years remaining); Dub Crook (one year remaining). Congratulations to all Board members, and thanks to everyone who voted!

Awards: Linda Gorski presented the annual awards to three HAS members tonight: Two Merit Awards were given out this year – first to Liz Coon-Nguyen for her work in support of our Zoom and YouTube meetings, which have allowed out of town folks to join the HAS meetings, and to Ashley Jones, professional archeologist, for her work at Kleb Woods Nature Preserve and Center. The Southeast Texas Research Award was presented to Kathleen for her extensive research on her property Garden Lot 26, early Texas history and the Texas Revolution. And finally, the Lifetime Membership award was given to HAS secretary Beth Kennedy, for her work field and lab work with HAS.

Tonight's Program: Dub Crook, long-time member of the Dallas, Houston, and Texas Archeological Societies, and publisher of 183 professional papers in the field of archeology, presented on the Lone Oak Prehistoric Site in Colorado County, Texas. The presentation included a summary of work conducted during Phases 1, 2, and 3 at the site, as well as a discussion of the numerous lithics (all analyzed by Dub) produced during excavations there.

Next Month's Program: Author and historian Jim Woodrick will present "The Cannons of San Jacinto," which will be a video presentation on three cannons that played a critical role in the Battle of San Jacinto—two Texian cannons and one Mexican cannon!

- Beth Kennedy, Secretary

HAS Award Winners for 2021 Announced at September Annual General Meeting

By Linda Gorski

Every year the HAS president has the privilege of presenting awards to deserving members of the Houston Archeological Society at the September Annual General Meeting. These awards include the Merit Award, presented to members who have given outstanding support to HAS activities, the Southeast Texas Research Award which goes to members who have shared their special knowledge and expertise in a variety of archeological subjects with HAS, and the Lifetime Membership Award which is the highest honor the society presents and is given in recognition of extraordinary service to the Houston Archeological Society. I'm pleased to announce our award winners for this year.

Dr. Elizabeth Coon-Nguyen
Houston Archeological Society Merit Award 2021

As most of you know, since the Covid pandemic hit in the spring of 2020, the Houston Archeological Society has met virtually via Zoom or YouTube Livestream. This would not have been possible without the efforts of our Merit Award Recipient this year who recognized the need for HAS meetings to continue and enabled us to do so in our homes in front of our own computers. Not only that, but she has also figured out how we can continue offering our meetings via Zoom and YouTube once we move back into live meetings at Trini Mendenhall Community Center! And she did all this while continuing with her medical practice, traveling with her medical practice, raising two teenagers AND being the president elect of the Texas Archeological Society. Thanks to Dr. Liz Coon-Nguyen for all she has done this year.

Ashley Jones
Houston Archeological Society Merit Award 2021

The Houston Archeological Society's second Merit Award this year goes to a professional archeologist who is also a member of HAS. This person has served as a member of our Board for the past three years, has been our principal investigator on the Kleb Woods Nature Center Project, and will remain as one of our professional advisors. She is also the vice president of Moore Archeological Consulting. Thanks to Ashley Jones for her valuable contributions to the Houston Archeological Society!

Kathleen Kelly
Houston Archeological Society
Southeast Texas Research Award 2021

This year the Southeast Texas Research Award goes to an HAS member who is possibly one of the best historical researchers I've ever had the pleasure of meeting. She has invited members of the Texas Archeological Stewards Network onto her property this year to do initial surveys which will lead shortly to extensive investigations by members of the Houston Archeological Society. Kathleen Kelly has conducted an amazing amount of research into the early residents of her property, the earliest being Samuel May Williams, Stephen F. Austin's secretary and land agent. She has compiled her research into a fascinating book entitled Indelible Footprints in San Felipe de Austin: Trailhead to Texas Independence. This book highlights the very earliest history of San Felipe and specifically the garden lots on the outskirts of the historical site. Her property is so significant in Texas History that we have submitted a grant proposal to the Summerlee Foundation to do geophysical surveys on her property before we continue our work there. You will get to know Kathleen even better over the coming months as we extend our archeological surveys on her property. The recipient of the SETRA Award for this year – Kathleen Kelly.

