

FOREWARD

In preparing this document, Bureau of Land Management publications, textbooks, micro-fische from the Oklahoma Department of Libraries, Indian treaties and copies of survey contracts and instructions were researched. The only conclusion that can be drawn with certainty is that there is an abundance of resources that still remain untouched. As those resources are uncovered, this document will be revised so that all who are interested can be enlightened.

Without the information that could be obtained from all the unresearched articles, this document cannot be considered a complete source. Its sole intent is to impress upon each individual surveyor the need to become knowledgeable of all information affecting surveys in your particular region of operations. Hopefully this document will assist you in your efforts.

1803, LOUISIANA PURCHASE

The purchase of 1803 added to American sovereignty 560,000,000 acres, more land than was embraced in all the original thirteen states.

JUNE 4, 1812 (2 Stat. 743)

Congress passed the act creating the Missouri Territory which was basically a name change. The new territory included all the lands in the original Louisiana Purchase, minus the new state of Louisiana.

MARCH 2, 1819 (3 Stat.493)

Congress created the Territory of Arkansas, which included most of what is now Oklahoma, and began the process of dividing the vast Missouri Territory into separate states.

ACT OF JULY 9,1832 (4 Stat. 663)

Created the office of Commissioner of Indian Affairs under the Secretary of War, where it remained until 1849. The office was necessary in order to have someone in charge of the complexities involved with the many Indian tribes and the moving of the Choctaw, Chickasaw, Creek, Cherokee, Seminole and other Indian tribes to the Indian Territory, which is now a part of Oklahoma.

1855 - MANUAL OF SURVEYING INSTRUCTIONS

The 1855 Manual was a revision of the 1851 Manual which was prepared specifically for Oregon. It was the first time a manual had been prepared for generalized use. This Manual explained the theory of the rectangular survey system in addition to giving detailed instructions of field procedures. It provided examples in methods of keeping notes, a summary of objects & data required to be noted, as well as diagrams illustrating plat preparation and Mound, Stake & Stone corner monumentation.

ACT OF JUNE 14, 1862 (12 Stat. 427)

Entitled an "Act to protect the Property of Indians who have adopted the habits of civilized life". The act provided for protection of those Indians who had received an allotment of tribal lands according to treaty stipulations. The Indian agent was to protect the allottee from trespass, etc. Nothing was said about how the agent was to determine the boundaries of an allotment and thus prove a trespass occurred. The method of surveying allotment boundaries was not spelled out by statute until the ACT OF APRIL 8, 1864.

THE ACT OF APRIL 8, 1864 (13 Stat. 39)

Entitled "An Act to provide for better organization of Indian Affairs in California". The main part of the act deals with Indian reservations and affairs in that State. But section. 6 of the act states:

"That hereafter, when it shall become necessary to survey an Indian or other reservations, or any lands, the same shall be surveyed under the direction and control of the general land-office, and as nearly as may be in conformity to the rules and regulations under which other public lands are surveyed." This section is now codified in (25 U.S.C. 176).

The act clearly places the survey of Indian and other reservations under the G.L.O. and under the regulations and methods of the regular public land surveys. After passage of the act, the boundary surveys were made under contracts with the

Surveyors General or under contract with the Commissioner of the GLO. When township, sections, and section subdivisional lines were surveyed within reservations, it was nearly always by contract with Surveyor General, except for those made in the Indian Territory (Oklahoma), which had no Surveyor General.

Most of the Indian reservations in the West were surveyed into townships and sections, following the 1864 Act. Many of those were subdivided into 20-acre or 40-acre allotments by subdividing the sections containing agricultural lands or at least lands that were thought fit to be farmed. Those subdivision of section surveys did not follow the present legal method of subdividing a section. Most sections were subdivided establishing the north and south one-sixteenth section corners on the east and west boundaries of the section at midpoint between the quarter corners and section corners. The one- sixteenth corners on the north and south boundaries of the section were established in a similar manner, i.e., at equidistant positions. The section would be subdivided by running a true line from the north sixteenth corner on one section line to the north sixteenth corner on the opposite section line, establishing the "1/8 and 1/16" corners at equidistant positions. The same process was used on the east and west centerline between quarter corners and on the south sixteenth section line. None of the north- south lines through the section were surveyed. In every other respect the surveys were made in accordance with the public land laws on surveying. The 20-acre allotments were numbered 1 to 32, with number one in the northeast corner and 32 in the southeast corner. This procedure has been referred to as the Three Mile Method.

Sometimes the centerlines of the sections would be surveyed properly and the quarter sections subdivided in the manner described. Unless the section was a perfect square, with all quarter section corners exactly at midpoint and on a line between section corners, this procedure would not result in a legal subdivision of the section.

This Three Mile Method of subdividing sections was used only on Indian reservations. All reservations subdivided into allotments were done by this method and variations of it until about 1920. When subdivided into 40-acre allotments, the one-sixteenth corners were usually referred to as "1/8 corner". If subdivided into 20-acre allotments the one-sixty-fourth-corners were usually called "1/32 corner". The Bureau of Indian Affairs (BIA) allotting agents devised a number and letter designation for the corners around the exterior boundaries and interior corners of a section.

Be aware that if interior corners of sections subdivided in this manner are now lost and are to be restored during a resurvey, they must be restored by proportionate measurement in the same manner that they were originally established, not by the rules of subdivision of sections as required by the 1973 manual.

Remember that these surveys usually resulted in a technically correct procedure. Boundary lines based on these subdivisions and monuments are just as binding on all parties as are other monuments of an officially approved survey. Many of these allotments were surveyed by the Indian Service (later the BIA) and the BLM may have no record of them.

JUNE 1, 1864 - AMENDMENTS TO 1855 MANUAL OF SURVEYING INSTRUCTIONS

These supplements stated that the 1855 Manual of Surveying Instructions and any Special Instructions would be deemed a part of every surveying contract. They also provided that no payment would be made for surveys not executed by the Deputy Surveyors in person and cautioned the Surveyor General about contracting a greater amount than could be reasonably completed in one season. They also spelled out

which rivers could be meandered on one bank only and which lakes not to meander. They included topics on corner posts & stones and notching of the same, bearing trees, marking lines, mode of correcting random lines to true and prescribed limits for closing, just to name a few of the topics. These 1864 supplements together with the 1855 Manual were used to survey a majority of western Oklahoma.

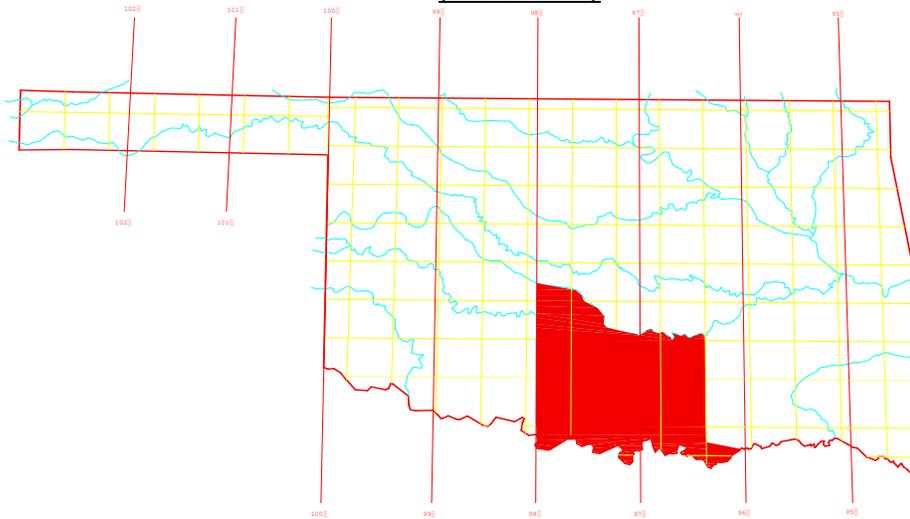
JULY 28, 1866 - CIRCULAR ABOUT NUMBERING LOTS

This change employed a continuous series of numbers in each section containing fractional lots and discontinued the numbering of lots containing 40 or 80 acres. Heretofore, the numbering of lots did not extend beyond each individual Quarter Section.

JUNE 10, 1868 - CIRCULAR NO. 22 ABOUT ISLAND SURVEYS

This circular provided for the survey of islands in districts where the office of Surveyor General had been discontinued. The cost of these surveys were borne wholly by the requesting individual. A deposit of a sum sufficient to pay for such survey and any expenses incident thereto had to be made prior to the commencing of the survey.

(FIGURE 1)



JULY 25, 1870 The Secretary of the Interior contracted with Ehad N. Darling and Theodore H. Barrett for the survey of the Chickasaw lands in the Indian Territory (now Oklahoma) in accordance with the TREATY OF APRIL 28, 1866, concluded with the Choctaw and Chickasaw Indians, which required that the lands be surveyed and subdivided into 160-acre tracts(See figure 1).

On July 30, 1870, Wilson issued Special Instructions for the surveys. Darling was assigned to survey the Indian Meridian and the Baseline in the eastern part of the Chickasaw lands; Barrett was to survey the baseline in the western part. As instructed, Darling established the initial point between two small streams a short distance southeast of Fort Arbuckle, which he monumented with a marked stone. Darling then surveyed the baseline east to the boundary between the Chickasaws and Choctaws. He surveyed the Choctaw-Chickasaw boundary north to Canadian River starting at the confluence of Island Bayou and the Red River, and the meridian

between the Red and Canadian rivers. He surveyed his area into townships and sections, then subdivided the sections by running the centerlines between quarter corners, establishing the center quarter section corners at the intersection of centerlines.

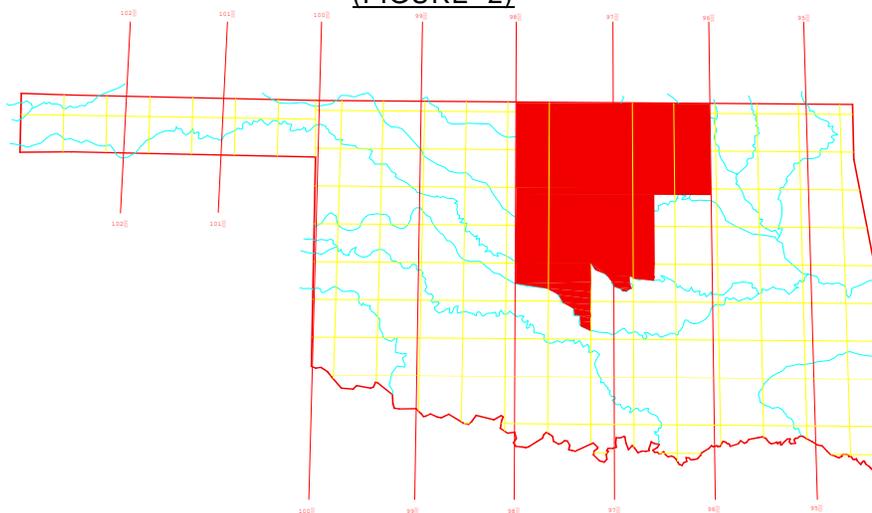
Barrett surveyed the baseline west to 98 degrees west longitude, then subdivided the western part of the Chickasaw lands the same as Darling did the eastern half. Barrett found gross errors in the 1858 survey of the 98th meridian, which had been surveyed as the west boundary of the Chickasaw lands; he did that work over so he could close against the boundary.

The contract dated July 25, 1870 between Joseph B. Wilson, commissioner of the General Land Office, and Theodore H. Barrett, reads in part as follows:

"in strict conformity with the Manual Of Surveying Instructions, issued by the General Land Office, which is hereby incorporated with and made a part of this contract, and with such special instructions as he may receive from the commissioner of the General Land Office in conformity therewith, will well, truly, and faithfully survey that portion of the Chickasaw lands described in the 2nd Article of the Treaty with Choctaws and Chickasaws concluded June 22, 1855, which lies west of the Principal Meridian to be established and surveyed by Ehad N. Darling under his contract bearing even date with this. He will also survey Principal Base Line, Standard Parallels north and south thereof; survey townships, section and parts of Section lines embraced within the western portion of the Chickasaw lands bounded on the east by the Principal Meridian aforesaid, on the north by the Canadian River, on the south by the Red River and on the west by the 98th degree of longitude west from Greenwich, - 15,566 lineal miles of surveying, as provided for in the 11th Article of the Treaty between the United States and said Choctaws and Chickasaws concluded April 25, 1866 and assented to by the Chickasaw Legislature November 9, 1866, and payable out of the appropriation of \$444,480 made July 15, 1870, "For exterior boundaries of Indian Reservations and subdividing into lots portions of the same, etc."

