

Iron post erected by Captain Thomas J. Lee in 1849, marking the 43°, 30' north latitude, from which the northern boundary line of the state of Iowa was extended from the Mississippi River. From a photograph furnished by Hon. J. H. Hager, Waukon, Iowa.

ANNALS OF IOWA

VOL. XVI, No. 7

DES MOINES, JANUARY, 1929

THIRD SERIES

SURVEY OF THE IOWA-MINNESOTA BOUNDARY LINE

(From the original documents of the General Land Office, Department of the Interior, Washington, D. C., and on file in the office of the Secretary of State of Iowa.)

¹Instructions to George B. Sargent Surveyor General of Public lands in the State of Wisconsin and Iowa &c. in reference to establishing, running and marking the Northern boundary of the State of Iowa.

By the act of 3rd March 1849 entitled "An act to cause the Northern boundary of the State of Iowa to be run and marked," it is provided, "That the Surveyor General of Wisconsin and Iowa, under the direction of the Commissioner of the General Land Office, shall cause the northern boundary of the State of Iowa to be run and marked, and suitable monuments placed thereon; and the said Surveyor General shall return one copy of said survey to the General Land Office and another copy to the Executive of Iowa to be deposited in the Archives of said State."

The act of 4th August 1846 "to define the boundaries of the State of Iowa," &c. establishes the northern boundary of that State on the parallel of forty three degrees and thirty minutes ($43^{\circ} 30'$) north latitude, extending from the middle of the main Channel of the Big Sioux River, to the middle of the main channel of the Mississippi River.

The many important considerations which are wrought up with the critical ascertainment of such a boundary—the evils political and social naturally incident to *uncertainty* as to County and electoral limits,—the liability to double taxation of the citizens residing on the debatable fields,—the hostile feeling likely to be engendered and to lie smouldering in the minds of the settlers within and near to such contested grounds, and ever ready to break out into some overt act destructive of the public peace,—all of which evils we know, have occurred and therefore, from similar causes, may be expected to occur again,—together form so many admonishing reasons to the Department why a line which is to satisfy hereafter two great States should now be determined, under the law, by the most efficient astronomical data, affording results, the evidence of which both in the Field and on the Record, shall stand the test of all scrutiny, and place the subject beyond cavil and doubt for all time. Therefore it is the direction of the Department that the

¹In copying we have followed the punctuation, capitalization, spelling, etc., of the original documents.—Editor.

parallel of latitude aforesaid be ascertained and established on the ground by a series of celestial observations to be taken under your direction, at intervals of not more than thirty miles apart. At each point of observation some suitable and distinctive memorial will be set up (to be cited in the notes) and therefrom will the *guide line* be established in its course from station to station, where such observations will be taken—and the Deputy Surveyor to be appointed for that service, shall be directed where to, and you will, run the *true line* of the parallel, as your observations shall determine; and such offsetted distances are to be most accurately measured, and the measurements shall be set forth in the notes of survey; and as the terminating points of such offsets will indicate the position of the true line, some distinctive monument is to be established at each.

The position of the line at its connection with the Mississippi River has been ascertained by astronomical observations, and will be maintained as established by Capt. Lee. You will *extend* to the *true line* the Range line from below which will intersect the same at the point nearest to the River, and upon such Range line, so continued, you will plant the usual mile and half mile corner boundaries, and at such point of intersection, (which would seem to be the North East corner of township 100 of Range IV. West of the Fifth Principal Meridian, likely to be made a fractional township by the true line) a corner boundary for the township is to be set, which will be the starting point for the measurements on the State line to the East and West thereof. And having planted the necessary corners between such intersection point, and the monument on the Mississippi River, you will thence proceed Westward on the true line, from station to station, as ascertained and determined by the astronomical observations, measuring the necessary offsets and measuring and marking the true line, and establishing thereon the Township corner boundaries at intervals of six miles, those for the sections at intervals of one mile, and those for the quarter sections at intervals of a half mile. By these operations the parallel aforesaid will become a *correction line*, and eminently so, and whereon it is designed that the surveys proceeding from the 3rd Correction line, already begun below shall close by *Course* lines on the corners to be pre-established on the parallel. Double corners on the Parallel will thus be avoided, and in as much as the 3rd Correction line is less than the length of two townships from the Parallel, the meridional convergence is small, and there is no conceivable reason why *double* corners should be made thereon. That line will prove the best possible basis for all the surveying operations hereafter to be undertaken on the North of it, and the effect of so closing on it the surveys from below, will be to make fractional all the series of townships numbered 100 next below, and to start from it hereafter a series of full townships to be numbered 101, in continuation.

Looking into the future, and that not very remote, when the Parallel of $43^{\circ} 30'$ will have to be continued and elongated as the great prac-

tical surveying Base for the vast public domain North of it and far to the West of its present terminus at the Big Sioux, the Department esteems it a matter of no little public moment, that the most critical methods of determining terrestrial positions from celestial data should be adopted in prosecuting this work, and that the means of arriving at the practical results should be spread forth in a separate paper,—the results themselves being shown on the Plat and Report as to the *guide line*, and which will also shew the offsets therefrom. They should be in duplicate and should further shew the *true line*, the Township, mile and half mile corners thereon, the crossings of streams, the character of the soil, timber and general topography of the country on the line, and in its immediate neighborhood.