Beth Kennedy
Houston Archeological Society
Lifetime Membership (Fellow) Award 2021

The Lifetime Membership or Fellow Award is the highest award given by the Houston Archeological Society and is presented to Society members who have given extraordinary contributions to HAS. This year the award is being presented to Beth Kennedy who has served on the HAS Board for the past several years, has participated in literally every single project the society has taken on over the past several years, and is a member of the Texas Historical Commission's Archeological Stewards Network. She works with MaryBeth Tomka at the Texas Archeological Research Lab, preserving the artifacts stored there. She is a member of the Texas Master Naturalists and is an invaluable advisor to HAS on plants we find in the field. She is an active member of the HAS Outreach team. Beth has also served as secretary to our Board for the past several years, and thus has kept us "legal" and "out of jail. Beth Kennedy has been an invaluable member of the Houston Archeological Society for many years and joins other giants of HAS including Leland Patterson, Dick Gregg, Pam Wheat, and Dub Crook as a Lifetime Member. Our friend and colleague, Beth Kennedy

The Loading Block
Part 1 of 2
By Tom Nuckols

Abram Alley's Log Cabin

On Bowie Street in Columbus, Texas, there stands the relocated (1976) Abram Alley log cabin (Figure 1).

Figure 1. Picture from Colorado County Historical Markers, Abram Alley Log Cabin @ http://www.coloradocountyhistory.org/historical_markers/alley_abram_log_cabin.htm.

The text on the historical marker in front of the cabin reads:

In the 1820s, Abram Alley (d. 1862) came from Missouri to join his brothers in Stephen F. Austin's "Old 300" Colony. He settled a few miles south of here on the east side of the Colorado, and in 1835 married Nancy Millar (1817-1893), of another pioneer family. During the Texas War for Independence, he went to the aid of settlers fleeing Santa Anna in the "Runaway Scrape," and his own home was burned. Late in 1836 he returned and built this cabin of oak logs. Here the Alleys raised two daughters and three sons and often entertained friends and travelers.

On a Saturday morning in the spring of 2014, a group of Texas Archaeological Society members, attempted to find the original location of the Alley cabin. The group's search method was pedestrian, and the search area was on a large private ranch on the east bank of the Colorado River, downstream of present-day Alleyton. The hours long activity proved fruitless; no 19th century artifacts were found lying on the surface of the ground.

If memory serves me right, the Alley cabin location, if found, would have been archaeologically investigated as a sideline activity during the June, 2014, TAS annual field school held at the Tait Ranch, near the cross roads community of Altair.

Figure 2. The author (right) with a frontiersman reenactor showing the loading block

Spending A Saturday with the Houston Archaeological Society

A few years ago, I participated in the Houston Archaeological Society's public outreach booth at the yearly Folk Festival held in downtown Columbus, near the Colorado County Courthouse (built 1890). During the festival, Linda Gorski, took a picture of me standing next to a frontiersman reenactor in front the Alley cabin. The reenactor was holding a muzzle-loading flintlock Kentucky rifle. One of several accouterments[1] hanging from his neck by a leather cord was a wooden loading block (Figure 2). The red arrow points to the eight-hole loading block. Four of the loading blocks holes contain a patched bullet. Hanging beneath the loading block is a black gun powder measure made from the base of a white tail deer antler and a pan brush used to clean out the locks (flintlock) flash pan. Barely visible near the waist of the reenactor is a powder horn (left side) and a shot pouch (right side).

[1] An accouterment is any item carried by a rifleman or soldier as an aid in both shooting and maintaining his muzzle-loading rifle or musket. Common accoutrements for a rifleman are a powder horn and a shot pouch. One of the accoutrements of a soldier carrying a musket was a cartridge box.

The Loading Block

A loading block (block) is a device designed to make the process of loading a muzzle-loading rifle easier and faster by eliminating some of the steps required in the loading process. A block is made from a thin piece of wood containing any number of holes. Each hole can snugly hold a ready to load, spherical muzzle-loading lead bullet (bullet), wrapped in a lubricated cloth patch. Since the diameter of the cloth wrapped bullet is wider than the thickness of the block, the bullet creates a protruding bulge on either side of the block (Figure 3).

Figure 2. A six-hole wooden loading block containing a single mold cast, spherical, muzzle-loading bullet wrapped in a lubricated cloth patch. The bullets sprue nib is pointing upward. A sprue nib is the little protruding (usually circular) hump of lead that is left on the surface of a bullet, where the casting sprue is cut off. Picture from OCTOBER COUNTRY MUZZLELOADING @.https://www.octobercountry.com/bullet-loading-blocks/.