Even though this was the first time found in which a "complete" survey was made of the sections from the establishment of the Initial Point through to the proper method of subdividing the sections into quarter-sections; it was short-lived. On September 30, 1896, the Commissioners of the Five Civilized Tribes requested a resurvey of the Chickasaw Nation. The reason stated was that the original survey had been completed twenty-five years earlier and very little evidence of that survey remained. They suggested the original survey be disregarded and the Chickasaw nation be resurveyed by the USGS. Their request was granted by the Fifty-Fifth session of Congress on June 7, 1897, which stated that "*...in making the resurvey the former land survey is to be disregarded, the latter now being declared null and void...*". This action by Congress clearly voided the surveys of 1871, leaving those performed by the USGS to be considered as the Original Surveys.

(FIGURE 2)

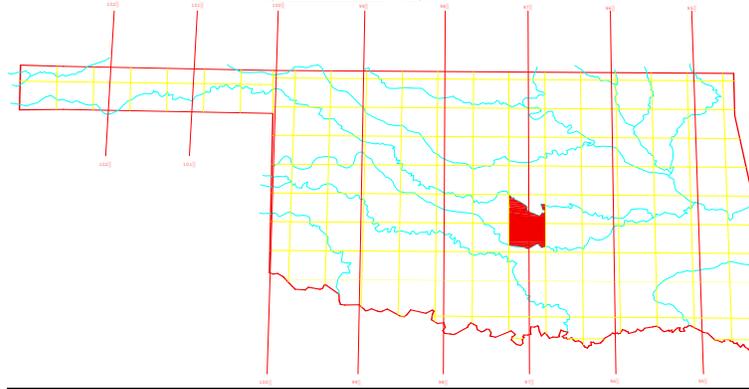


In **December 1870**, Darling and Barrett were given contracts to survey the Indian lands between the 96th and 98th Meridians from the Canadian River north to the Kansas boundary; the Indian Territory surveys were under way(See figure 2). The contract dated December 3, 1870 between Joseph B. Wilson, commissioner of the General Land Office, and Theodore H. Barrett & Ehad N. Darling reads in part as follows:

"in strict conformity with the printed Manual of Surveying Instructions issued by the General Land Office, which is hereby incorporated with and made a part of this contract, and with such Special Instructions as they may receive from the Commissioner of the General Land Office in conformity therewith will well, truly, and faithfully determine, establish and survey on the face of the earth the 96th Meridian of Longitude west from Greenwich through the Cherokee lands in the Indian Territory; survey and subdivide that part of said lands which lies West of said longitude, East of the 98th longitude west, and south of the 37th parallel of North latitude disposed of by the Cherokees to the United States per Article 16 of Treaty of July 19, 1866. They will also survey and subdivide that part of the West half of the entire domain of the Creek Lands ceded to the United States by the 3rd Article treaty of June 14, 1866, which lies between the 98th longitude West and the line dividing the Creek lands into two equal parts excepting therefrom that part of the same which was granted by the United States to the Seminoles by the 3rd Article of treaty with the latter of March 21, 1866; and the said Barrett and Darling will also survey and subdivide that part of the Seminole lands ceded by them to the United States by the 3rd Article of treaty of March 21, 1866 which lies East of the said 98th longitude West, excepting therefrom the Eastern part thereof equal to a tract of thirty miles square to be reserved for the Pottawatomie per 1st Article of treaty with said tribe of Indians, dated Feb. 27, 1867. The said Barrett and Darling will extend the Indian Meridian from the Canadian River north to the 37th degree of north latitude and the necessary Standard lines through the said Cherokee, Creek and Seminole lands. Payable out of the appropriation of \$444,480 made July 15, 1870 "For exterior boundaries of Indian Reservations and subdividing portions of the same" to the extent

of \$150,000; the remainder to be completed should an appropriation be made by Congress to pay for the service contracted herein....."

(FIGURE 3)



SEPTEMBER 3, 1872

Willis Drummond, commissioner of the General Land Office, issued the following Special Instructions to O.T. Morrill for the survey of the Pottawatomie Indian Reservation(See figure 3):

"SPECIAL INSTRUCTIONS"

"Having entered into contract of even date with these Special Instructions for the survey of the Pottawatomie Indian Reservation situated in the Indian Territory into forty acre tracts, you will be governed by the terms of the contract and these instructions in the execution of the work contracted.

Your surveying district is bounded on the east by the Western boundary of Seminole Reservation surveyed in 1871 by Nathaniel Robbins under direction of the Indian Office, on the South by Canadian River, on the North by the North Fork of the Canadian River, and on the West by the West boundary of Pottawatomie Reservation of thirty miles square. The boundaries of the Pottawatomie lands are being surveyed by Messers Barrett and Darling and will be ready together with the second standard North of the Indian Base Line by the time you arrive at your district of surveys. You will call on them at Shawneetown or other places of their quarters in the territory, for transcripts of field notes of surveys made by them under their contract of December 3d, 1870 of the Western boundary of the Pottawatomie Lands, as well as the notes of the extension of the second parallel North, East, and West of the Principal Meridian whereon they have established standard corners for quarter section, section and townships as is required in the survey of public lands. But as your contract requires you to subdivide the lands into forty acre tracts it will be necessary for you to erect additional corners on the parallel intermediate between quarter section and section corners at equidistant places in the manner hereinafter illustrated on a diagram.

The Second Standard Parallel is coincident with the line between townships eight and nine North of the Base line, it will serve you as an auxiliary base for running your district into townships lying both North and South therefrom; you will close your meridinal lines starting from the parallel North from the standard corners and South from the closing corners which you will have established at proper convergency of the meridians.

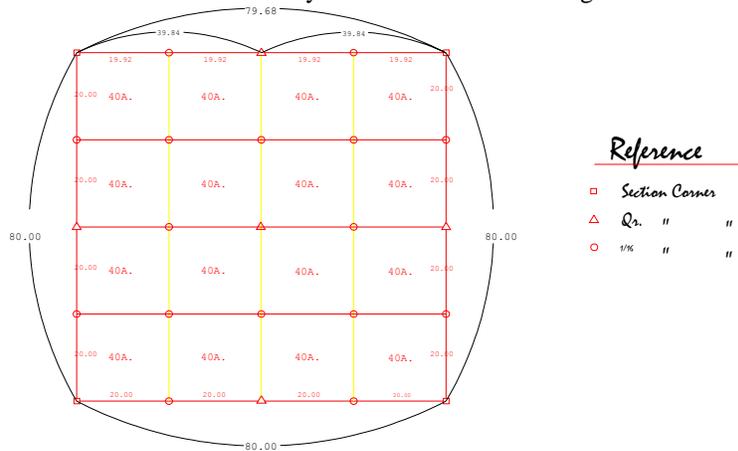
"SPECIAL INSTRUCTIONS"(continued)

You will provide yourself with appropriate instruments and chains of Standard measure as well as field books to note your operations in the form prescribed in the printed Manuel of Surveying Instructions, six copies of which are sent you herewith, as none of these articles will be furnished you by this office. You will however be supplied with necessary field note paper and blank township plats upon application for the same in writing for the purpose of making your return of surveys in triplicate. It is expected that you will prosecute the work contracted with due diligence looking to its early completion and to this end you are hereby authorized to employ additional Compassmen with their requisite parties, if desired, but you are specially enjoined not to engage any but as are thoroughly familiar with the system of surveys and who possess the necessary skill and faithfulness in the execution of the survey contemplated in your contract, whose operations must be witnessed by you personally in the field so as to enable you to make proper affidavits to the returns of the work as is required in the Manual aforesaid.

Whenever any part of your surveys is completed, returns thereof may be made if so desired by you, consisting of transcripts of the original field notes of survey and plats in triplicates, duplicates or single copies neatly and correctly executed together with your account therefore, all of which if found properly performed will be adjusted and reported for payment with the request that drafts in your favor may be sent to such place as you will have indicated on the face of the account.

In case the surveys made by Messers Barrett and Darling as aforesaid lying west of the western boundary of the Pottawatomie reservation have been closed on the same making fractional lots, it will be your duty in completing legal subdivisions within the Pottawatomie lands to number fractions adjoining their westerly numbers consecutive to those outside thereof; the series of numbers being separate for each section.

For your further information I enclose a diagram of a section of land, illustrating the method to be adopted by you for the subdivision into sixteen forty acre tracts involving three additional random and true lines to be surveyed and marked, the same to be East and West lines as shown in yellow color on the diagram herein.



The red and yellow lines actually to be run and marked in the field.

"SPECIAL INSTRUCTIONS"(continued)

In establishing the lines within the Pottawatomie reservation you will plant thereon additional corners to those required in the survey of the public lands, on the East and West lines, such as are required in the Manual of Surveying Instructions for quarter-section corners viz: at every twenty chains marking them 1/16; at forty chains or at equidistant points between section corners 1/4; at sixty chains 1/16; and at eighty chains with the usual marks applicable to standard, township and section corners.

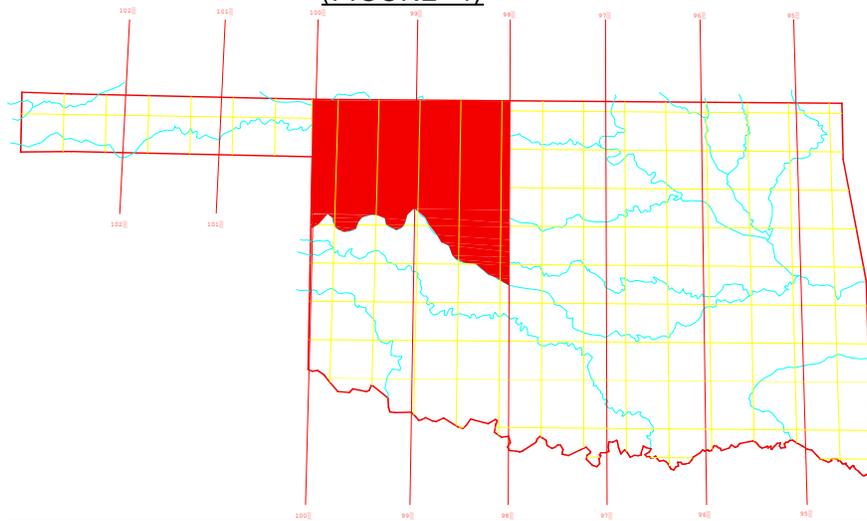
It having been demonstrated by experience in the field that East and West section lines frequently fall short or exceed eighty chains in length, the corners should be in such cases planted at equidistant points as indicated on the foregoing diagram.

On the North and South lines the additional corners will be set at every twenty chains and with 1/16 the same as is required for the quarter section corners in the Manual. The quarter-quarter corners should be of the size and material and constructed in the same manner as quarter section corners are required to be established by the Manual of Surveying Instructions with the single exception of the designation 1/16 instead of 1/4 section. Stakes will be preferred to stones, and all stakes should be charred and surrounded by mounds of earth compactly built, four pits to each mound so as to indicate the four Cardinal points of the lines, the pits to be 24 by 12 inches and 12 inches deep.

For your further information as to the locality of the Pottawatomie Indian Reservation, I enclose a diagram showing in yellow shade approximate boundaries thereof, the Western boundary of which may not coincide with the Indian Meridian but may be either East or West thereof by actual survey which you will obtain from Messers Barrett and Darling operating in that neighborhood.

You are requested to acknowledge receipt of these instructions.

(FIGURE 4)

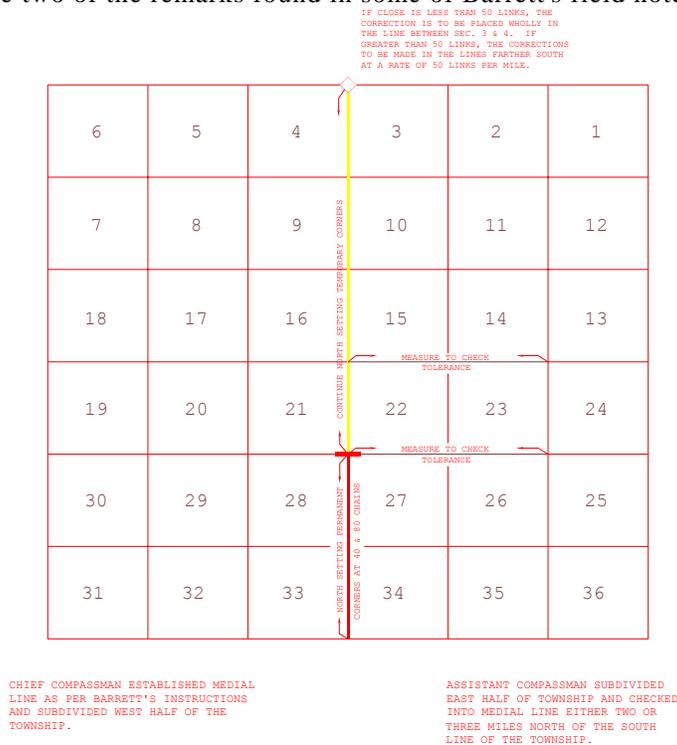


SEPTEMBER 7, 1872

Willis Drummond, Commissioner of the General Land Office, entered into a contract with Theodore H. Barrett and Orville Smith to survey a portion of northwestern Oklahoma. That contract reads in part as follows(See figure 4):

"in strict conformity with the printed Manual of Surveying Instructions, issued by the General Land Office, which is hereby incorporated with and made a part of this contract, and with Special Instructions as they may receive from the Commissioner of the General Land Office in conformity therewith, will well, truly, and faithfully survey, run and mark that part of the Cherokee lands in Indian Territory ceded to the United States by Article 16 Treaty of July 19, 1866 bounded on the North by the 6th Standard Parallel, North of the Base Line, on the East by the 98th Meridian west from Greenwich, and on the west by the line between Ranges 19 and 20 West of the Indian Meridian. They will also survey that part of the lands ceded by the Creek Indians by the 3rd Article of Treaty of June 14, 1866, which is situated west of 98th Meridian west from Greenwich and north of the North Fork of Canadian River; and furthermore, they will survey that portion of the Seminole lands ceded to the United States by the 3rd Article of their Treaty of March 21, 1866, which is situated between the 98th Meridian west from Greenwich and the line between Ranges 19 and 20 West of the Indian Meridian. The said Barrett and Smith will extend from the 98th Meridian, as aforesaid, the 2nd Standard Parallel north, west to the intersection of Canadian River, the 3rd and 4th Standard Parallels north to the line between Ranges 19 and 20W and run their district into Townships and subdivide them into Sections. The surveys payable out of the appropriations of \$55,000 and \$150,000 for survey of the Indian Reservations under Treaty stipulations and for the Survey of Exterior boundaries of Indian Reservations and subdividing portions of the same. Approved May 29, 1872 to the extent of \$70,000 the remainder to be completed should an appropriation be made by Congress to pay for the service contracted herein..."