The best modes of marking the line in the plainest and most distinct manner, will have to be determined in some measure by the character of the country over which it passes. Where the country is densely timbered, the trees immediately on line are to be uniformly marked by a *distinctive chop facing the line*; and when the tree is *cut* by the line a chop to be on the East and West sides of it; and the trees within *five feet* of the line on each side are to be *blazed* on the sides facing the line.

Where wood is used for the corner boundaries the most durable kind of timber must be taken for the purpose; and the posts for the township corners must square six inches, and those for the section and half section corners must square four inches, protruding from the surface two feet, and extending beneath the surface two and a half feet at least.

Where timber is not to be had *mounds of earth or stone* must be constructed around posts denoting what they stand for in the usual method. Mounds of earth are to be conical, 3 feet high for township corners—and $2\frac{1}{2}$ feet high for all other corners. The mound to be surrounded by a *quadrangular trench* of 6 feet side for township mounds, and 5 feet side for all others. The trench to face the cardinal points, and a pit wherefrom the earth is taken to construct the mound is to be dug on *each* side of the trench according to the diagram furnished.

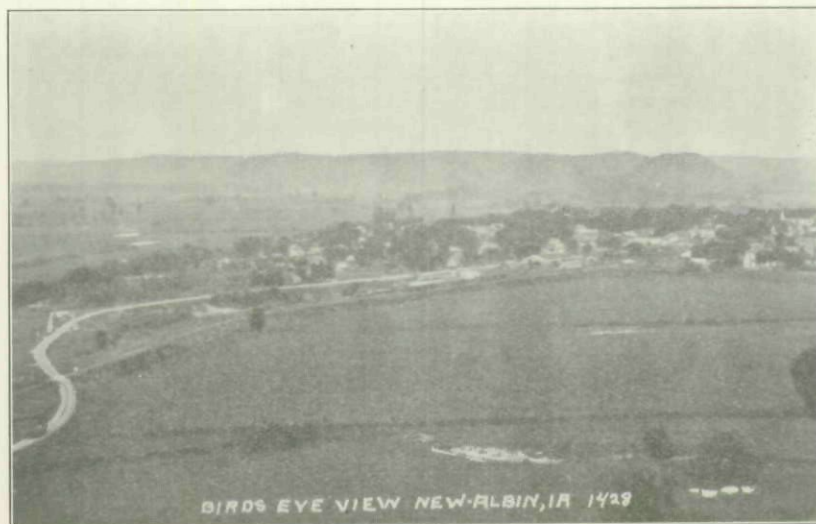
At the termination of the line on the Big Sioux, it is desirable to have its position indicated, if practicable, by an *iron post* similar to that on the Mississippi,² but if such a monument cannot now be carried there, then by a *Stone Column*, three feet high above ground, or one of hard and durable wood of the same elevation *sixteen inches square* with a pyramidal head,—the monument to be sunk four feet beneath the surface.

The Posts at the corner of every *fourth* township or twenty fourth

²This iron post set by Captain Lee marking the beginning of the northern boundary line of our state stands near the north edge of the town of New Albin, Allamakee County. From Senate Documents, Thirty-third Cong., First Ses., 1853-54, Senate Doc. 10, p. 4, we quote: "In abstract of payments made by Captain Thomas J. Lee, on account of expenses incurred in establishing the initial point of the northern boundary of the state of Iowa, and erecting a monument thereat near the Mississippi River, we find that on October 18, 1849, he paid A. Dowling \$57.00 for cast iron monument."—Editor.



From a photograph furnished by Hon. J. H. Hager. Looking toward the south. Iron post at the right.



From a photograph furnished by Hon. J. H. Hager. Looking toward the south.

mile of the line from that township corner whence the township lines will be started, will have to be *distinctive* in their formation, and be set *diagonally* in the ground, with two sides facing the State they indicate, the word, "IOWA" to be deeply cut or branded on two sides, and the word "MINNESOTA" on the other two, and "43° 30' north" below each word,—and the same kind of marks will be made on the monument to be planted on the Big Sioux.

The other Township Posts, (those intermediate between the Posts at every twenty fourth mile) and also the sectional Posts along the line are to be marked, in addition to the ordinary descriptions, with the initials I. B. cut or branded below the township or sectional designation on the *Iowa* side, and on the other the initials M. B.

At the intersection of the boundary with the Big Sioux in order still more prominently to designate the boundary point, four other posts distant therefrom ten feet each way conforming with the Cardinal points are to be set diagonally in the earth, making the boundary point the centre; each of such posts to be *eight inches square, three feet above ground and three feet in the ground, surrounded by a mound five feet in diameter, and two and a half feet high*, and outside of all is to be a quadrangular trench a foot deep, with the earth piled up on the *inside* so as to form a regular elevated margin, which margin and the four mounds are all to be covered with sod.

Thus will the parallel of latitude designated in the act referred to become distinguished by the township, mile, and half mile corners, and be as effectually defined as could be desired, by its identification with the lines of public surveys.

A Copy of the Instructions furnished to Captain Lee of the topographical Bureau for his direction in establishing the initial point, together with the Report made by that officer, will be furnished to you together with any further instructions which shall be deemed necessary.