Next month: I will explain how a loading block works.

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We need YOU to help at this event!!! Watch for announcements from Sharon Menegaz about volunteering on November 6th at Kleb Woods Nature Center. If you are interested in volunteering, please contact Sharon at smenegaz@rcseaglesonline.com

"Geofizz" in Archeology – Geoff Mills and Beth Kennedy

Introduction

For any of you who have watched the British archeology show Time Team, you will remember that not much excavation occurs prior to some sort of geophysical survey. Time Team affectionally refer to the geophysical surveys as "Geofizz." The timely identification of potential excavation sites was critical due to the short duration of each excavation program. The information obtained helped define the objectives of the archeology by finding potential structures early and validating to some degree the historical research.

Excavation archeology is by its very nature invasive and destructive, whereas the geophysical methods are not. Geophysical surveys generate maps at the target level of subsurface features, which can then be used to correlate with other information, e.g., arial maps, and other different geophysical data, such as metal detecting results. The most common geophysical techniques used for archeology are Ground Penetrating Radar (GPR), Magnetometer, and Electrical Resistance. Although there are other geophysical methods, as can be seen in the previous table, I shall be focused on the three main methods referred to above.

Ground Penetrating Radar (GPR)[2]

Ground Penetrating Radar (GPR) sends a fan shaped radar signal into the ground in the direction of travel of the GPR device (usually a cart which you push). The scanning process only occurs while the cart is moving. The reflected signal from objects and stratigraphic layering is received by the cart where it is stored and processed. The radar data can be interpreted to differentiate the target structure or material from the surrounding earth. The travel time of these reflections can be converted to depth with some estimate of overburden velocity. More information on GPR surveys can be found in Ref 1 (Ernenwein, E.G., and Hargrave, M.L., 2009).

By collecting the data along a line, the profile of the reflections is obtained. When this is extended to a grid, a set of parallel profiles are obtained as in the slices of a loaf of bread. By further processing of the data and slicing horizontally, "time slices" can be obtained which lead to maps in depth. By stacking the "time slices" a 3D view of the subsurface can be obtained. The processing of GPR data is in many ways like that used in seismic data. A more extensive description of the processing options for GPR data all the way to a 3D model can be found in Ref 2 (Annan, A.P., 1999).

The approximate depth of penetration for a GPR survey is 1 to 5 meters depending on the instrument used and the environment.

[2] USGS Office of Groundwater, Branch of Geophysics, U.S. Geologic Survey. Public domain

Magnetometry

Unlike GPR, which is an active geophysical method (i.e., energy is transmitted into the ground), magnetometry is a passive method, which is based on measuring the earth's magnetic field. A gradiometer, which measures magnetic gradient between sensors, is usually used.

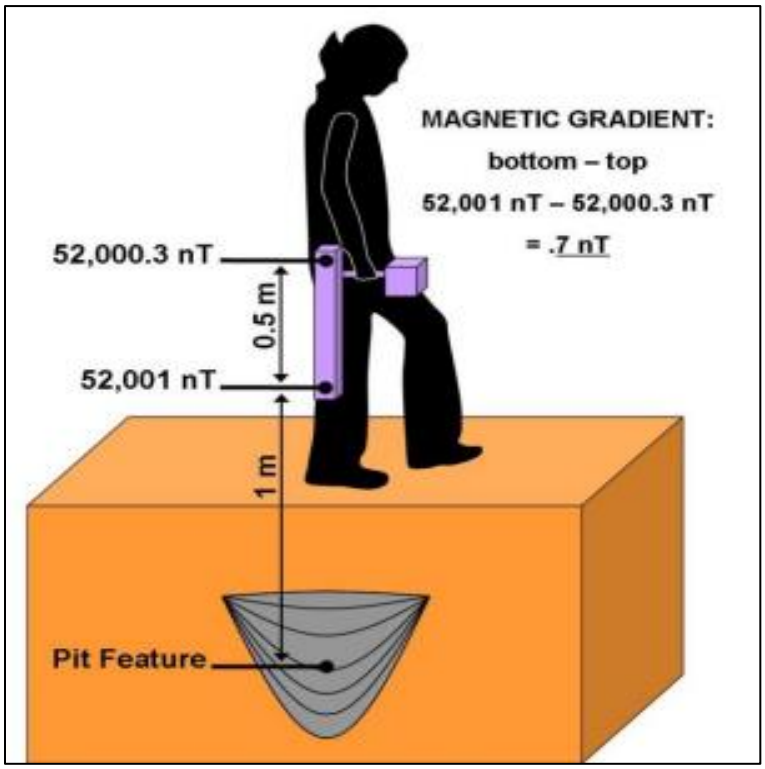


Fig 1. How a magnetic gradiometer works (Ernenwein, E.G., and Hargrave, M.L., 2009: Fig 9)