The following are two of the remarks found in some of Barrett's field notes:



(FIGURE 5)

GENERAL REMARKS

(See figure 5)

For better security against Indians, and that the work might be promptly completed, The Surveys in these Townships were executed by two surveying parties in each township, the whole under the general direction of the Chief Compassman, the Assistant Compassman at the head of the second party, acting only as his assistant.

That these two parties might execute the work properly, without interfering with each other, the following instructions were given:

The Chief Compassman (with a solar compass) was to run the line from the SW corner of section 34 north through the center of the township, closing on the north boundary at the NW corner to section 3. This line was to be established in going north, for the first two miles, to the corner of sections 21, 22, 27 and 28, temporary corners to be set at 40 and 80 chains in the remaining 4 miles. If the close east or west of the corner to section 3 & 4 was not greater than 50 links, the corrections to be wholly thrown into the line between section 3 & 4, but if the close east or west was greater than 50 links, then the correction to be made in the miles farther south, at the rate of 50 links per mile, the proper corrections to be made in the magnetic variation on all lines south of the corner to section 3, 4, 9 & 10.

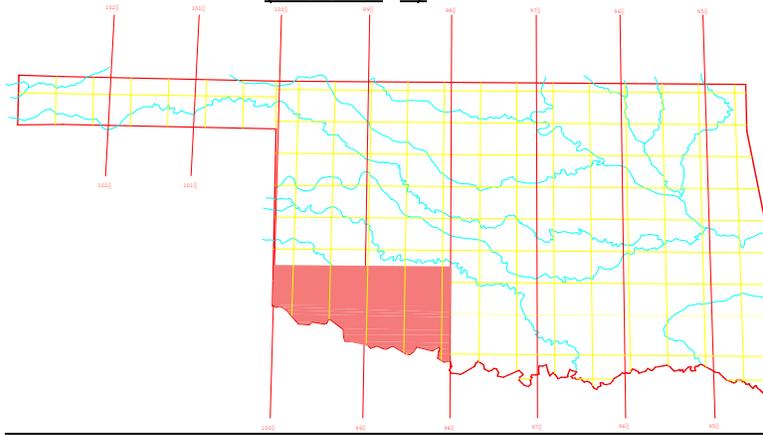
While the Chief Compassman was engaged in running the centerline, the Assistant Compassman was directed to survey sections regularly in the east tier, commencing at the corner to sections 35 & 36, and in order to more fully test the centerline, he was to measure (but not establish) west from the east tier, to the centerline, on the section line two miles north of the south boundary of the township, or three miles north of the same. It was especially directed that the length of the east and west lines in the tier of sections east of the centerline be within the limits prescribed in the printed instructions, and to this end the compassmen were directed if necessary to correct the North and South section lines. In all other respects the township to be regularly subdivided, both parties continuing work at the same time in different parts of the township.

This remark does not apply to Township 23 North Range 2 West as that township was subdivided by Compassman Graham with one party.

REMARKS

After Townships 10 and 11 north, Range 6 west, and 10 and 11 north, Range 7 west of the Indian Meridian and east of the 98th Meridian were subdivided, it was found that the standard of measurement was 30 links long to the mile.

(FIGURE 6)



June 6, 1873

W.W. Curtis, acting Commissioner of the General Land Office, entered into a contract with Charles L. DuBois which reads in part as follows(See figure 6).

"in strict conformity with the printed Manual of Surveying Instructions, issued by the General Land Office, which is hereby incorporated with and made a part this contract, and with such Special Instructions as he may receive from the Commissioner of the General Land Office in conformity therewith, will well, truly, and faithfully survey, run and mark that part of the Kiowa, Comanche and Apache Reservation in the Indian Territory under the 2nd Article of treaty with said Indians October 21, 1867, including leased lands west thereof, which is bounded on the north by the 35th parallel of North Latitude or the line between townships 6 and 7 north of the Indian Base and Meridian line, East by the 98th Meridian of West Longitude from Greenwich or the western boundary of Chickasaw lands, South by Red River and west by the 100th Meridian of west longitude as aforesaid. The said Charles L DuBois will extend the base line west from the 98th Meridian aforesaid to a distance sufficient to embrace Fort Sill military reservation, he will also extend west from the 98th Meridian the First Standard Parallel north to the intersection of a Range line which will include the said Fort Sill; he will also survey and mark township and range lines and subdivide townships into sections and quarter-sections so much of the said Reservation as lies north of the Base Line, east of Range line nearest to the west boundary of Fort Sill military reserve, south of the 35th parallel and west of the 98th Meridian. Provided that the whole service at present shall not exceed \$30,000 set apart by the Secretary of the Interior on the 4th of June, A.D. 1873, out of the appropriations of \$200,000 "For survey of exterior boundaries of Indian Reservations and subdividing portions of the same approved March 3, 1873, the remaining portion of the reservation to be completed when Congress shall have made additional appropriation for that purpose....."

Charles DuBois was issued the following Special Instructions:

"SPECIAL INSTRUCTIONS"

"Having entered into contract bearing even date with these Special Instructions, for the survey of that part of the Kiowa, Comanche and Apache Indian reservation and leased lands referred to in said contract, you will be governed by the terms thereof and these instructions forming part of the same.

According to the directions of the Secretary of the Interior of the 4th instant, authorizing me to enter into contract with you for the Survey and subdivision of the country bounded on the north by the 35th parallel of North latitude: East by the 98th Meridian of West longitude, South by Red River, and west by the 100th Meridian of West longitude. You are hereby instructed to confine your surveys during the next fiscal year commencing July 1, 1873, within the sum of \$30,000 set apart to cover the expenses of that part of your said district of country which lies north of the Base Line; East of the Meridian of Fort Sill; South of the 35th Parallel of north latitude, and west of the 98th Meridian, including office work, as contemplated in your said contract, pretermittting the remainder of the surveys contracted for until additional appropriation will have been made by Congress.

You will therefore, in the first place, prolong the Base Line already surveyed and marked through the Chickasaw lands due west to the intersection of the 98th Meridian, at least as far west as the longitude of Fort Sill of the nearest range line which will include Fort Sill within your present surveys. You will in the next place extend west

the 1st Standard Parallel north from the 98th Meridian to the same distance as the Base Line, and then survey the restricted district into townships and subdivide the same into sections and quarter sections, avoiding as much as possible the survey of such barren and mountainous tracts of country within the scope of your contract as will be found by you to be useless for agricultural and pastoral purposes.

In protracting your surveys on township plats, such fractional lots as will result in consequence of boundary lines or meanders of rivers passing through sections, you will direct your draughtsman to number such lots with consecutive numbers of same sections falling on the opposite side of said boundaries and watercourses, which may have been designated by prior surveyors, but if no such anterior surveys and numbering has been made, in that case your fractional lots must be numbered as ab initio, to be continued by subsequent surveyors outside of your sphere of operations by the consecutive numbers.

You will provide yourself with appropriate instruments and chains of Standard measure, you will be supplied with the necessary field books and field note paper for the purpose of writing your notes in the field, and transmitting same in triplicate to be returned to this office with township plats also in triplicate, blank plats for which will be sent you to such place as you may designate. It is expected that you will prosecute the work contracted for with due diligence, looking to its early completion, and to this end you are hereby authorized to employ additional compassmen with their requisite parties, if desired, but you are specially enjoined not to engage any but as are thoroughly familiar with the system of surveys embodied in the printed Manual of Surveying Instructions, several copies of which will be sent you for the purpose. The compassmen must possess the necessary skill and faithfulness in the execution of the service required of them as contemplated in your contract, whose operations in the field must be witnessed by you personally so as to enable you from your inspection of their surveys to make proper affidavits to the field notes of surveys as is required in the Manual as aforesaid.

"SPECIAL INSTRUCTIONS"(continued)

Whenever any part of your surveys is completed, the returns thereof always in triplicate must be made to this office with your account therefore, which if found correctly executed, the account will be promptly adjusted and reported for payment with the request that drafts in your favor may be sent you to such place as you will have indicated on the face of your account.

For your further information as to the locality of your district and adjoining lands belonging to different tribes and nations of Indians, I enclose herewith an approximate diagram whereon, the district of country embraced by your contract is represented in yellow shade; also another diagram descriptive of mile posts of the western boundary of the Chickasaw nation with the nearest and closing corners of Standard Township, Section and quarter Section on that boundary.

As the main channel of the Washita river constitutes the boundary of the Kiowa, Comanche & Apache Indian reservation, you will survey & subdivide all islands falling within the limits of the reservation in connection with the other lands, required to be subdivided into quarter sections.

The subdivision into 160 acre tracts of quarter sections shall be effected by running and measuring straight lines from quarter section corners to the corresponding corners, and at the points of their intersection, you will set corners common to the four quarter sections marking them "C 1/4" which will denote the centre quarter section corners and you will so describe them in your field notes of the survey.

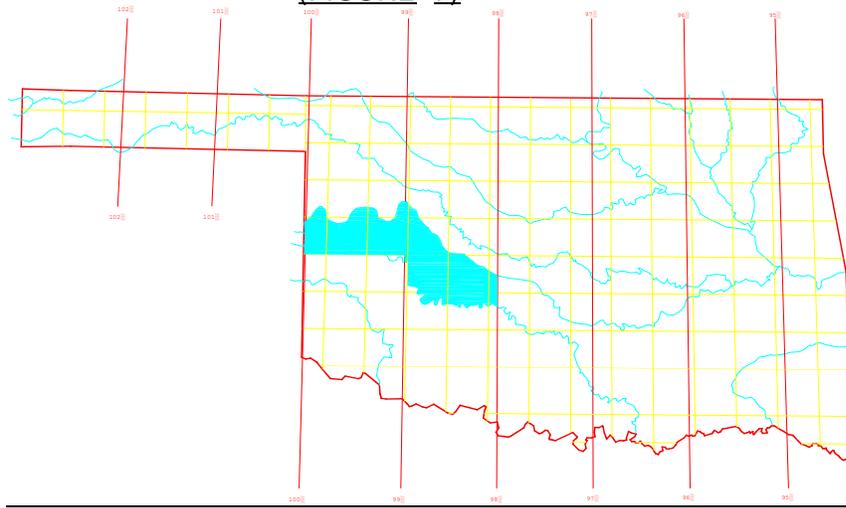
Enclosed you will find a diagram and copy of field notes of the survey of Fort Sill Military Reservation, embracing the extent of land nine miles by four as set aside by Presidents order, dated October 7, 1871.

You will respect the reservation by closing your Tp and subdivisional lines thereon. You will be supplied with the necessary blank township plats and field note paper by sending the same to you at such time and place as you may indicate."

On June 19, 1873, a letter was prepared to be sent to Charles DuBois informing him that his contract had been revised to delete subdivision of the sections into quarter sections. On August 13, 1873, the letter was sent which suspended work within the Kiowa, Comanche and Apache reserves. On Sept. 6, 1873, the suspension was removed and work resumed. On November 11, 1873, DuBois asked for reconsideration of the contract modifications. The outcome of these correspondences is not certain. When working in this area, one must rely on the original notes and plat to determine what monuments were set.

By Act of Congress on June 23, 1874, a further appropriation had been granted authorizing the General Land Office to cause the remaining lands in DuBois' contract to be surveyed. It was common practice to require the surveyors to post bond for twice the dollar amount of the work contracted. DuBois' original bond was for work in the restricted area only and was too small to allow work to continue on the remaining lands. DuBois' bond in the amount of \$140,000 was approved on July 30, 1874, allowing him to fulfill his contract.