General Land Office
 February 2d, 1852
 J. BUTTERFIELD
 Commissioner

To George B. Sargent, Esq.,
 Surveyor General
 for Wisconsin & Iowa
 Present

Surveyor Generals Office
 Dubuque March 1852

To Captain Andrew Talcott
 Sir.

Herewith you will receive for your guidance in the survey of the Boundary between the State of Iowa & Territory of Minnesota, the following named documents, Viz:

Sketch, of the vicinity of the intersection of the parallel of $43^{\circ} 30'$ North Latitude with the Mississippi River.

Copy, of the report of Capt. Thos. J. Lee of the U. S. Topgl. Engineers, of the computation of the observations made under direction of Col. Abert to ascertain the intersection of the parallel $43^{\circ} 30'$, North with the Mississippi river.

Copy, of the "Report of Capt. Lee," addressed to Col. Abert in reference to tracing the said parallel, and to which your attention is particularly directed.

Copy, of instructions to Capt. Sitgreaves for running the boundary between the Creeks & Cherokees, and three copies of the printed instructions prepared for the use of Deputy Surveyors in this district.

The Act of 4th of August 1846 "to define the boundaries of the State of Iowa &c" establishes the Northern boundary of that state on the parallel of $43^{\circ} 30'$ north latitude extending on said parallel from the middle of the main channel of the Mississippi River.

To establish this line beyond all cavil and doubt, it has been determined that the parallel aforesaid shall be ascertained and established by a series of Celestial observations to be taken at intervals of not more than Forty eight (48) miles apart.

At each point of observation some suitable and distinctive memorial must be set up which will be described in the notes and therefrom, will the guide line be established in its course from station to station, where such observations will be taken—and you will run the *true line* of the parallel as your observations shall determine; all offsetted distances are to be accurately measured and the measurements set forth in the notes of survey; and as the terminating points of such offsets, will indicate the position of the true line, distinctive monuments are to be established at each, as hereinafter directed.

The position of the line at its connection with the Mississippi river has been ascertained in a proper manner and will be maintained as established by Capt'n Lee.

You are to *extend* to the true line the Range line from below, which will intersect the same at the point nearest the river (and which will in all probability be the line dividing Ranges 3 & 4) upon this Range line so continued you are to establish a quarter section corner at the end of the first 40 chs. and a section corner at the end of the first 80 chs. & observing the same order & intervals of establishing quarter Section, and Section corners to its intersection (which will be the North East corner of Township 100, Range 4 West of the 5th. Principal Meridian) you will set a township corner in the manner herein-after directed, which corner will be the starting point for the measurement on the state line to the East and West thereof.—Having established the necessary corners between the intersection of the Range with the state line & the monument on the Mississippi river you will thence proceed westward on the true line from Station to Station, as ascertained and determined by your astronomical observations—measuring

the necessary offsets, and measuring and marking the true line and establishing thereon the township corner boundaries at intervals of six miles, the section corners at intervals of one mile, and quarter section corners at intervals of half a mile.

As the Department justly considered it a matter of great importance, that the most critical method of determining terrestrial position, from celestial data, should be observed in this work, you are hereby required to exhibit the means by which you arrive at the results in a separate paper—and the results themselves must be shown on the plat and Report as to the *Guide line* and on which must also be set forth the offsets therefrom.

These you are required to return in duplicate and must further show the true line, the township Section, and Quarter Section corners thereon, the crossings of streams timber and topography of the country generally on the line & its immediate vicinity.

At the termination of the line on the Big Sioux river it is desirable to have its position indicated if practicable by an iron post which will be furnished as your survey progresses—Should it however be found impracticable to carry it there a Stone Column, three feet high above ground or one of hard and durable *Wood* of the same elevation, sixteen inches square sunk 4 feet in the ground and having a pyramidal head, may be substituted

The posts at the corner to every fourth township or twenty fourth mile of the line from the township corner already designated as the starting point must be distinctive in their formation and be set, diagonally in the ground with the two sides facing the state they indicate deeply branded thereon and the same kind of marks will be made on the monument to be planted on the Big Sioux.

The other township posts (intermediate the posts at every twenty fourth mile) and also the sectional posts along the line are to be marked in addition to the ordinary descriptions with the initials I. B. cut or branded below the Township or sectional designation on the *Iowa* side, and on the other the initials M. B.—

At the intersection of the boundary with the Big Sioux River, in order still more permanently to designate the boundary point, four other posts distant therefrom ten feet each way conforming with the cardinal points are to be set diagonally in the earth making the boundary point the center: each of these posts are to [be] eight inches square, three feet above and three feet below the ground surrounded by a mound five feet in diameter and three feet high and outside of all is to be made a quadrangular trench a foot deep with the earth piled up on the *inside* so as to form a regular elevated margin which margin & the four mounds are all to be covered with sod.

For the method of marking the line establishing and marking the proper corners thereon which have not been described you are referred to pages 4, 5, 6 and 7 of my printed instructions to Deputy Surveyors.

Your attention is again especially directed to the enclosed copy of

"Report of Capt. Lee" in reference to the survey of this boundary. The directions there given for taking the observations & for tracing the parallel are very plain and it is expected that you will make them your guide as far as applicable in the performance of this work.