The use of the magnetic gradient is a more accurate approach, the principal being that changes to the earth's magnetic gradient are influenced by objects and structures below the ground. The magnetic gradient is measured by one or more pair of sensors on the gradiometer.

Figure 1. illustrates the principal of the gradiometer. The sensors react to metal, brick, burned soil and different types of rock. Archeological features composed of these materials can be detected and delineated.

The most common type of magnetometry hardware is known as a fluxgate radiometer, a vertical element, carried in one hand, as shown above. Alternatively, there is a dual radiometer which is carried in two hands and looks like a large vertical "H." Basically, two instruments are carried together to speed up the survey and increase the sampling. As for the case of the GPR the data is collected on a grid to produce "time slices" of the sub surface. The approximate depth of penetration for a Magnetometer survey is 1 to 1.5 meters, depending on the instrument used and the environment.

Electrical Resistance

The Electrical Resistance method depends on the moisture content and the chemical conductivity of the soil. The method uses equipment that passes an electrical current into the ground and measuring the variation in voltage. For those who remember Ohm's Law from high school physics is then a simple matter to calculate resistance from:

Resistance = Voltage/Current.

Electrical resistance is useful on archaeological sites because cultural features represent localized disturbances to the natural soil environment. These often include areas of organic materials, rocks, etc. These disruptions to the natural soil strata are often associated with a localized contrast in moisture content and therefore electrical resistance. A feature such as a wall l made of rock or brick is usually much more resistive than surrounding soils. The approximate depth of penetration for an Electrical Resistance survey is 0.5 to 5.0 meters depending on the instrument used and the local environment of the survey.

Other

There are several other geophysical methods which can be used for archeology.

Conductivity (Cond)

Based on the degree to which different materials conduct electricity. Electric current is induced in the target object which can then be measured in very similar manner to an electrical resistance survey. This method does not use probes and its depth resolution is not as good. Metal detecting can be thought of an example on a point basis.

Magnetic Susceptibility (MS)

Based on the principle that different materials become magnetized in an applied magnetic field. As in Conductivity the magnetism is created by induced magnetic currents. In general, most topsoils have a higher magnetic susceptibility than most bedrocks and subsoils. This method has poor depth sensitivity for features deeper than 0.5 m.

LIDAR (Light Detection and Ranging)

LIDAR generates a very rapidly pulsating laser light and uses the reflected light to estimate the distance to surface features. The method effectively removes the presence of organic material such as trees and undergrowth.
Of course, not all methods work equally for different target features, as can be seen in the table below:

Feature	RES	COND	GPR	MS	MAG	Explanation/Notes
Pits/Excavations:						
Post hole	P	P	M	P	P	Generally too small, often no patterns
Grave (no void space)	M	P	M	M	M	Small, low contrast, may lack pattern
Excavation (archaeological)	M	M	M	M	M	COND often blurs boundaries
Processing/storage pit	P	P	M	M	E	Often small, low contrast
Borrow pit	M	M	M	E	E	Usually a soil (magnetic) low/void
House basin	M	M	E	E	E	Favorable compaction, fill, size & shape
Wall trench	M	M	E	M	M	Favorable shape/pattern
Pathway	M	M	E	M	E	Favorable compaction & incision
Ditch	M	M	M	M	E	Often good contrast & patterned
Void space (graves, tunnels)	P	M	E	M	M	Voids are very good GPR reflectors
Walls:						
Adobe/mud wall	M	M	E	M	M	Depends heavily on contrast
Stone wall, non-magnetic	E	E	E	M	M	Magnetic contrast questionable
Stone wall, magnetic	E	E	E	E	E	Electrical & magnetic contrast
Brick wall	E	E	E	E	E	Electrical & magnetic contrast
Monoliths						
Non-magnetic stone	M	M	M	M	M	Lack of pattern
Magnetic stone	M	M	M	M	E	Assuming remanent magnetism
Floors/pavements/surfaces:						
Compact earthen surface	P	M	E	P	P	Favorable compaction & contrast
Prepared mud/adobe surface	M	M	E	P	P	Favorable compaction & contrast
Stone floor, non-magnetic	E	E	E	P-M	P-M	Magnetic contrast still possible
Stone floor, magnetic	E	E	E	M	E	Nature of magnetic contrast varies
Artifacts:						
Ferrous metal	P	M	P	P	E	Must be very shallow for COND
Igneous rock (small)	P	M	P	P	E	Must be very shallow for COND
Fired/Burned Features						
Hearth, small/unprepared	P	P	M	P	M	Lacks size, robustness, & pattern
Hearth, prepared	P	P	M	P	E	Favorable compaction, burning, size
Kiln	M	M	E	M	E	Favorable size, burning
Very large clay pot	P	P	M	P	M	Remanant magnetic field from firing
Burned house/architecture	M	M	M	M	E	Favorable size, pattern & burning
Accumulations:						
Midden	E	E	M	M	M	Favorable moisture contrast
Earthen mound	E	E	M	E	M	Moisture and magnetic contrast