(FIGURE 7)

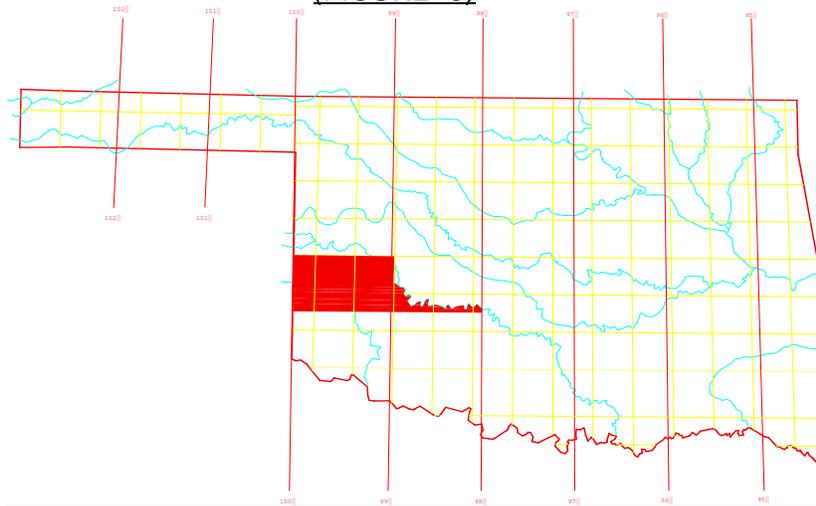


June 23, 1873

W.W. Curtis, acting commissioner of the General Land Office, entered into the following contract with Henry C.F. Hackbusch for a survey of a portion of western Oklahoma(See figure 7):

in strict conformity with the printed Manual of Surveying Instructions issued by the General Land Office, which is hereby incorporated with and made a part of this contract, and with such special instructions as he may receive from the Commissioner of the General Land Office in conformity therewith, will well, truly, and faithfully survey, run and mark that part of the ceded lands to the United States by Article 3 of the Treaty of April 28, 1866, with the Choctaw and Chickasaw Nation of Indians, beginning at the point where the 98th Meridian west from Greenwich intersects the middle of the main channel of the Washita River, through the middle channel to the north boundary of the Kiowa, Comanche and Apache Indian reservation which is thirty miles by river west of Fort Cobb; thence west on said north boundary to the line between range 16 & 17 west of the Indian Meridian; thence north to the 3rd Standard Parallel north of the Base Line; thence west along said standard parallel to the 100th Meridian west, or the east boundary of the State of Texas; thence north to the middle channel of the Canadian River; thence down the Canadian River to the 98th Meridian west and thence south to the place of beginning. The said Hackbusch will extend the 2nd, 3rd and 4th Standards Parallel north of the Base Line, west through his surveying district as aforesaid and survey township and range lines and subdivide townships into sections and meander the Washita and Canadian Rivers within the said district: Provided that the whole service at present shall not exceed \$40,000 set apart by the Secretary of the Interior on the 24th of May A.d. 1873 out of the appropriations of \$200,000 "For Surveys of exterior boundaries of indian reservations and subdividing portions of the same" approved March 3, 1873. The remaining portion of the lands falling his said district to be completed when Congress shall have made additional appropriation for the purpose.

(FIGURE 8)



June 26, 1873

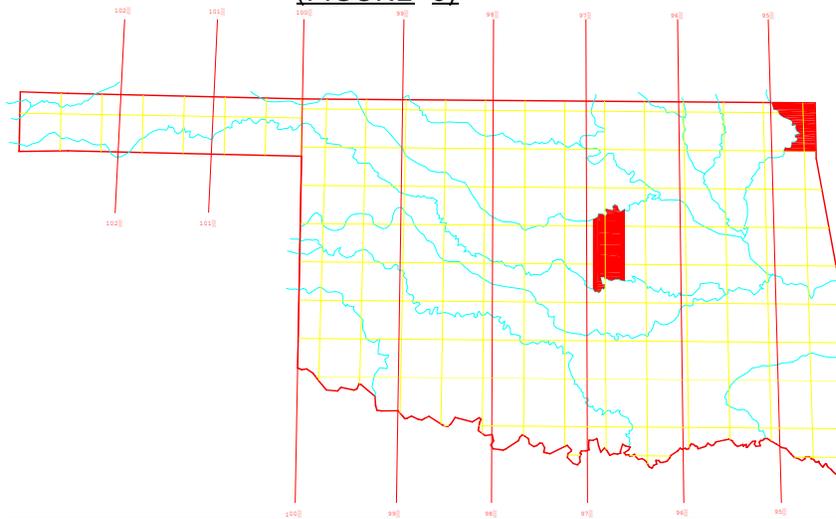
W.W. Curtis, acting Commissioner of the General Land Office, entered into the following contract with Orrin T. Morrill for the survey of a portion of western Oklahoma(See figure 8):

in strict conformity with the printed Manual of Surveying Instructions issued by the General Land Office, which is hereby incorporated with and made a part of this contract, and with such Special Instructions as he may receive from the commissioner of the General Land Office in conformity therewith, will well, truly and faithfully survey and subdivide into sections the following district of country situated in the Indian Territory and bounded as follows; viz: Beginning at a point where the middle of the main channel of the Washita River is intersected by the 35th parallel of north latitude or the line between townships 6 & 7 north of the Base Line in the most westerly bend of the river; thence up said Washita River to the north boundary of the Kiowa, Comanche and Apache Indian Reservation being 30 miles by river from Fort Cobb as now established, which distance said Morrill will determine by actually meandering the right bank thereof and establishing a conspicuous monument on said bank; thence due west along the boundary to the intersection of the line between ranges 16 & 17 west of the Indian Meridian; thence north with said range line to the 3rd Standard Parallel north, thence west along said standard line to the 100th Meridian west or the East boundary of the State of Texas; thence south along said boundary to the line between townships 6 & 7 north as aforesaid and thence east to the place of beginning. The said Morrill will survey and mark with mileposts the north boundary of the said Indian reservation west from the monument previously erected by him due west to the North Fork of the Red River; provided said line will have been found to strike said river east of the 100th Meridian, if not, then only to said Meridian Line. He will also survey the 2nd and 3rd Standard Parallels within his district, also township and section lines; provided the whole service at present shall not exceed \$20,000 set apart by the Secretary of the Interior June 4, 1873 out of the appropriations of \$200,000 "For survey of exterior boundaries of Indian Reservations and subdividing portions of the same" approved March 3, 1873; the residue of the lands under his contract to be completed by him when Congress shall have made additional appropriation for the purpose.....

July 13, 1874 - CIRCULAR ABOUT SURVEYING LAKE BEDS

This circular provides for the surveying of the beds of non-navigable lakes, sloughs and ponds which have permanently receded and over which the lines of the original survey were not extended. In such instances, these lands are still under the ownership of the United States and are subject to disposal as they see fit. This circular defines the conditions under which such beds are surveyable and gives the proper mode for having the same surveyed and to obtain title thereto. The expense of the survey is borne wholly by the individual making the request.

(FIGURE 9)



September 8, 1874

Samuel S. Burdett, Commissioner of the General Land Office, contracted with Henry C. F. Hackbusch for the survey of several Indian Reservations(*See figure 9*). That contract reads in part as follows:

in strict conformity with the printed Manual of Surveying Instructions issued by the General Land Office, which is hereby incorporated with and made a part of this contract, and with such Special Instructions as he may receive from the Commissioner of the General Land Office in conformity therewith, will well, truly, and faithfully survey, measure and mark,

1st (The Quapaw Indian Reservation) in the Indian Territory as per Treaty of May 13, 1833 (Stat. Vol. 7, pg. 424) and Treaty of Feb. 23, 1867 (Stat. Vol. 15, pg. 513) and subdivide the same into tracts of forty acres each, the expense of said survey not to exceed the sum of \$4113.00.

2nd (The Peoria Indian Reservation) in the Indian Territory as per Treaty of Feb. 23, 1867 (Stat. Vol.15, pg. 513) to be subdivided into tracts of forty acres each, cost of survey not to exceed \$3940.00.

3rd (The Seneca Indian Reservation) in the Indian Territory as per Treaty of Feb. 23, 1867 (Stat. Vol.15, pg. 513) to be subdivided into tracts of forty acres each, cost of survey not to exceed \$3467.00.

4th (The Eastern Shawnee Indian Reservation) in the Indian Territory as per Treaty of Feb. 23, 1867 (Stat. Vol. 15, pg. 513) to be subdivided into tracts of forty acres each, cost of survey not to exceed \$1690.00.

5th (The Wyandotte Indian Reservation) in the Indian Territory as per Treaty of Feb. 23, 1867 (Stat. Vol. 15, pg. 513) to be subdivided into tracts of forty acres each, cost of survey not to exceed \$3402.00.

6th (The Sac and Fox Indian Reservation) in the Indian Territory as per Treaty of Feb. 23, 1876 (Stat. Vol. 15, pg. 495) to be subdivided into tracts forty acres only, the same having already been surveyed, the cost of survey not to exceed \$18,000.00.

The expenses of said surveys payable out of the appropriation of \$292,680 per Act of Congress approved June 23, 1874.

APRIL 17, 1879 - CIRCULAR ABOUT ACCEPTANCE AND FILING OF PLATS

This circular issued by J.A. Williamson, commissioner of the General Land Office, reads as follows:

Experience has shown that it is often necessary to order the suspension of plats of surveys in the local land offices and frequently the cancellation of the survey. The filing of the triplicate plats of survey in the local land offices, before the duplicates have been approved by this office, has frequently led to complications of title and individual hardship to persons making entries according to such surveys, in cases where it has been necessary to set aside or cancel them.

For these reasons you will not, after the receipt of this order, file the duplicate plats in the local land offices until the duplicates have been examined in this office and approved, and you officially notified to that effect.

NOVEMBER 1, 1879 - LETTER CIRCULAR; SUBDIVISION OF SECTIONS AND RESTORING LOST CORNERS

The General Land Office had many inquiries on proper methods of subdividing sections and restoring lost corners. They issued the following instructions:

"SUBDIVISION OF SECTIONS"

Under the provisions of the Act of Congress approved February 11, 1805, the course to be pursued in the subdivision of sections is to run straight lines from the established quarter-section corners-United States surveys-to the opposite corresponding corners, and the point of intersection of the lines so run will be the corner common to the several quarter-sections, or, in other words, the legal center of section.

In subdividing fractional quarter-sections where no opposite corresponding corners have been or can be fixed, the subdivision lines should be ascertained by running from the established corners due north, south, east or west lines, as the case may be, to the water-course, Indian boundary line, or other external boundary of such fractional section.

The law presupposes the section lines surveyed and marked in the field by the United States deputy surveyors to be due north and south or east and west lines, but in actual experience this is not always the case; hence, in order to carry out the spirit of the law, it will be necessary, in running the subdivisional lines through fractional sections, to adopt mean courses where the section lines are not due lines, or to run the subdivision line parallel to the section line when there is no opposite section line.

Upon the lines closing on the north and west boundaries of a township, the quarter-section corners are established by the United States deputy surveyors at precisely forty chains to the north or west of the last interior section corners, and the excess or deficiency in the measurement is thrown on the outer lots, as per Act of Congress approved May 10, 1800.

In the subdivision of quarter-sections the quarter-quarter corners are to be placed at points equidistant between the section and quarter-section corners and between the

quarter-corners and the common center of section, except on the last half-mile of the lines closing on the north or west boundaries of a township, where they should be placed at twenty chains, proportionate measurement, to the north or west of the quarter-section corner.

The subdivision lines of fractional quarter-sections should be run from points on the sections lines intermediate between the section and quarter-section corners due north, south, east or west to the lake, water-course, or reservation which renders such tracts fractional.

When there are double sets of section corners on township and range lines, the quarter corners for the sections south of the township lines and east of the range lines are not established in the field by the United States surveyors, but in subdividing such sections said quarter corners should be so placed as to suit the calculations of the areas of the quarter-sections adjoining the township boundaries as expressed upon the official plat, adopting proportionate measurements where the present measurements of the north or west boundaries of the sections differs from the original measurements.

"RE-ESTABLISHMENT OF LOST CORNERS"

The original corners, when they can be found, must stand as the true corners they were intended to represent, even though not exactly where strict professional care might have placed them in the first instance.