CHIEF ENGINEER'S INSTRUCTIONS TO DEPUTY
SURVEYORS

I & M. Bdy Camp Washington 22nd May/52

D. B. Sears Esq Qr Master & Commissary &c &c

Sir

You will forthwith make suitable arrangements to insure the transportation of rations for 40 men 60 days, equal to 2400 rations, and for placing $\frac{1}{2}$ of the quantity so far West as the river Des Moines where crossed by the Bdy line in 30 days. Also provide transportation for the personal baggage of the same number of men and allow an average per man of 50 lbs- for the camp equipage and for instruments and books estimated at 1000 lbs over the entire line and back. If you should require grain for your teams, extra harness, tools & for your department, additional transportation must be provided for them.

It will be necessary for you to visit Lansing. You will find there five cases of instruments that are much wanted. Please forward them to camp as early as practicable: A box containing instruments and personal baggage marked "Harry Taylor" if not at Lansing when you arrive may be very shortly expected. It is necessary that you make arrangements to have it forwarded to the Camp I may be at as soon as it reaches Lansing. You will please purchase for the Survey the following named articles

- 1 pair White Blankets (best quality)
- 1 dozen forks
- 1 box of lemons
- 1 tin wash basin large size &

such additional mess furniture as may be required by four parties of about 10 persons in each—also such extra articles as will be required by the teamsters, when moving detached from the Surveying parties

Very respy

Your obedient servant

ANDREW TALCOTT

Iowa & Minnesota Boundary Survey
Camp Washington

Capt J. M. Marsh

Deputy Surveyor

Sir

You have been detailed to survey with Burt's solar compass an exploring line from this Camp to the Big Sioux River, the Western terminus of the Northern Boundary of Iowa. The survey has two objects in view: The first is to procure positive, early information of

the nature of the country to enable the Q.M. and Commissary to prepare for transporting the Instruments, baggage and supplies necessary for the party, as well as to enable me to be prepared for running the line over any difficult parts that may require special preparation for its accomplishment, such as scaffolding, boats &c; the second object is one that the Commission of the General Land Office deem of great importance to the national Surveys, viz, to test the accuracy of a line surveyed by a solar compass in the hands of a Surveyor expert in the use of that instrument. The instrument you have is, I understand, one of the best and contains the latest improvements of the inventor and therefore is a proper Instrument to be used in this survey and I am further advised that you have a perfect knowledge of the most improved method of adjusting and using the instrument.

The opportunity therefore presented at this time is one of rare occurrence and should be improved. The estimated distance is 230 miles: this will enable you to prepare an estimate of the supplies and transportation you will require for the service. The necessary assistance of chainman axeman &c will be detached from the party employed by the Surveyor General and they will be directed to report to you for the duty as soon as they can be collected. Special instructions for your guidance will be prepared for you.

I am Sir

Yours respectfully

ANDREW TALCOTT

Camp Washington May 25th 1852

Order No 1

The following named persons are detached for surveying an exploratory line from this camp to the Big Sioux River

J. M. Marsh, Deputy Surveyor	
Spencer Fellows	} Chainmen
N. Henry Hutton	
Saml P Bonsall	} Flagmen
Wm A. B. Jones	
John Quigley	Instrument bearer
Edgar Sears	} Axemen
Daniel Gordon	
Kellogg	} Teamsters
Willard Whitmore	
J. E. Woolon	Supernumerary

The persons above named will report to Deputy Surveyor J. M. Marsh for duty and will be subject to his orders until the completion of the Survey. Mr. Marsh will return to Head quarters on the completion of the work assigned him.

ANDREW TALCOTT

Camp Washington May 24th 1852

Special instructions for Deputy Surveyor Marsh who is charged with surveying an exploratory line to the Big Sioux River, with Burt's improved solar compass and Equatorial

Sir

You will commence your line at a point to be designated and run on a due west course to be determined by the solar instrument without any reference to the lines that have been determined at this camp by the Astronomical Instruments; and you will by the aid of the instrument alone run as near as practicable a parallel of Latitude. When long sights are taken with your instrument, the proper offsets calculated for that distance should be made, otherwise the line will slightly diverge from a parallel of Latitude towards the South. You will be furnished the calculated offsets from the prime vertical for each [each] $\frac{1}{2}$ mile for 20 miles to enable you to make the connection.

The railroad transit made by Blunt will be placed at your disposal, that you may use that during cloudy weather if you should see fit to do so. Should you use the Transit you will be particular to place a stake on your line marked *Transit work commences* and on resuming the solar instrument mark *Transit work ends*. the same notes should be made in the field book.

The line must be carefully chained its entire length, but no mark should be left on the line by which the second chainmen may compare their distance with yours without your notes, but durable marks and monuments should be made on your line that a rigid comparison of the two chainings may be made. Signals should be left on all the ridges where they can be best seen from the East and the distances noted to each as well as to any crossing of streams sloughs, swamps &c &c

Should your surveys develop any impracticable points with the present means of the party, tracing the guide line, that fact should be communicated, that if necessary additional means of transportation may be procured. In short you are to consider yours as an exploratory party. Any information you may obtain which in your opinion may be essential to the progress of the main body of the work, should be communicated even if by so doing the operation of your own body should be retarded.

I shall endeavor to push on the transportation so that some portion of the party may be as near you as practicable, with the view of rendering you assistance should any be needed, as well as to communicate information derived from your surveys. Should any opportunity present of reporting progress, you will of course avail yourself of it, to send any information that will be interesting if not essential to the progress of the work.