RES=resistance; COND=conductivity; MS=magnetic susceptibility; MAG=magnetometry

Table 1. Feature detection feasibility for common geophysical methods (Ernenwein, E.G., and Hargrave, M.L., 2009: Table 3) (P = Poor, M = Moderate, E= Excellent)

Different geophysical methods are very much dependent on the environmental conditions at the survey site. See table 2. Below for details:

Condition[1]	RES	COND	GPR	MS	MAG
extremely dry	P	P	C	N	N
dry	C	N	B	N	N
moderate moisture	B	B	B	N	N
Moist[2]	B	N	C	N	N
saturated	P	C	C	N	N
high % clay minerals	N	N	P	N	N
moderate to high salinity	N	N	P	N	N
abundant non-magnetic rocks	C	N	C	N	N
abundant magnetic rocks	C	N	C	N	P
magnetic bedrock near surface	N	N	N	N	P
metal (ferrous) debris on surface	N	C	N	N	P
large metal objects (fences, etc.)	N	N	N	N	C
poorly developed soils	N	N	N	C	C
well developed soils	N	N	N	B	B

[1] assuming soil has adequate magnetic contrast with the subsoil
[2] assuming the ground is still stable to walk across without much damage
RES=resistance; COND=conductivity; MS=magnetic susceptibility; MAG=magnetometry

Table 2. Effects of environmental conditions on common geophysical methods (Ernenwein, E.G., and Hargrave, M.L., 2009: Table 2) (B = Beneficial, C = Causes concern, N = no effect, P = problematic)

There is a significant cost to doing geophysical surveys. It has been estimated that this would be between $1000 and $3000 per day. The actual cost will depend on the method used, the sampling density, the local environment, the amount of data processing, and the level interpretation required.

Conclusions

There are many different applications of geophysics to archeology. They all have their own advantages and disadvantages. The selection of a particular method will depend on the target of interest and the survey environment. Sometimes more than one of the methods are used on the same survey, e.g., GPR and magnetometry to add additional support to the archeological interpretation.
For further reading and a more comprehensive overview refer to (Ernenwein, E.G., and Hargrave, M.L., 2009).

References

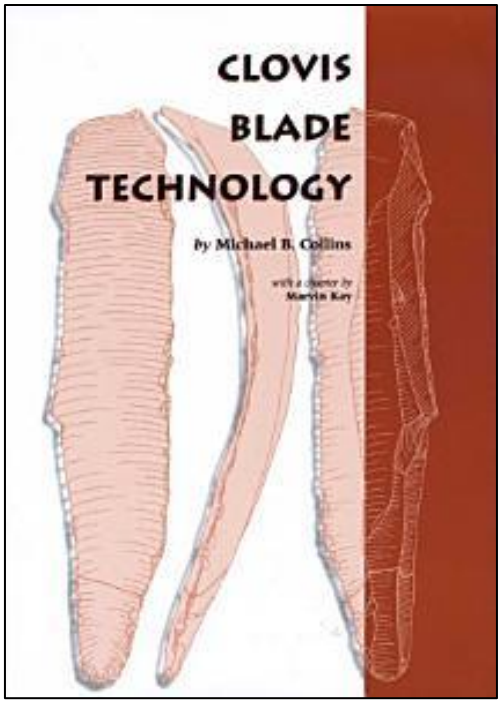
1. Ernenwein, E.G., and Hargrave, M.L., 2009: Archaeological Geophysics for DoD field users: a guide for new and novice users, ESTCP project S1-0611
2. Annan, A.P., 1999: Practical Processing of GPR Data, Sensors & Software Inc, Proceedings of the Second Government Workshop on Ground Penetrating Radar.
3. National Park Service 2021: Seeing into the Ground: archeology and Magnetometry Student Handout