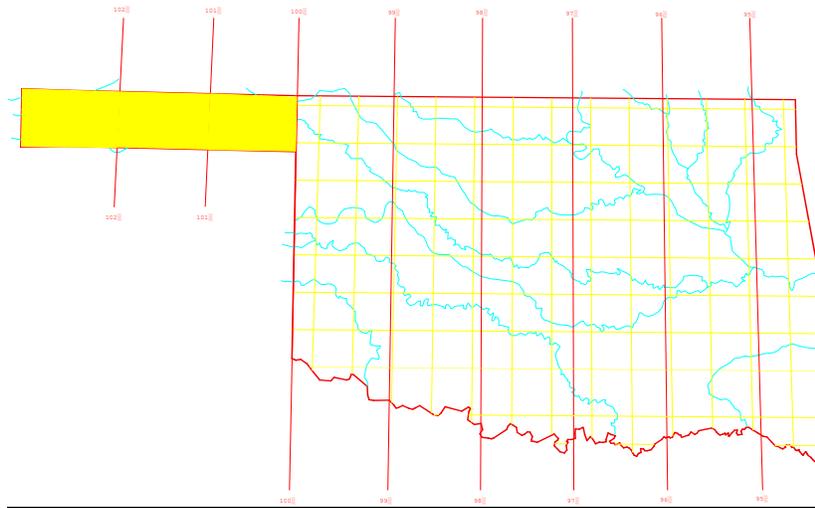
Missing corners should be re-established in the identical localities they originally occupied. When the point cannot be determined by the existing landmarks in the field, resort must be had to the field notes of the original survey. The law provides that the lengths of the lines as stated in the field notes shall be considered as the true lengths thereof, and the distances between corners set down in the field notes constitute proper data from which to determine the true locality of a missing corner; hence the rule that all such should be restored at distances proportionate to the original measurements between existing original corners. That is, if the measurement between two existing corners differs from that stated in the field notes, the excess or deficiency should be distributed proportionately among the intervening section lines between the said existing corners standing in their original places. Missing corners on standard, township, and range lines should be restored by proportionate measurement between the nearest existing original corners on these lines. Missing section corners in the interior of the townships should be re-established at proportionate distances between the nearest existing original corners north and south of the missing corners.

As has been observed, no existing original corner can be disturbed, and it will be plain that any excess or deficiency in measurements between existing corners cannot in any degree affect the distances beyond said existing corners, but must be added or subtracted proportionately to or from the intervals embraced between the corners which are still standing.

MAY 3, 1881 - MANUAL OF SURVEYING INSTRUCTIONS

The 1881 Manual superseded the 1855 Manual. It covered many of the same subjects as the previous manual with some changes, greater detail and additional topics. It also incorporated some of the supplements and circulars published after the 1855 manual. The re-establishment of lost section corners was still by single proportionate measure as specified in the 1879 letter circular. This manual was used to survey the panhandle.

(FIGURE 10)



AUGUST 26, 1881

McFarland issued Special Instructions to Richard O. Chaney and William W. Smith, U.S. Surveyors, for the survey of the "Public Land Strip", now the Oklahoma Panhandle(See figure 10). Those Special Instructions read as follows:

"SPECIAL INSTRUCTIONS"

Having entered into a contract for the survey of the strip of the unsurveyed public lands bounded by the States of Kansas and Colorado on the north, the Indian Territory on the east, the State of Texas on the south and the Territory of New Mexico on the west, said boundary lines being also the parallel of 37 degrees North Latitude, the 100th Meridian of Longitude west from Greenwich, the parallel of 36degrees 30 minutes North Latitude and the 103rd Meridian of West Longitude from Greenwich, and to establish astronomically a Principal Meridian, to be know as "Cimarron Meridian", a Principal Base Line, a Standard Parallel, Guide Meridians and exterior township lines, you will proceed upon the receipt of these instructions, which form a part of your contract, to accomplish the said surveys agreeable to the terms of your contract, the printed Manual of Instructions of date May 3, 1881, and the special instructions.

You will therefore first establish a complete system of telegraphic time signals between the town of Las Animas in the State of Colorado, near the 103rd Meridian of West Longitude from Greenwich and the city of Denver in the aforementioned state, at or near Las Animas, in connection with the observations upon such stars whose meridian passage has been determined by which the longitude of Las Animas must be accurately determined. This done, you will by chain measurement or triangulation determine and mark the 103rd Meridian aforesaid, east or west, as the case may be, on the parallel of latitude of your place of observation. If chain measurement is used

"SPECIAL INSTRUCTIONS"(continued)

to mark the point on the 103rd Meridian of Longitude, it should be done by not less than three separate measurements, and the point marked as indicated by the mean of such measurements. If triangulation is employed, the base line of such triangulation must be accurately determined and marked by not less than three measurements, and the measurements of angles by not less than six observations, the mean of which measurements are to be used in computing the difference of departure.

From the point thus obtained and established you will accurately trace the aforementioned meridian south, by running and flagging a blank line, corrected if possible by daily solar observations, and upon the star Polaris, to the 37th degree parallel of North Latitude. At the Intersection of the meridian with the said parallel you will establish a conspicuous and permanent monument to mark the northwest corner of said strip of public lands in the manner to be hereafter described. You will then continue to trace the meridian as above noted south to the parallel of 36 degrees 30 minutes North Latitude, and there establish a conspicuous and permanent monument to mark the southwest corner of the aforesaid strip.

Though not required to establish monuments upon the aforesaid blank line from your initial point of same southward to the south boundary of Colorado, you will however take advantage of every available opportunity to mark natural objects found upon the line, and if necessary establish sight points by artificial means upon that portion of the line which forms the western boundary of the aforesaid strip, to aid you in its subsequent retracement.

The monument last mentioned, at the intersection of the 103rd Meridian with the parallel of 36 degrees 30 minutes North Latitude will constitute the initial monument of the Base Line of the surveys to be prosecuted by you, the line of the 103rd Meridian of West Longitude between the parallels of 36 degrees 30 minutes and 37 degrees North Latitude constituting your Principal Meridian of the same. You will therefore before proceeding with the establishment of your Base Line retrace the aforesaid meridian north to the monument established by you in the parallel of 37 degrees North Latitude, marking quarter section, section and township corners thereon, and will note the distance at two or more points from the meridian to the eastern limit of the public surveys governed by the New Mexico Principal Meridian.

You will upon completion of the establishment and marking of said Principal Meridian carefully establish astronomically and extend the line of the parallel of 36 degrees 30 minutes North Latitude eastward to the intersection with the west boundary of the Indian Territory of the 100th Meridian of West Longitude, and establish the same as your Principal Base Line of Surveys.

As much of the accuracy of your subsequent work will depend upon the care with which your base line has been established, and the great liability of departing from the parallel initiated at the south end of your Principal Meridian, you will extend said parallel by the usual method of setting off tangents to the parallel, based upon careful meridional observations; verifying the establishment of the parallel by observations for latitude, taken upon stars north and south of the zenith. The observations for this purpose will be taken at points properly prepared for astronomical stations which you will establish as nearly as may be practicable upon the parallel and upon each of the degrees of longitude which occur between the extremities of the parallel you are establishing, that is to say as nearly as may be practicable on the 101st and 102nd Meridians of Longitude.

"SPECIAL INSTRUCTIONS"(continued)

You are required to exercise the utmost care in the determination of meridians by repeated observations, reducing the probable error of result so obtained to not more than three seconds of arc, and in the projection therefrom of tangents to the parallel, the mean of not less than three careful and complete observations must be taken in determining such alignments. The care must be taken in the extension of the tangents, by reversion of the instruments and other means in ordinary and general use, for counteracting the growth of accumulative errors, and the clearing of the lines of ordinary obstruction to correct observations. No tangent will be continued for a greater length than 28 miles, but the tangent points should be arranged as nearly equidistant as the topography of the country may render admissible. The magnetic declination for each mile of the tangent must be carefully observed and noted in the field notes.

The tangents will be measured by the use of a Gunter chain of the style known as "steel brazed with oval links". One standard chain of this kind or a standard steel tape shall be preserved and used daily for comparison and correction of the field chains.

In order to guard against error each mile of the Principal Meridian and Base Line will be chained by two sets of chainmen, working separately, one set following the other, and any manifest error disclosed in comparison of results must be traced to its source and corrected before any land mark based upon the operation has been made.

Offset angles to the parallel must be made with reasonable care and accuracy, and where offset lines or distances exceed one chain, they must be twice measured as in the case of tangents.

You will establish and mark upon the parallel thus obtained the quarter section, section, and township corners in the manner provided by law and special instructions.

After having established the Principal Base Line you will proceed to a point on the 103rd Meridian or Principal Meridian, twenty four miles (24) north of said Base Line and extend thence east a Standard Line following a Parallel of Latitude, in the same manner as in running the Base Line. This Standard will, like the Base Line, be extended to the intersection with the west boundary of the public land surveys of the Indian Territory or 100th Meridian of West Longitude, and will be marked in a like manner for quarter section, section and township corners.

You will also establish Guide Meridians, running north from the Base Line at each distance of twenty four (24) miles east of the 103rd or Principal Meridian, closing the same upon the Standard Parallel already provided for, and also a continuation of the same north from said Standard at each distance of twenty four (24) miles upon the same, to their intersection with the South boundary of the States of Kansas and Colorado respectively, or the parallel of 37 degrees North Latitude.

The Guide Meridians will numbered consecutively, commencing with the one nearest the 103rd Meridian, and will be marked also as to the quarter section, section and township corners. You will also extend Range Lines north from the Base and Standard Parallel respectively and while closing, so close the townships and marking the quarter section, section and township corners. In the range of townships immediately adjoining the west boundary of the Indian Territory, the deficiency in east and west measurements will be thrown on the western side of the townships.

In commencing or closing any of the lines of survey herein provided for, on the out-boundaries of the aforesaid strip of public lands, you will measure and note the distance therefrom to the adjacent public land corners, mile post or other monuments.

"SPECIAL INSTRUCTIONS"(continued)

As provided in your contract, you will procure a suitable number of the patented iron land monument known as "Bausman's patent U.S. Land Monument". These monuments will be used and planted at the end of each and every second mile of your survey. In erecting the metallic monument you will embed them to a depth of 2/3 their height, leaving 1/3 to protrude above the surface of the earth whereon to describe with a cold chisel the appropriate marks showing for what they stand in the field. The hollow frustum of the cone will be filled with the earth dug from the pits required by the Manual of Surveying Instructions, bearing date May 3, 1881, two copies of which will accompany these instructions; the remaining portion of earth taken from the pits will be used in building mounds alongside of the corners, for a description of which you are referred to pages 22 to 32 of said instructions.

The intermediate corners required to be established at quarter-section and section corners will consist of such material as will be found within the scope of your contract, always however, giving the preference to stone corners if found within a reasonable distance, so as to avoid as much as possible the near contingency of their destruction by fire, cattle, and other destructive agencies in that region of country. Where neither wood nor stone can be procured you will have to resort to the method adopted by this office of establishing corner boundaries in localities remote from timber and destitute of stone, for which method and description you are referred to Circular of July 23, 1873, two copies of which accompany these instructions.

The monument at the initial point of your survey being the intersection of the 103rd Meridian of West Longitude with the parallel of 36 degrees 30 minutes North Latitude on the northwest corner of the State of Texas, having been astronomically determined and established will be marked by a stone of the size of not less than 6 feet in length by 12 inches square, three feet of which will project above the surface of the ground and embedded as many feet in the earth. The shaft will be surrounded by a mound of earth five feet in diameter, two feet high with four pits opposite the sides of the shaft, and not less than 24x18x12 inches long, wide and deep. The shaft will bear the following inscription viz:

On the north face "C.M." for Cimarron Meridian

On the south face 103 degrees W.L.

On the east face 36 degrees 30 minutes N.L. and

On the west face N.M. for New Mexico.

In like manner the N.E. corner of the state of Texas or the intersection of the Base Line or parallel of 36 degrees 30 minutes N.L. with the 100th Meridian of West Longitude or west boundary of the Indian Territory will be marked by a similar monument. The inscription will be:

On the north face 100 degrees W.L.

On the south face N.E. cor. Texas

On the east face I.T. for Indian Territory and

On the west face 36 degrees 30 minutes N.L.

The monuments of like character and dimensions as the initial monument at the intersection of the 100 degree and the 103 degree Meridians of West Longitude with the south boundaries the States of Kansas and Colorado respectively on the parallel of 37 degrees North Latitude will be inscribed as follows:

"SPECIAL INSTRUCTIONS"(continued)

On the former on the north face Kansas

on the south face 100 degrees W.L.
on the east face 1881
on the west face 37 degrees N.L.
On the latter on the north face Colorado
on the south face 103 degrees W.L.
on the east face 37 degrees N.L. and
on the west face 1881.

If there are any permanent natural objects which can be made available in perpetuating the initial point of survey, as also the other monuments just described, the bearing and distance of such natural objects from these monuments will be carefully ascertained and described in the field notes, as witnesses and a full and accurate description of the monument given.

In as much as the Cimarron Meridian, and the parallel of 36 degrees 30 minutes N.L. are important geographical lines, you will determine their true position by a series of astronomical observations which you will reduce and subject to a rigorous discussion, and the final results will be deduced in accordance with well established mathematical formulae. A complete record of the astronomical and magnetic observations, and the various reductions and final results will be returned to this office to be preserved for future reference.

In case it may unexpectedly be found that the public land surveys governed by the New Mexico Meridian extend east of the 103rd Meridian West Longitude it will become your duty to determine the closings of such surveys upon the Cimarron Meridian, and obliterate all the corners of such surveys lying east of that line.