It is desirable that you keep independent of your field notes, a diary of your operations and topographical notes of the country you pass over.

Wishing you success in the experiment and a speedy accomplishment of the work assigned you

I am

Yours respectfully

ANDREW TALCOTT.

May 28th 1852 Camp Washington

Harry Taylor Esq
Deputy Surveyor

Sir

You are charged with tracing a line from this point Westward with a Transit Instrument to serve as a guide line in determining the parallel of latitude of 43° 30', the Northern Boundary of Iowa. The line will be commenced on the meridian of the Transit Instrument 12.87/100 feet north of it and will form an angle of 89°, 39', 50" with it measuring from the North meridian mark.

This line must be chained with great exactness and monuments of a temporary character, placed at every half mile, reckoning from the corner of Sections 35 & 36 Range 13 West of the 5th Principal Meridian, which is the nearest monument East of the Camp.

The temporary mile monuments will be marked to indicate the numbers of the Sections that will be hereafter surveyed North of the Boundary line according to the following diagram

Range 14				Range 13				Range 12				
33	34	35	36	31	32	33	34	35	36	31	32	33
Latitude 43° 30'												

You will on the principal ridges survey a Connection with the line, traced by Dept'y Surveyor Marsh who precedes you using Burt's solar compass and who has been directed to leave perspicuous signals at such places. The object of making these connections is to test the accuracy of a line surveyed by a Solar Compass.

You will make notes of these connections as well as of the guide line and to lessen the inconvenience that would be experienced if your temporary marks should be removed before the offsets for the parallel are made, you will note the distances to crossings of streams & to any other well defined topographical features by which the place of the missing monument can be ascertained

The Transit by Draper is placed at your disposal for making this survey and such other auxiliary instruments, signals, chains &c as you may require that the Camp contains.

The Quartermaster will be directed to furnish such Camp equipage, Transportation, provision and stores as you may require and for which you will make a requisition as soon as practicable so that they may be separated from the general stock.

I leave to your discretion and judgment the details of tracing this line, well knowing that your experience in similar work will be sufficient guide to you, and that you are well aware of the importance of the greatest accuracy that can be attained

You will soon be in a country frequently traversed by Indians, from whom you need expect no molestation except by stealing your horses

and provisions. Care should be taken to guard against that by keeping everything as close as possible to or within your camp

The following named persons will be directed to report to you and will form your party for this survey

R. J. Cleveland, Topographer	
Bartholomew Sheridan	} Chainmen
Lewis	
W. C. Alexander, For'd Flagman	
E. W. Crittenden, Back Flagman	
William Stratton	} Axemen
Jacob Myers	
John T. McDuffie, Instrument bearer	
Samuel Jackson, Teamster	
Donahoe Williams, Cook	

As often as opportunity offers whilst the Camp is in your rear you will send a report of progress.

Very respectfully, &c

A. T.

Camp Washington May 31st 1852

George R Stunty Esq

Sir

The Surveyor General having signified that your services are required for the public surveys and that your presence in Dubuque is necessary you are hereby relieved from your duties in connection with the survey of the Boundary

All field notes of your work when duly authenticated will be handed to the Secretary of the Company, who will give you a receipt for the same

Should you have any property, purchased for the survey, not required for your personal use, returning to the settlement, you will deliver it to the Quartermaster of the company, and such as you may need on your journey can be returned by the same conveyance which carried you down, should it in the opinion of the Quartermaster be needed here. If otherwise you will deliver to the Surveyor General

I have to request that you will take charge of such letters and documents as I may have to send to the office of the Surveyor General

Yours &c

A. T.

Camp Washington June 2nd 1852

Mr. John S. Shellar

Sir

The following named persons will form a party for the survey of the boundary line and will operate under your directions;

P. Moriarty	}	Chainmen
W. P. Campbell		
Robert Cushow	}	Axemen
Charles M. Christie		
William Todd	}	Teamsters
Jacob Myers		

Your party for the present will operate in conjunction with that on the guide line. The line will be re-chained under your directions and the exact distance from station to station, as placed by the guide line party will be entered in your notes

When long ranges can be obtained with the Transit, some of the intermediate stations may be established by the aid of the compass if the progress of the work will be advanced thereby. Offsets to important points with reference to the topography will be surveyed under your direction.

In addition to the foregoing duties you will have prepared and placed ready for erecting suitable monuments to mark the corners on the boundary line for the land surveys—also boundary monuments which will be placed at all conspicuous and important points such as the summits of ridges and the inner margin of the low grounds bordering streams (where they will be safe from freshets) also on the margin of lakes and ponds

Any other services you can render by your party to advance the survey of the Guide line and which the Chief of that survey may require of you will of course be promptly rendered. Should he require temporary aid by a detail from your party to supply any deficiency in his own you will supply him with the services required

It is desirable however that the party be maintained in their integrity and that they mess separately, so that at any moment when your party shall be required for other duty there need be no delay for separating baggage, stores or equipage

I remain yours &c

A Talcott

June 3rd 1852

Mr H Taylor

In addition to the regular $\frac{1}{2}$ mile corners you will also place and designate by letters or a different character number station where the line crosses the principal ridges streams and ponds and record the distances in your notes