Archeo Corner: Clovis Blades and Their Measurement

Wilson W. "Dub" Crook, III

Most people know that the Clovis culture was one of the earliest, wide-spread colonizers of North America. Likewise, most people interested in archeology are also familiar with the Clovis peoples' most recognized tool, the lanceolate-shaped fluted Clovis projectile point. However, an equally important component of the Clovis toolkit are Clovis blades.

Prior to the 1960s, what was termed as "classic Clovis" was initially known largely from kill and butchering sites, particularly of mammoth, and mainly from sites in western North America. These sites yielded a fairly limited assemblage of stone tools, largely dominated by the exquisitely made, large, lanceolate-shaped projectile points thinned near the base by short channel flakes or "flutes". Few other tools were found at these kill sites except for the occasional expedient worked flake which had been used in the butchering process. Based on these limited finds, the Clovis people were depicted as nomadic big game hunters, concentrating most of their efforts on the largest of Late Pleistocene mammals, mainly mammoth and mastodon. However, during the period between 1960 and 2000, a number of caches of curved blades coupled with organic tools such as a shaft wrench from a Clovis site in Arizona, began to suggest that the Clovis tool kit was much more complex than had originally been proposed. More recent research at a number of Clovis sites here in Texas (Gault, Pavo Real, Keven Davis, Brushy Creek, Timber Fawn, Wood Springs and others) have indicated that intentionally made curved blades are as important a component of the Clovis tool kit as large, fluted bifaces.



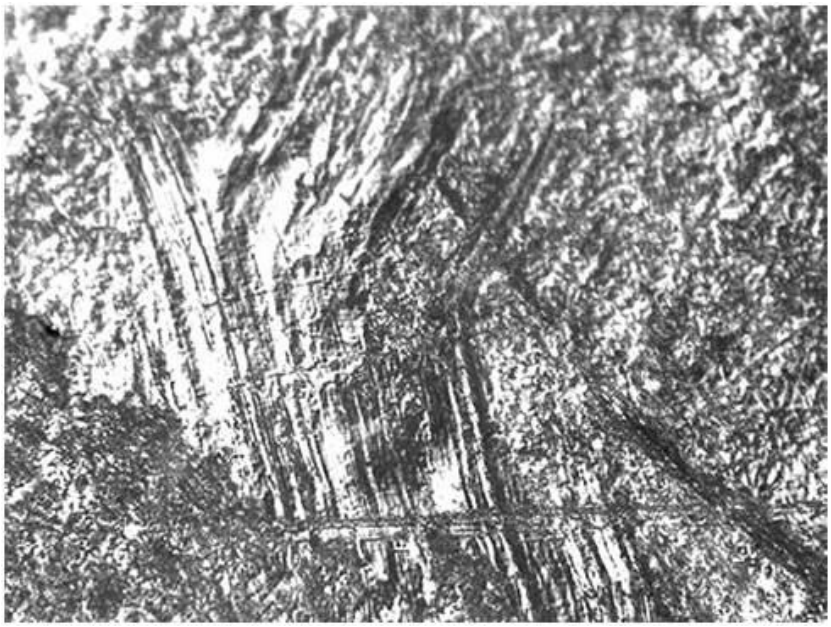
A major breakthrough on the study of Clovis blades came in 1988 with the discovery of the Keven Davis cache of 14 blades in Navarro County. These blades were curated at the Texas Archeological Research Laboratory in Austin where Mike Collins of the Gault Project studied them in great detail. His analysis of the cache and of Clovis blades overall led to his 1999 publication, *Clovis Blade Technology*. Even though his book is now over 20 years old, this remains the "go to" reference book for Clovis blades.