In the execution of your contract you will, in all particulars not inconsistent with these special instructions be governed by the general regulations embodied in the printed instructions to Surveyors General of May 3, 1881.

You will provide yourself with such astronomical and field instruments of approved construction and accuracy of adjustment as may be necessary in accurately determining meridians, parallels of latitude and tangential extensions. In the transportation of said instruments and in their various removals on the line no pains should be spared tending to their preservation in the best possible adjustment and working order. Examinations for adjustment of the instruments in use must be made at the commencement of each days work, the necessary corrections made and a record of such examinations must be entered in the field notes under proper dates.

The returns of your surveys will be accompanied by your account, when found necessary from time to time, and when found correctly executed will be approved and reported for payment out of the appropriation of \$18,000, provided by Congress per act approved March 3, 1881 for the special work.

The above mentioned patented iron land mark and the transportation thereof, from the place of manufacture (Chicago, Ill.) to the field of operations will be at your expense or in other words will be included in the per mileage named in your contract.

Chaney and Smith complied with the instructions. The field notes indicate they ran the meridian line south between October 19 and November 16, 1881. On the latter date, they established the initial point and surveyed the baseline between November 21 and Christmas Day. The remainder of the surveys followed. All of the townships are numbered north and east from the initial point. The Principal Meridian is part of the east boundary of New Mexico. Due to latter boundary disputes with Texas and a resurvey, the baseline does not exactly follow the Texas boundary.

MARCH 13, 1883 - CIRCULAR BOOKLET; RESTORATION OF LOST AND OBLITERATED CORNERS

With this booklet, the re-establishment of section corners and corners common to four townships was accomplished using double proportionate measure. It also took into account methods of re-establishing corners for fourteen different situations.

DAWES ALLOTMENT ACT

An act of Congress signed in February, 1887, known as the Dawes Allotment Act, had provided for allotment of individual land holdings for all Indian tribes in the United States, except the Five Civilized Tribes and the Peoria Confederation. Allotment for the latter was to be at the discretion of the President. The act also provided for the purchase, by negotiation, of surplus lands left after allotment. On March 2, 1889, the President signed an act providing for the allotment of the Peoria and Miami lands in the Northeastern corner of the territory. The lands of the Five Civilized Tribes alone were unaffected by the Dawes Allotment Act. The laws of 1887 and 1889 marked the beginning of the end of Indians holding land in common, and their passage also forecast the breaking up of the Five Civilized Tribes domain whenever Congress should so decide.

The Cherokee Commission (established in 1889 to negotiate with the Tribes for cession of lands) had no authority to negotiate with the Five Civilized Tribes. Consequently, on March 3, 1893, a rider to the Indian Appropriations Bill authorized the appointment of a commission to persuade the Five Civilized Tribes to surrender tribal title to lands they occupied, and to agree to the allotment of these lands to the heads of the families among the tribal members. This commission was called the Dawes Commission after its first chairman, Henry L. Dawes.

The Dawes Commission at first failed in their mission because the Indians refused to negotiate. At the first meeting with Indian Delegates at Checotah on February 19, 1894, the Commission met unanimous refusal to consider allotment. Individual conferences with tribal officials had no better results. Early in 1895, Congress exercised more control over the territory by increasing the number of federal judges to three and by dividing the territory into three court districts. A court of appeals, composed of the three judges, was established at McAlester. Another rider to the Indian Appropriations Bill of March 2, 1895, authorized the survey of Indian Territory by the United States Geological Survey. This act initiated the preliminary steps to allotment without having to await the consent of the tribes.

The Dawes Commission met with tribal leaders at Eufaula in June, 1895, but were again confronted with the same firm opposition and any further efforts in 1895 were fruitless. Since negotiations alone could not overcome the Indian's resistance, Congress passed an act on June 10, 1896, giving the commission authority to begin enrollment of tribal membership without waiting for tribal action. The act further stated it "*to be the duty of the United States to establish a Government in the Indian Territory which will rectify the many inequalities and discriminations now existing in said territory and afford needful protection of all citizens and residents thereof.*" This act, with its clear statement of policy and with the survey already authorized, persuaded the Indians that Congress was in earnest. To avoid extreme measures,

The Five Civilized Tribes began negotiations.

THE ATOKA AGREEMENT

The Choctaws and Chickasaws met with the Dawes Commission in late 1896. A first agreement, reached in December of 1896, was not acceptable to the tribes. A

second agreement made at Atoka on April 23, 1897, though not ratified at once, became the first act in the final dissolution of tribal authority.

The agreement, known as the Atoka Agreement, provided that the Choctaw-Chickasaw lands, after reservation of the coal and asphalt lands, should be allotted among tribal members. The agreement also made full provision for surveys and sale of townsites, and it gave the United States Courts full jurisdiction over civil and criminal cases. The Choctaws ratified the agreement during 1896, as did the Chickasaw legislature, but the Chickasaw people by vote refused to ratify. Agreement with the Choctaws and Chickasaws required the full agreement of both tribes since their land interests were held in common. The Atoka Agreement was later ratified by the Choctaw and Chickasaw on August 24, 1898. An agreement with the Creeks, concluded on September 27, 1897 was also rejected. A similar agreement with the Seminoles was ratified by Congress on July 1, 1898. This last setback left the agreement with the Seminoles as the sole result of five years work for allotment by agreement.

The Curtis Act, approved on June 28, 1898, did the following things: instructed the Dawes Commission to allot the tribal lands whenever the citizenship rolls should be completed; provided for leasing coal, oil, and asphalt lands by the secretary of interior; arranged for incorporation and survey of towns; gave all residents of towns the right to vote; authorized the establishment of free public schools; forbade the enclosure of more land than had been allotted. In the Curtis Act, Congress set aside the whole Indian tribal system of government. The laws of the United States and of Arkansas, enforced in United States courts, were substituted for tribal laws. The tribal officers, now with no tribal laws to enforce, became agents for enforcing federal laws. The Curtis Act, however, did not go into full effect immediately because of the Atoka Agreement which left the tribal governments in operation for eight years.

The Creeks had refused to ratify. The Cherokees refused even to negotiate, however, under the pressure of the Curtis Act, which offered both tribes less favorable terms, allotment agreements were negotiated. The Creek agreement was ratified by Congress on March 1, 1901. Ratification of a bill with the Cherokees was not secured until August 7, 1902. Both the Creek and Cherokee agreements, like the Atoka Agreement, provided that tribal courts should be abolished immediately and that tribal government should cease on March 4, 1906, at which time they would become citizens of the United States.

JUNE 2, 1887 - CIRCULAR NO. 119; SUBDIVISION OF SECTIONS

This circular is basically a duplication of the portion of the Nov. 1, 1879 circular concerning "Subdivision of Sections". The only difference being that this version included an explanation of the term "proportionate measure".

ACT OF MARCH 1, 1889

The Act by which the Muscogee and Creek Indians in the Indian Territory ceded over three million acres to the United States. By the APPROPRIATION ACT OF MARCH 2, 1889, stat. 1004, the Seminole Indians ceded over two million acres. By Presidential Proclamation on March 23, 1889, those lands were declared open to settlement effective 12 o'clock noon April 22, 1889. Two land offices were opened in preparation, one at Guthrie, the other at Kingfisher Station. People lined up for miles.

On the opening gun at noon on April 22 thousands rushed to stake and lay claim to a quarter section of land, town lots, etc. This was the first and largest of several Oklahoma Land Rushes, lands that had all been previously surveyed.

JANUARY 1, 1890 - MANUAL OF SURVEYING INSTRUCTIONS

ACT OF MAY 2, 1890, (26 Stat. 81)

Created the territory of Oklahoma, which included the Public Land Strip (Cimarron Meridian Surveys) but not the Indian Territory. An unusual feature of this act was that it reserved a roadway, four rods wide, along every section line in the territory. The public lands in the territory were also opened to entry.

Another item of interest is that the Registers and Receivers in some of the Oklahoma Land Offices issued patents for diagonal quarter sections. Instead of the "East Half" or "West Half" of a quarter, they were issued for the diagonal NE1/2 of the NE1/4 of section..., containing 80 acres." The southwest boundary of such patent would run from the north quarter corner to the east quarter corner of the section. It is unknown why the patents were issued in that manner.

1893 REPORTS OF COMMITTEES OF THE HOUSE OF REPRESENTATIVES

Congress had become increasingly concerned about the ability of the General Land Office to adequately perform public land surveys. The reputation of the G.L.O. had been severely damaged by the "Benson Syndicate Scandals" in which John A. Benson, a Deputy Surveyor, had performed fraudulent surveys in California. Benson, possibly aided by clerks in the Surveyor General's office, also acquired through fraud, Deposit Certificates which he would later exchange for patents to land.

A lengthy report submitted to Congress outlined the duties and expenses of the following surveys being concurrently performed: U.S. Coastal and Geodetic Survey; U.S. Geological Survey; Hydrographic Office, Navy Department; Engineer Corps of the Army; and the Land Department, surveys by contract. The summary of this report is over ten pages long. Its gist can be obtained from this, its first paragraph:

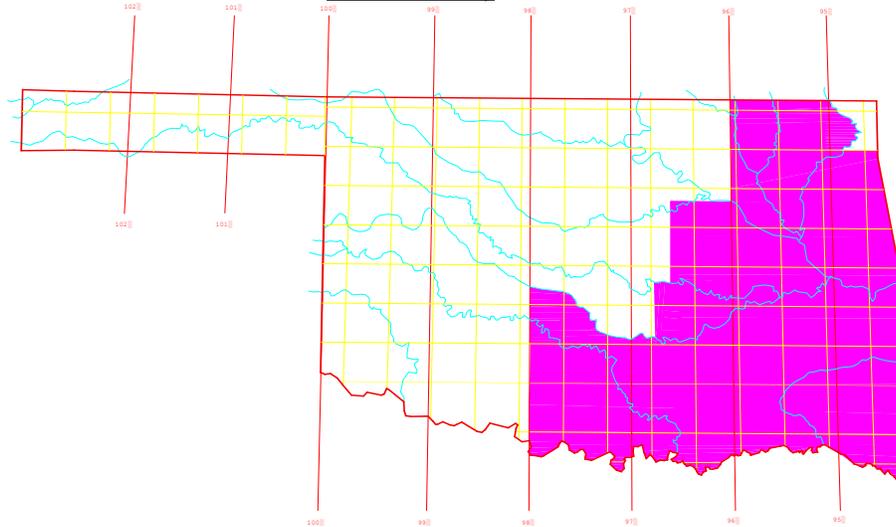
It will be seen from the foregoing that there are three surveys doing mensuration work, the Geological survey, the Coast and Geodetic Survey, and the land surveys by contract, and that there are two surveys doing hydrographic work, the Coast and Geodetic Survey and the Hydrographic Office of the Navy Department. Such a division of work and confusion of offices is not in the interest of economy, nor does it produce the best results. To attain the best results, and at the same time secure economy, the surveying of the United States should be under the direction of two bureaus, one to direct the land surveys, including geologic and scientific investigation, and the other to direct the hydrographic surveys.

This summary went on to recommend reorganization of the surveys by eliminating hydrographic work from the Coast and Geodetic Survey and that the efficient methods of the Geodetic and Geographic Surveys be brought together to perform the public land surveys. This would allow topographic surveys to be performed simultaneously with the public land survey and encouraged tying the public land surveys into existing triangulation stations. The summary also suggested placing hydrographic surveys and the issuance of their charts under the direction of the Navy Department and that both of the above surveys be controlled by the Department of the Interior.

As a result of this report, some reorganization must have occurred. The G.L.O. however, survived until 1946 when it was merged with several other departments to form the Bureau of Land Management.

JUNE 30, 1894 - MANUAL OF SURVEYING INSTRUCTIONS

FIGURE 11)



In the **1894 ANNUAL REPORT**, request was made by both the Secretary of the Interior and Commissioner Lamoreaux that a bill be passed approving the execution of surveys to be made by the USGS or Civil Service employees.

The request was granted by the **INDIAN APPROPRIATIONS ACT OF MARCH 2 1895 (28 Stat. 876)** in which \$200,000 was appropriated for surveys in the Indian Territory by the USGS. These surveys were made in the Seminole, Creek, Choctaw and Chickasaw lands(See figure 11), along with a topographic survey, starting in April 1895. At first they tried doing topographic work and rectangular survey simultaneously, but this didn't work out very well. The following year they had separate operations and things went smoothly. Iron post monuments were set at each township corner, with stone monuments at all other corners. These surveys were completed in June 1898 with great success. Plats and field notes were prepared and approved by the Director of the Geological Survey and accepted by the commissioner about the same as a survey by a Surveyor General would be. There was never a Surveyor General for Oklahoma; all the surveys there were done under direction of the Commissioner.