You have herewith a copy of my instructions to Deputy Surveyor

Sheller whose party will for the present operate in conjunction with yours

Very respectfully

A. T.

Camp Adams June 10th 1852

The services of John Rosseau, teamster, are no longer required for the survey of the Northern Boundary of Iowa. He is therefore discharged from the service of the government from the date hereof

All public property in his possession will be delivered to the Quartermaster of the company whose receipt for the same on the back of this discharge will be a sufficient voucher

The per diem allowance to Rosseau will be continued for five days from the date hereof which is deemed a reasonable allowance of time for him to return to Dubuque, the place where he was engaged

Andrew Talcott

H. Taylor
Deputy Surveyor

Camp Jefferson June 24th '52

Sir

The 5th Guide line will commence at the point occupied by your Signal which is 5170 links South and 309 links West of Station Jefferson. From that point you will lay off an angle from the fourth Guide line of $179^{\circ} 45' 35''$ on the North: this angle will make the 5th Guide line perpendicular to the Meridian at the point of beginning. This line you will run First about 48 miles to a good point for another astronomical station. Should you reach 48 miles before the astronomical party & be ready to proceed on the sixth Guide line you will then lay off on the North an angle of 179° and proceed with the sixth guide line on that course for a second 48 miles, and for the seventh you will lay off an angle of $179^{\circ} 20'$ and continue on that until you reach the Western terminus of the boundary

Yours Respectfully

A Talcott

Lake Okemaupadur June 30th 1852

H. Taylor Esq
Deputy Surveyor

Sir

After having prepared your instructions for laying off the angle of the 5th guide line with the meridian I found the point of intersection of the two lines was further south than I had expected. The effect of this will be to render the offsets inconveniently low if you continued on your present course to the next station It is advisable therefore at the first good opportunity to make a deflection in your line to the North of 30 minutes of arc taking care to measure the angle with the utmost accuracy by repeating the measurement on different parts of the limb

Yours respectfully

A. T.

Station Madison

H. Taylor Esq

Sir

The sixth guide line will be laid off from a point South of this Station 1553 links and will form an angle with the meridian established by the transit of $89^{\circ} 38' 40''$. This angle will bring you to the parallel about 26 miles West of this station and on a prime vertical at the same distance, you will continue on the same line until you reach some convenient point for another Astronomical Station about half way to the Big Sioux River, say 40 miles west: at that place your line if accurately traced from Station Jefferson should be between 100 and 200 feet South of the Boundary. A deflection then of about 30 minutes will give a very convenient line for the remainder of the distance.

You will leave well defined marks at that point so that the azimuth of the two guide lines at the intersection can be measured after I reach the point.

It is supposed by Deputy Surveyor Marsh who has just returned from surveying a line with the solar compass, that the parallel continued will cross the Big Sioux river three times, you will employ your party in extending the line West of the first intersection to ascertain the fact—and in meandering the river between the points of intersection until my arrival and final determination of the true Boundary from observation—after which further instructions will be given you.

Yours respectfully

Andrew Talcott

Station Jackson July 22nd '52

John S. Sheller Esq

Deputy Surveyor

Sir

The parallel of $43^{\circ} 30' N$ Lat is seven hundred and seventy links South of the monument marking the position of the Zenith Instrument. You will measure that distance on the meridian of the Station South and erect monuments to mark the intersection of the Boundary with the river in accordance with the instructions received from the Surveyor General. You will also make a profile of the line, when it crosses the river on such a scale that the distance of the middle of the main channel from the monument may be ascertained and the configuration of the surface on both sides exhibited.

I have directed Mr Taylor to prepare a topographical sketch of the adjacent country: any measurement of distance that he may require for that object, you will have made for him.

Yours respectfully

A. T.

Station Jackson July 23rd/52

John S. Sheller Esq
Dep'y Surveyor

Sir

Preparatory to calculating the offset from the guide line to the Parallel, it is indispensable that I receive from you a report of the number of the Guide line stations and their distances from the commencement of each line as well as the Range and section number corresponding thereto. You will therefore supply this information as early as practicable. If the distance between stations is in all cases forty chains, it will suffice if you give the number of the first and last station on each Guide line and the distances from the beginning and end of the line—with the Township and section numbers corresponding

Yours &c

A. T.

Station Jackson July 23rd/52

J. W. Smith Esq

Sir

You will furnish me with the position of your stations No 1 & 2 referring to the iron monument erected by Capt Lee; stating the latitude and departure from that as a zero point; also the latitude of your Guide lines where they intersect the meridian of your stations.

Yours &c

A. T.

Station Jackson, July 26th/52

D. B. Sears Esq
Commissary &c

Sir

You will receive with this 7 cases and 2 bundles containing Astronomical instruments to be transported to Dubuque. You are aware that from their nature, easy carriage is necessary and that they must be kept perfectly dry.

The outer cases you are aware were left on the line from the want of adequate means to transport them: Should these boxes be found, it is advisable to place the instruments in them and pack around them well dried grass to save them from the jolting they would otherwise experience.