Collins discovered that the Clovis lithic technology is as much about blade production as it is a biface industry. Clovis blades are defined by a number of characteristics including a length-to-width ratio typically greater than 2:1 (and often much greater), a relatively small striking platform, and a thickness of less than 10 mm. A further defining characteristic of Clovis blades is their high index of curvature, defined as the maximum degree of curvature relative to the overall length of the blade. At the Gault site, of the 228 Clovis blades which have been recovered to date, 70 (31 percent) were measured as straight having an index of curvature close to zero, 24 (10 percent) had an index of curvature between zero and five (slightly curved) and 134 (59 percent) had an index of curvature of five or greater (highly curved).

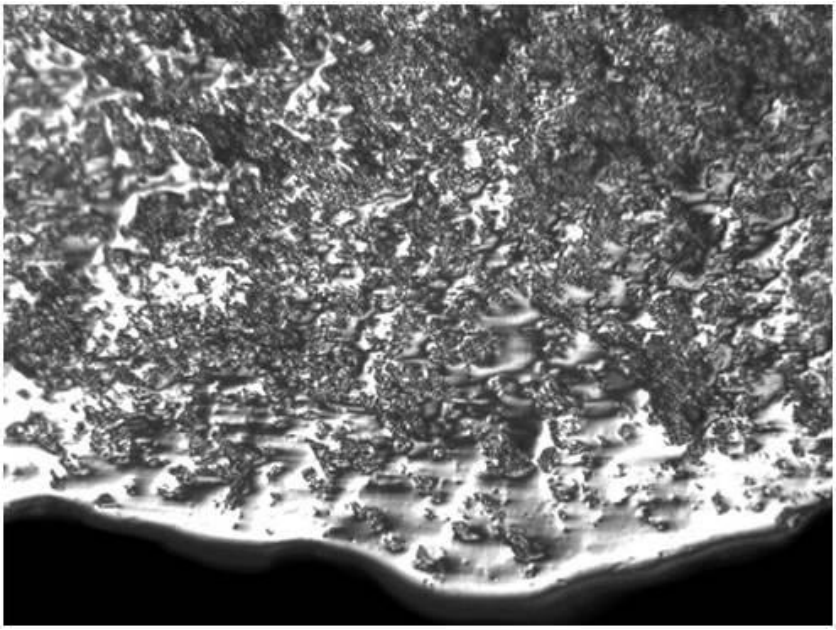
Curved Clovis blade from the Gault site (41BL323), Bell County, Texas.
(Source: Gault School of Archeological Research)

Curved Clovis blade from the Gault site (41BL323), Bell County, Texas.
Note the high degree of curvature.
(Source: Gault School of Archeological Research)

High resolution microscopy of the edges of Clovis blades shows that they were the "Swiss Army Knife" of the Clovis world, being used for a myriad of functions. Use-wear analysis coupled with experimental replication has shown that some Clovis blades were used in cutting meat. Others have a high degree of polish on the edges, indicative of having been used to cut silica-rich grass, possibly for thatch for housing. Many Clovis blades were purposed into end scrapers with some of these probably being hafted as evidenced by notches cut into the edge of the blades.



High resolution photomicrograph of the edge of a Clovis blade from the Gault Creek site (41BL323), Bell County, Texas. The striations perpendicular to the blade edge are indicative of it having been used to cut meat.
(Source: Gault School of Archeological Research)



High resolution photomicrograph of the edge of a Clovis blade from the Gault Creek site (41BL323), Bell County, Texas. The bright polish on the edge of the blade is indicative of it having been used to cut silica-rich material such as grass. (Source: Gault School of Archeological Research)