APPROPRIATIONS ACT OF JUNE 10, 1896 (29 STAT. 321) This Act appropriated \$200,000 for continuation of the rectangular surveys in the Indian Territory of Oklahoma. The Act also provided for prosecution and fine of any person convicted of destroying or defacing survey monuments or trees marking a survey. The provision provided for a \$250 fine for destroying surveying corners and bearing trees and was enacted into statutory law in 1909.

OCTOBER 16, 1896 - CIRCULAR; RESTORATION OF LOST AND OBLITERATED CORNERS and SUBDIVISION OF SECTIONS

JANUARY 1, 1902 - MANUAL OF SURVEYING INSTRUCTIONS

ACT OF MAY 17, 1906 (34 Stat. 267) Enabled Oklahoma, Arizona and New Mexico to become states. Oklahoma formed a government and was admitted to the Union on November 16, 1907.

--TOLERANCES OF ORIGINAL SURVEYS

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JUNE 1, 1864 - AMENDMENTS TO 1855 MANUAL OF SURVEYING INSTRUCTIONS

1. Every north-and-south section line, except those terminating in the north boundary of the township, must be eighty chains in length.
2. The east-and-west section lines, except those terminating in the west boundary of the township, are to be within one-hundred links of the actual distance established on the south boundary line of the township for the width of said tier of sections.
3. The north boundary and south boundary of any one section, except in the extreme western tier, are to be within one-hundred links of equal length.
4. The meanders within each fractional section, or between any two meander posts, or of a pond or island in the interior of a section, must close within one chain and fifty links.
5. In running random township exteriors, if such random line falls short or overrun in length, or intersect the eastern or western boundary, as the case may be, of the township, at more than three chains fifty links north or south of the true corner, the lines must be retraced, even if found necessary to remeasure the meridional boundaries of the township.

1881 MANUAL OF SURVEYING INSTRUCTIONS

1. Every north-and-south section line, except those terminating in the north boundary of the township, must be eighty chains in length.
2. The east-and-west section lines, except those terminating in the west boundary of the township, are to be within eighty links of the actual distance established on the south boundary of the township for the width of said tier of sections, and must close within eighty links north or south of the section corner.
3. The north boundary and south boundary of any one section, except in the extreme western tier, are to be within eighty links of equal length.
4. The meanders within each fractional section, or between any two meander posts, or of a pond or island in the interior of a section, must close within one chain and fifty links.
5. In running random township exteriors, if such random line falls short or overrun in length, or intersect the eastern or western boundary, as the case may be, of the township, at more than three chains north or south of the true corner, the lines must be retraced, even if found necessary to remeasure the meridional boundaries of the township. One set of chainmen, only, is required in subdividing.

1890 MANUAL OF SURVEYING INSTRUCTIONS

1. Every north-and-south section line, except those terminating in the north boundary of the township, must be eighty chains in length.
2. The east-and-west section lines, except those terminating in the west boundary of the township, are to be within eighty links of the actual distance established on the south boundary line of the township for the width of said tier of sections, and must close within fifty links north or south of the section corner.

TOLERANCES(continued)

3. The north boundary and south boundary of any one section, except in the extreme western tier, are to be within eighty links of equal distance.

4. The meanders of each fractional section, or between two meander posts, or of an island in the interior of a section, must close within a limit determined by allowing

five-eighths of a link for each chain of said meander line when less than 80 chains in length. When the meander line is more than 80 chains in length the closing error must in no case exceed 150 links.

5. In running random township exteriors, if such random lines fall short or overrun in length, or intersect the eastern or western boundary, as the case may be, of the township, at more than three chains north or south of the true corner, the lines must be retraced, even if found necessary to remeasure the meridional boundaries of the township. One set of chainmen only is required in subdividing.

1894 MANUAL OF SURVEYING INSTRUCTIONS

1. If in running a random township exterior, such random falls short of or exceeds its proper length by more than three chains, or falls more than three chains north or south of its objective corner, it will be re-run, and if found correct, so much of the remaining boundaries of the township will be retraced or resurveyed, as may be found necessary to locate the error.

2. Every meridional section line, except those terminating in the north boundary of the township, shall be eighty chains in length.

3. The random meridional section lines through the north tier of sections shall fall within fifty links east or west of the section corners established on the north boundary of the township, except when closing on a baseline or standard parallel.

4. The actual length of the meridional section lines through the north tier of sections shall be within one-hundred and fifty links of the theoretical length. The latter will be determined from the meridional boundaries of the north tier of sections.

5. All random latitudinal section lines shall fall within fifty links north or south of their objective section corners. In any range of sections, the difference between the true bearing of a latitudinal section line and that of the south boundary of the range, shall not exceed 21 minutes of arc, The latitudinal section lines, except those terminating in the west boundary of the township, shall be within fifty links of the actual distance established on the south boundary line of the township for the width of the range of the sections to which they belong.

6. The north boundary and south boundary of any one section, except in the extreme western range of sections, shall be within fifty links of equal length.

7. The meanders within each fractional section, or between any two successive meander corners, or of an island in the interior of a section, should close within a limit to be determined by allowing five- eights of a link for each chain of said meander line. Where the meander corners marking the end of a meander line in a fractional section are located on standard, township, or section lines, the above limit, increased by one fourth of the regular perimeter of the fractional section, expressed in miles, multiplied by 71 links, will be allowed.

The extreme limit, however, will in no case be permitted to exceed one-hundred and fifty links.

TOLERANCES(continued)

1902 MANUAL OF SURVEYING INSTRUCTIONS

1. If in running a random township exterior, such random exceeds or falls short of its proper length by more than three chains, allowing for convergency, or falls more than three chains to the right or left of the objective point (or shows a proportionate error for lines of greater or less than six miles), it will be re-run, and if found correctly run, so much of the remaining boundaries of the township will be retraced, or resurveyed, as may be found necessary to locate cause of misclosure.

2. Every meridional section line, except those which terminate upon a fractional side of a township, will be 80 chains in length, without allowance of 50 links per mile for difference or measure, or any other allowance beyond a small reasonable discrepancy according to the nature of the surface, to be determined after examination.

3. The random meridional or latitudinal lines through a tier or range of fractional sections shall fall within 50 links of the objective corners, and a greater falling will indicate negligence or error.

4. The actual lengths of meridional section lines through a fractional north or south tier of sections shall be within 150 links of their theoretical length. The latter will be determined from the given lengths of meridional boundaries on the east and west range lines.

5. Each latitudinal section line, except in a fractional east or west range of sections, shall be within 50 links of the actual distance established on the governing north or south boundary of the township for the width of the same range of sections.

6. The north boundary and the south boundary of any section, except in a fractional range, shall be within 50 links of equal length.

7. The meanders within each fractional section or between any two successive meander corners, or of an island or lake in the interior of a section, should close by traverse within a limit to be determined by allowing five-eighths of a link for each chain of such meander line. This rule does not apply to irregular boundaries of reservations or private claims, except as far as the same are natural water boundaries. The total misclosure of meanders will not be permitted to exceed 150 links, except in large private land claims, which are governed by a different rule and limit. (See Section 153)

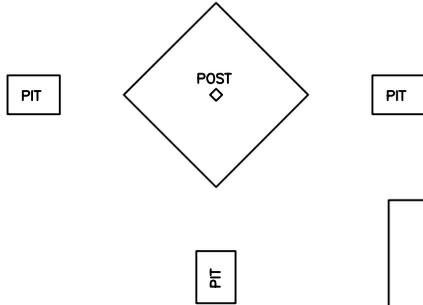
8. In closing upon accepted surveys, when irregularities beyond the allowable limits are developed, either in the length or direction of the closing lines, closing corners will be set, with quarter-section corners at 40 chains from the last interior section corner;

9. And, in general, when conditions are met which result in a random line being defective, either in length or direction, such procedure will be adopted as will secure the greatest number of new rectangular legal subdivisions, without disturbing the condition of accepted surveys.

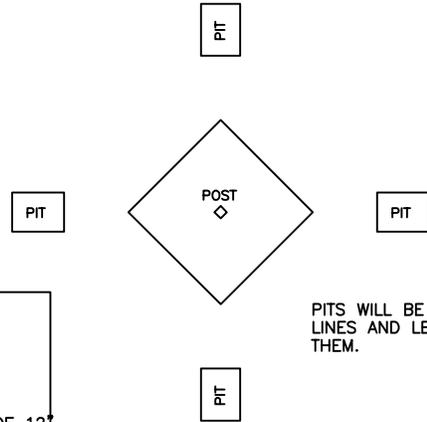
ILLUSTRATION OF MOUND, STAKE, AND STONE CORNER MONUMENTS AS PER 1864 REVISIONS TO THE "1855 MANUAL OF INSTRUCTIONS"

POSITION OF CORNER MOUND ON BASE OR STANDARD LINE, COMMON TO TWO TOWNSHIPS OR TWO SECTIONS

THREE PITS ONLY WILL BE DUG, TWO ON LINE ON EITHER SIDE OF THE POST, AND ONE ON THE LINE NORTH OR SOUTH OF THE CORNER, AS THE CASE MAY BE.



POSITION OF CORNER MOUND COMMON TO FOUR TOWNSHIPS OR FOUR SECTIONS



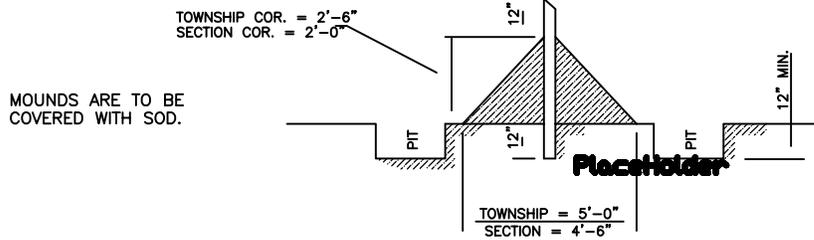
PITS WILL BE DUG ON THE LINES AND LENGTHWISE TO THEM.

PIT SIZES

TOWNSHIP CORNERS 18"x24"
SECTION CORNERS 18"x18"

NOTE: PITS ARE TO BE A MINIMUM OF 12" DEEP AND LOCATED 6' FROM POST.

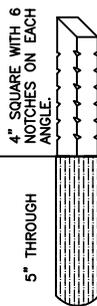
POST IN MOUND



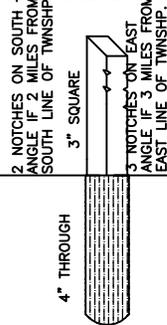
NOTE: CHARCOAL, CHARRED STAKE, OR MARKED STONE TO BE DEPOSITED 12" BELOW SURFACE ON THE SIDE OF POST INDICATING THE DIRECTION OF SURVEY, I.E., AGAINST THE NORTH SIDE WHEN RUNNING NORTH, AGAINST THE WEST SIDE WHEN RUNNING WEST, ETC.....

POSTS AND STONES AS MONUMENTS

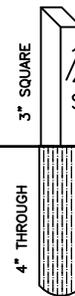
TOWNSHIP CORNER POST
Top beveled to turn rain



SECTION CORNER POST
Top beveled to turn rain

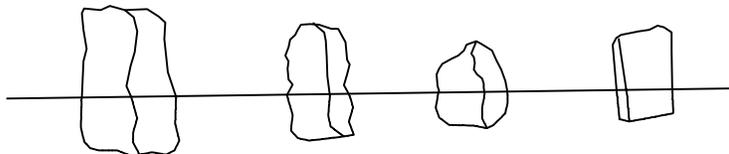


QUARTER CORNER POST
Top beveled to turn rain



NOTE: POSTS ARE TO BE SET 24" INTO GROUND AND EXTEND 24" ABOVE GROUND.