It was stipulated that a spring waggon, capable of carrying the instruments should be furnished; the one provided was found not to answer and the springs were removed prior to my arrival; and as a consequence the instruments have thus far been transported in waggons without springs, most decidedly to their injury; and it is feared that on the homeward journey they will become still more eccentric. To save them as much as possible I would suggest that they be placed on a thick layer of well dried grass and that it be well stuffed between

the cases and that in the event of its getting wet it be removed and other grass dried to replace it

Yours &c

A. T.

Station Munroe July 31st 1852

H. Taylor Esq
Deputy Surveyor

Sir

As early as practicable you will furnish section drawings of the guide lines with each Transit station marked thereon and the distances between them. The stations will be numbered from East to West on each section and designated by the Roman Numerals

These section drawings are required for delineating the offsets caused by deflection as well as those to mark the parallel; they should therefore be on a scale of one inch to a mile, and so placed on the paper as to allow of the largest practicable scale for the offsets which should not be less than one inch to forty feet

The astronomical stations and the points of intersection of the Guide lines with the meridian should be exhibited at each end on a suitable scale and all the measured lines noted thereon, with the lat as determined by observation.

Such data as the astronomical observations afford are communicated herewith.

Yours respectfully

A. T.

Iowa and Minnesota Bdy

D. B Sears Esq.
Commissary &c

Sir

You will please proceed forthwith to Fort Dodge and procure there such supplies as you think necessary for the subsistence of the party on the line. You will return with them as speedily as possible, taking if practicable a route that will enable you to meet the party at some point East of the Des Moines; unless you find on inquiry that the nature of the country is such that you will gain time by striking the line at this point. You will take with you such means of transportation, camp equipage &c as you may require on this service

Yours respectfully

A. T.

Station Madison Aug 9th 1852

Order

From this date 1st assistant Surveyor Isaac W Smith will superintend the marking of the North boundary of Iowa and all unfinished field work in connection therewith.

Under the direction of Ass't Smith Deputy H Taylor is charged with

collecting such topographical information & in making notes and sketches thereof as will afford data for making a complete map of the country adjacent the line. W Alexander will aid Mr Taylor in the foregoing duty

For the transportation of Messrs Taylor and Alexander, the Bay mare purchased from Quigley this day and the horse obtained in exchange for the chestnut mare are hereby assigned.

Any offsets that Mr Taylor may require to have measured to noted points and which will serve for remarking the line, Deputy Surveyor Sheller will have made and duly recorded in his field notes with the point of intersection of the same with the parallel or guide line

Dr. Rukup having tendered his services for this purpose is charged with making observations with the Dip circle along the parallel as often as may be practicable and also with taking notice of the state of the barometer and thermometer. The Dip circle by Gambey and the Aneroid Barometer are hereby assigned to Dr. Rukup to be used as aforesaid. On reaching the Eastern terminus of the line they will be delivered to the Quartermaster of the Expedition to be transported to Dubuque

Dep'y Surveyor Sheller will superintend the erecting of the monuments on the boundary and at such other points as are required by instructions from the Sur Gen'l and for this service all the persons and teams not otherwise appropriated are placed under his orders

Too much care cannot be bestowed on the monuments to make them permanent. In every case where stone can be procured, it should form a portion of the mound, 3 or 4 of good size placed round the post and covered with earth will form a most enduring monument. Mounds will be erected on the Meridian of the Astronomical Stations where the parallel of $43^{\circ} 30'$ intersects them. These mounds will be circular and 14 links in diameter; they will be surrounded by a trench 20 links in diameter, on the inside & 3 or 4 links wide; these mounds need not be over 5 links in height and should have a post in the center & surrounded with a pyramid of stone within the earth. The Inst stations that have not already been marked with a stone monument should be so marked. At station Washington the site of the Transit should be the Mont point

It is required to extend the line East to the Mississippi river and to mark the corners to that point before the party is discharged.

Mr Smith will give to each individual a written certificate of discharge with the duration of his service

The record of the Barometric and Magnetic observations will be handed to the Sur Gen'l on the return of the party at the completion of the work.

The undersigned takes this opportunity of thanking the corps for the zeal with which they have prosecuted the work of the surveying the Boundary & marking it. The amt. of work already finished renders the completion of the whole line this season almost certain; this will entitle

each member who faithfully serves until it is completed to the extra per diem provided for in the contract of services with the Government. It is believed that in no similar operation under this government has so much work been accomplished in the same period.

The corps individually have my best wishes for their health and happiness

A. T.

(On request of Dr. L. H. Pammel of Ames, David B. Sears of Rock Island, Illinois, on October 31, 1927, wrote for him the following graphic account of the survey of the northern boundary line of our state in 1852, Mr. Sears as a boy having accompanied the party. Dr. Pammel kindly allows us to publish it.—Editor.)

In answer to Professor L. H. Pammel's request for a description of the survey of the boundary between the territory of Minnesota and the state of Iowa, I have written the following description. Of the company of men who established the boundary line, I am, I believe, the sole survivor. Daniel Gordon of Moline, also a member of the party, died several years ago.

My father, David B. Sears, Sr., was appointed quartermaster and commissary of the expedition establishing the line in 1852. The starting point was to be about eight miles north of Lansing on the north bank of the Upper Iowa River near its junction with the Mississippi River. This part of the country was beautiful, rich, rolling prairie, well watered and with fine soil. Father had organized the crew in the latter part of the winter and the early spring, outfitting the expedition in the town of Moline. The equipment, which was of the most complete kind, was shipped by steamboat to the town of Lansing, which was the nearest steamboat landing.