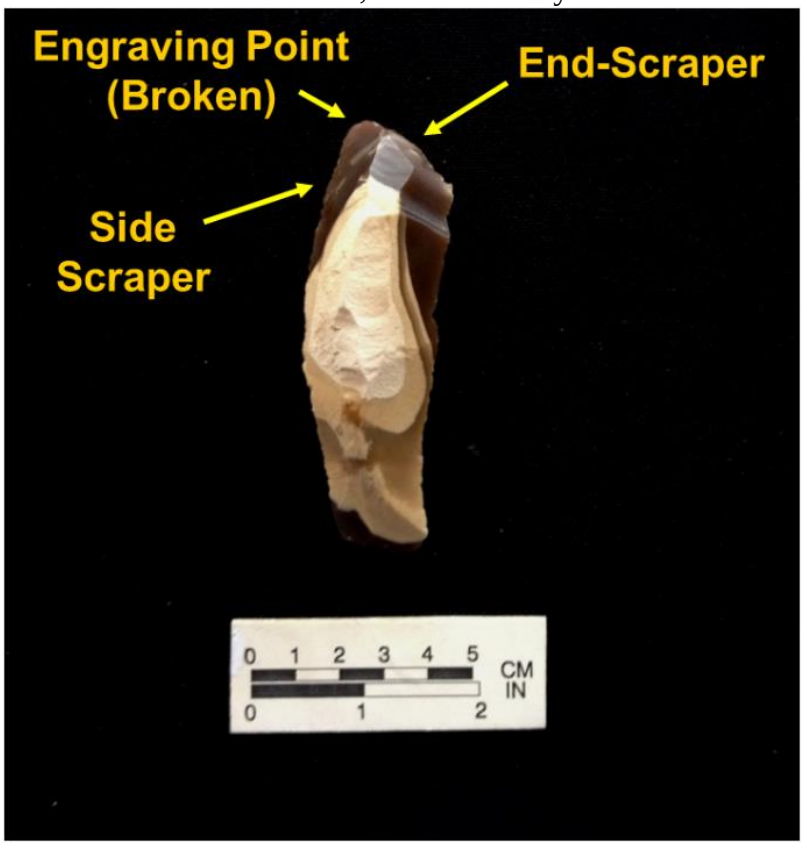
Collins developed a 12-point measuring system for Clovis blades in order to attempt to define which blades are truly Clovis and which are from a later technology. His measuring system includes the following:

- Maximum Blade Length (mm)
- Maximum Blade Width (mm)
- Maximum Thickness (mm)
- Striking Platform Angle (degrees) – measurement from the bulb of percussion to the body of the blade; Clovis blades typically fit into the 105-115° range
- Striking Platform Width (mm) – Clovis blades have small platforms, typically less than 10 mm
- Striking Platform Depth (mm) – thickness of the bulb of percussion
- Index of Curvature – measurement of the depth of curvature from a straight line from the two end points of the blade (shorter line divided by longer line)
- Ratio of Length-to-Width
- Length + Width + Thickness (mm)
- Ratio of Length / Length + Width + Thickness
- Ratio of Width / Length + Width + Thickness
- Ratio of Thickness / Length + Width + Thickness

Tom Williams, Jon Lohse, the author plus many other researchers have successfully applied this measurement system to Clovis blades from a number of other sites in Texas and elsewhere and have found that it consistently determines if a blade is of Clovis origin or from another cultural chronology. It should be noted that accurate determinations can only be made on complete or near complete blades.

Clovis blades are very distinctive by their overall appearance, especially their long, thin, and curved nature. In 2015, HAS member Lenore Psencik was walking in her Kingwood neighborhood and decided to inspect an area of construction for a new subdivision. Sticking out of one of the freshly dug dirt mounds was a complete Clovis blade. Having never seen a Clovis blade before, Lenore immediately recognized the artifact for what it was which ultimately led to the discovery of the Timber Fawn Clovis site (41HR1165).

In the Houston area, Clovis blades have now been found at Timber Fawn in Kingwood and at the Wood Springs site north of Liberty, Texas. Elsewhere in Texas, Clovis blades have been described from the Gault site, Pavo Real near San Antonio, the Keven Davis blade cache, and the Brushy Creek site northeast of Dallas.



Discovery blade from the Timber Fawn Clovis site (41HR1165). The blade was discovered by HAS member Lenore Psencik on a walk through a new house construction in her kingwood neighborhood.

Clovis blades recovered from the Timber Fawn site in Kingwood.

Houston Archeological Society

Monthly Meeting Programs for 2021
6:30pm Third Thursday of every month
(Until further notice meetings are virtual for members only)

November 18, 2021 — **Dan Worrall** - The Lower Brazos Culture and Late Archaic long distance trading networks

December 16, 2021 – **Linda Gorski -** Wrap Up of 2021 Activities

All **Houston Archeological Society** meetings are normally free and open to the public. However, due to the COVID-19 situation they are currently being conducted virtually for members only. For more information about HAS then visit our website at www.txhas.org or email lindagorski@cs.com. You can also join our Facebook page at https://www.facebook.com/groups/123659814324626/

Please submit articles for publication to *The Profile* Editor Bob Sewell at newsletter@txhas.org. Please submit articles for the June issue no later than 24th October, 2021.

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