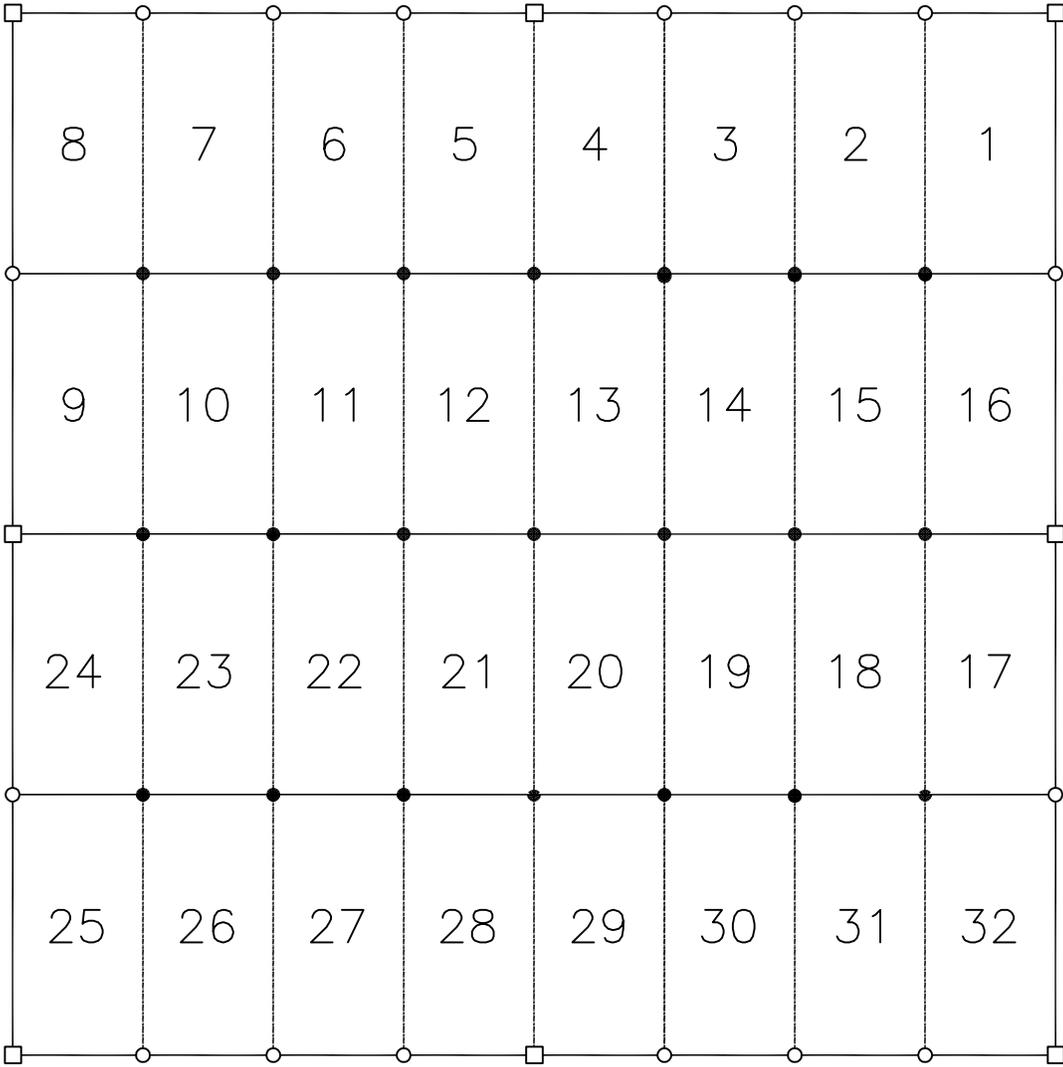
POSTS ARE TO BE FORMED FROM THE MOST DURABLE WOOD AVAILABLE AND TO BE FLATTENED ON FOUR SIDES TO PREPARE IT TO RECEIVE THE APPROPRIATE MARKINGS. POSTS TO BE SQUARED TO AT LEAST 4 INCHES (THE POST DIAMETER BEING SECTION CORNERS AND QUARTER-SECTION CORNER POSTS TO BE SQUARED TO AT LEAST 3 INCHES (THE POST DIAMETER)). THE POSTS TO BE ORIENTED SO THAT THE FOUR ANGLES OF THE SQUARED CARDINAL POINTS.



ALL CORNER STONES BETWEEN 14 AND 18 INCHES IN LENGTH SHOULD BE SET $\frac{2}{3}$ OF THEIR LENGTH IN THE GROUND, IF MORE THAN 18 INCHES LONG, SHOULD BE SET $\frac{1}{4}$ OF THEIR LENGTH IN THE GROUND.

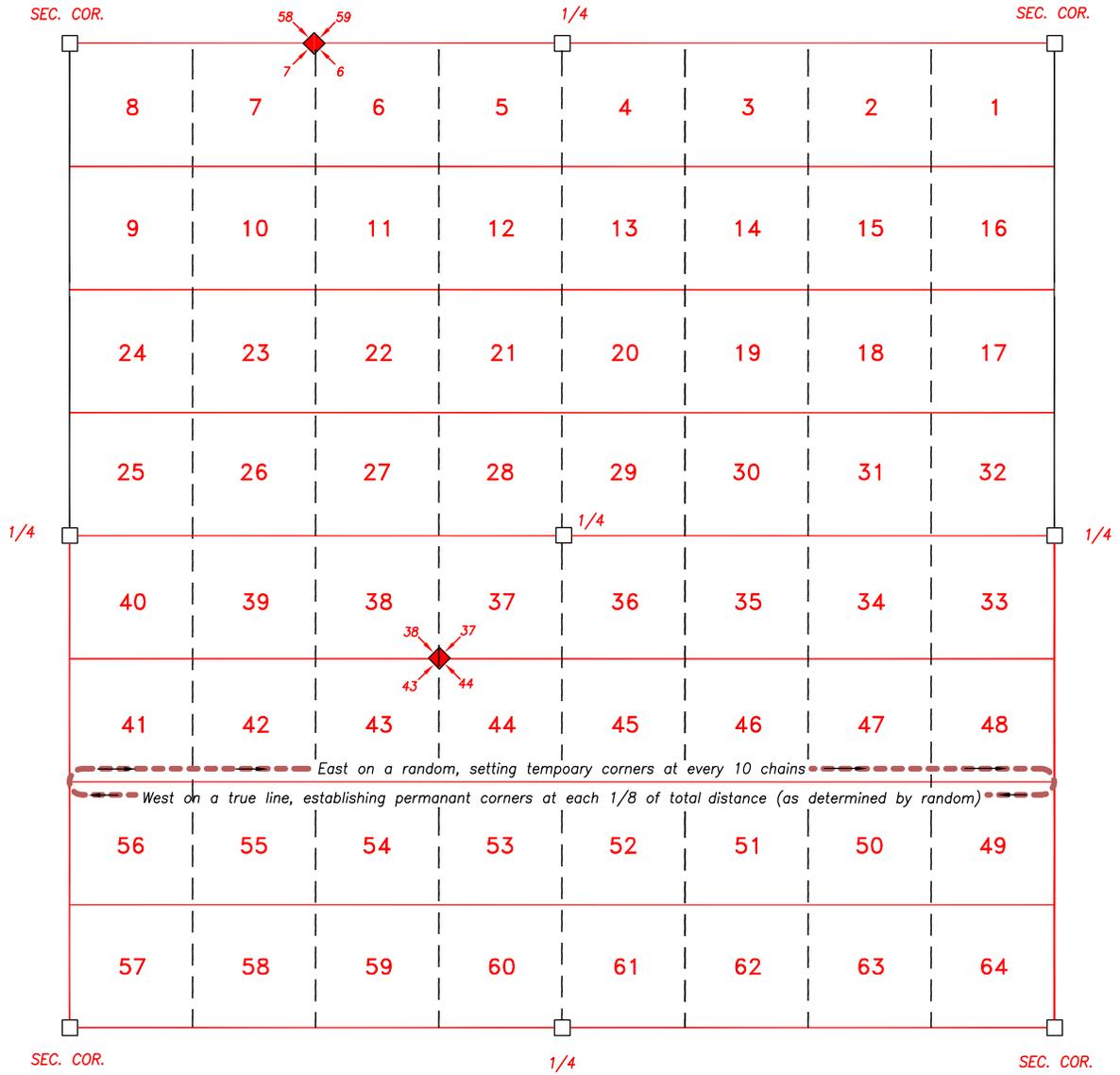
SECTION CORNER MONUMENTS WILL HAVE AS MANY NOTCHES ON THE SOUTH AND EAST AS THEY ARE MILES FROM THE SOUTH AND EAST BOUNDARIES OF THE TOWNSHIP. TOWNSHIP MONUMENTS COMMON TO FOUR TOWNSHIPS WILL HAVE 6 NOTCHES ON EACH OF THE FOUR ANGLES. ALL MILE POSTS ON THE TOWNSHIP LINES MUST HAVE AS MANY NOTCHES ON THEM, ON TWO OPPOSITE ANGLES THEREOF, AS THEY ARE MILES DISTANT FROM THE TOWNSHIP CORNERS, RESPECTFULLY.

METHOD OF NUMBERING 20-ACRE ALLOTMENTS



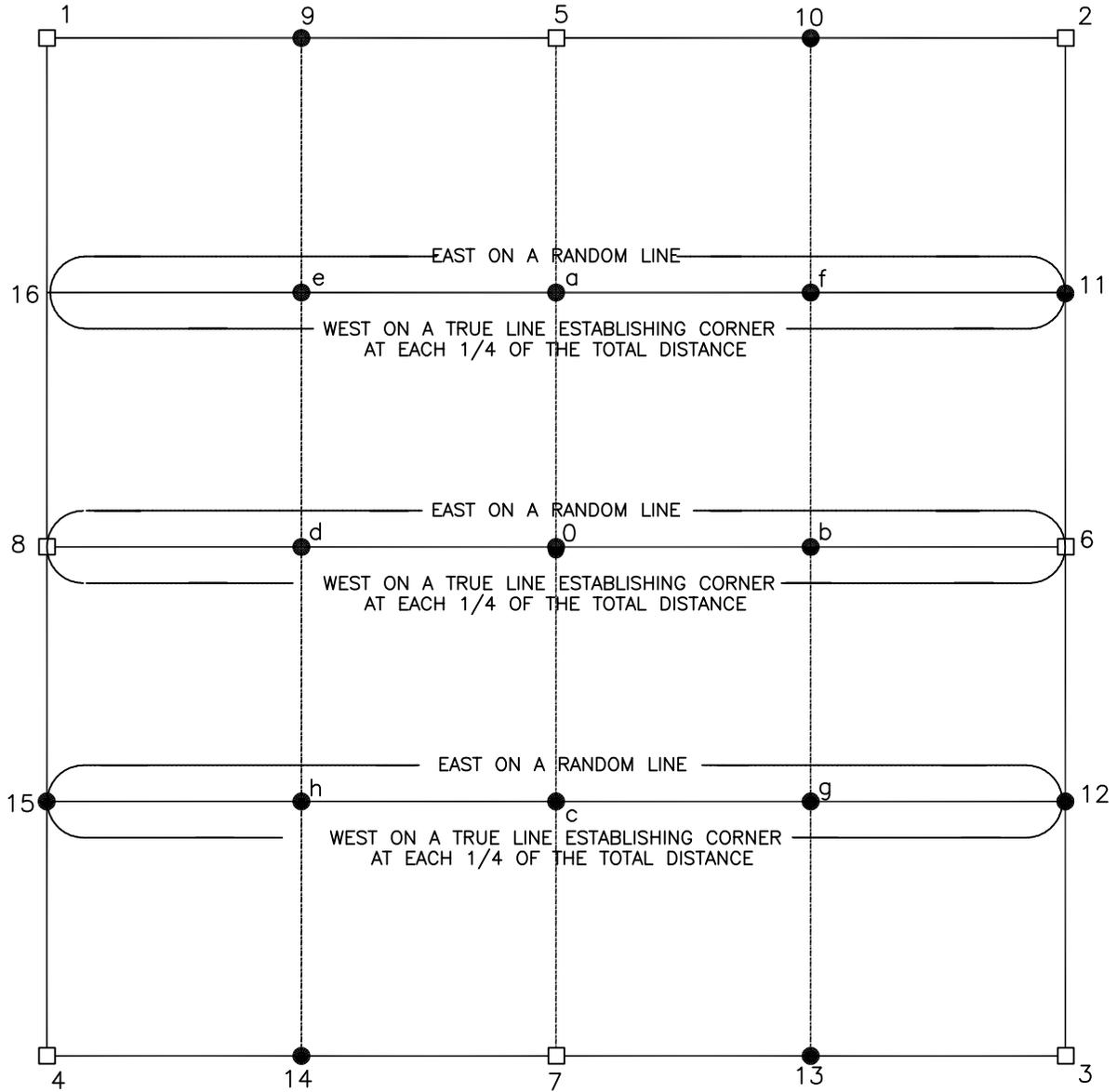
- = ORIGINAL CORNER
- = CORNERS AT EQUIDISTANT POSITIONS
- = ALLOTMENT CORNERS AT EQUIDISTANT POSITIONS

METHOD OF SUBDIVIDING AND NUMBERING 10-ACRE ALLOTMENTS



THREE-MILE METHOD -and- CORNER IDENTIFICATION ON INDIAN RESERVATIONS

THE THREE-MILE METHOD OF SURVEYING WAS USED PRIMARILY ON INDIAN RESEVERATIONS. THIS METHOD CONSISTED OF RUNNING THREE ADDITIONAL LINES EAST & WEST THROUGH THE SECTION, AND ESTABLISHING CORNERS AT EQUIDISTANT POSITION ON SAID LINES. THE BUREAU OF INDIAN AFFAIRS DEvised A NUMBER AND LETTER DESIGNATION FOR IDENTIFYING THE EXTERIOR AND INTERIOR CORNERS OF THE SECTION



- = SURVEYED LINES
- = SECTION AND 1/4 SECTION CORNERS
- = CORNERS AT EQUIDISTANT POSITION
- 1,2,3,a,b,c = IDENTIFYING DESIGNATION

NOTE: CORNERS NUMBER 9, 10, 11, 12, 13, 14, 15 & 16 ESTABLISHED AT EQUIDISTANT POSITIONS BETWEEN THE SECTION AND QUARTER SECTION CORNERS.