The chief of the surveyors was a Captain Talcott of Washington, D. C. The surveyor's corps included about fourteen men, besides chainmen, flagmen, and monument builders. There was a doctor, a hunter, an interpreter, and four cooks; the rest were teamsters, choppers and general purpose men. In all there were about forty-three men.

As for myself, I drove a team and wagon carrying three surveyors, but part of the time I rode horseback, carrying a chronometer or other delicate instrument.

The organization had a slightly political aspect, including as it did the son of a Kentucky ex-governor and two young men who were the sons of congressmen. Nobility was also represented in the person of a literary Englishman by the name of Cooleridge. Some of these young men, having gotten out of hand at home, had been persuaded by their parents to join the expedition with the hope that the strict discipline might be the means of reforming them. Each man, upon joining the

company, signed a contract agreeing to obey strictly every order from the chief, and also agreed not to possess, transport or drink any intoxicating liquor. The organization was conducted along lines of very strict and almost military discipline.

Two days' travel from the starting point we established our first base of supplies, at a grove of linden trees, where we found wild honey very plentiful. I remember we named the spot "Bee Tree Grove" on this account. Here we killed our first elk while the head engineers were taking observations. This observation work was done mostly at night, as the line was run by the planets. From this place they sent ahead an engineer, a Mr. Marsh, to run a preliminary line. He took ten men with him, three teams with six oxen to the team, and some saddle horses.

Being ordered to cache or bury half of their heavy loads in order to conceal them from the Indians, they made two caches along the route by digging a hole and burying the supplies, then building a camp fire over the smoothed earth in order to conceal evidences of the digging. This however did not fool the Indians, who probed into the earth of each camp fire with rifle ramrods, and uncovered and carried away the provisions, much to the disgust of the rest of the party when they came upon the spots where the supplies were supposed to be buried. Accordingly Father hit upon another plan to conceal the spots where he cached his supplies by burying them along the creek bank, then covering the trail with brush and driving the oxen and wagons across, as they commonly did when traveling over low spots. This baffled the Indians completely, who saw the brush only as a means of improving the trail, and not as a concealment for provisions. We found our supplies intact when we looked for them on our return. On our way out we had made hay and stacked it, fearing a shortage of feed for our stock on the return trip, and though we had plowed fireguards around the stacks we found that the Indians had fired most of them and burned them to the ground.

Father was determined to finish the line in a year's time, though we were allowed two years to complete it, but if it was finished in a year's time we were to have a reward of a dollar a day extra, in addition to our regular pay.

The line from start to finish ran through country peopled by Sioux Indians, and while they made no open demonstration against us, they were unfriendly and suspicious, and often questioned our interpreter as to the purpose of the organization, and the object of running the line. The only time we were fearful of a raid was when we were at the Des Moines River. The river was at flood stage and we were busy ferrying our provisions across, when a band of about two hundred Sioux Indians, including squaws and papposes, were seen approaching. Because of the women and children we knew they were not on the war path, but fearing they might stampede our stock Father ran a picket line around them, to keep them from getting inside our camp. The

chief, however, was admitted, and through the interpreter, held a council. Father presented him with gifts and provisions, which seemed to please the old chief greatly, and he gathered his band together and peacefully departed.

The only long drive between water and fuel was on Blue Earth prairie, near Blue Earth River, where we shot our first buffalo. We had brought along some beef animals, but did not need them as we found game plentiful. The thirty odd miles between fuel and water was a long, hard trip on our draft oxen, as they moved slowly, but were better adapted to crossing marshy country than horses.

In running the line, a sod monument was established every five miles. These were three feet square at the base and about three feet high. Every fifty miles a granite boulder was erected. Sometimes we were compelled to drive a day or more to find a rock suitable for our purpose, and as they often weighed as much as a ton we had special vehicles for hauling them in by ox team. Before they were put in place a glass bottle was buried on the spot, and this bottle contained a piece of paper containing some mathematical computations by the surveyor.

This was a well-watered country, the streams and lakes being mostly bordered by timber. The prettiest lake we came across was Lake Oko-boji, or as the Indians interpreted it, "Lake Surrounded by Oak Trees."

Snakes, especially rattle snakes, were very common along the first half of the route, but as we proceeded farther we discovered that they became fewer and fewer, and finally at the terminus disappeared altogether. At the Sioux River which was the end of the line, Father offered a reward to anyone who would bring in a dead snake.

This was a beautiful country, but Captain Talcott remarked to Father that he would not give a jackknife for a whole county of it, as the distance from transportation rendered it almost worthless. I remember Father replied, "Well, then, we will have to leave it to the Indians and the buffalo."

On arriving at the terminus and establishing our last granite boulder the engineers took their final observations, and three or four of the surveyors took their departure on a raft or float that Father had made of dry cedar logs. They intended going as far down as St. Louis, making observations of the country as they traveled along, but on the fourth day out they encountered rapids, and wrecked the raft, losing part of their provisions, firearms and instruments.

On our return to the Mississippi River, which was rushed through, we settled our affairs at Lansing, and released our crew save what was needed to manage the teams and equipment as far as Dubuque, where it was sold at public auction.

Respectfully yours,

DAVID SEARS.

Copyright of Annals of Iowa is the property of State of Iowa, by & through the State Historical Society of Iowa and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.