

DEPARTMENT OF THE INTERIOR

OFFICE OF UNITED STATES SURVEYOR-GENERAL,

PHOENIX, ARIZONA.

.....00.....  
CIRCULAR "SPECIAL INSTRUCTIONS"

to

UNITED STATES SURVEYORS AND TRANSITMEN

for the

DISTRICT OF ARIZONA.

.....00.....  
AUGUST 20, 1910.

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Phoenix, Arizona, August 30, 1910.

In addition to the instructions found in the Manual of Surveying Instructions for the Survey of the Public Lands of the United States, edition of 1902, the following Circular "Special Instructions" are issued for the guidance of United States Surveyors and Transitmen in the execution of public land surveys in the DISTRICT OF ARIZONA:

All United States Surveyors and Transitmen are required to have in their possession and be familiar with the following publications, issued by the General Land Office:-

Manual of Surveying Instructions, edition of 1902;  
 Standard Field Tables;  
 Ephemeris of the Sun and Polaris and Tables of Azimuths of Polaris;  
 Circular on the Restoration of Lost or Obliterated Corners and Subdivision of Sections, edition of June 1, 1909; and  
 Circular of July 21, 1906, governing traveling and other expenses, as modified under authority of the Commissioner of the General Land Office, dated August 18, 1910.

The foregoing Publications are furnished to all Surveyors or Transitmen in charge of parties and may be secured for the use of principal assistants on requisition to the Surveyor-General therefor.

After the receipt of the Special Instructions covering the survey of any GROUP, the Surveyor will repair to the field, when so directed by the Supervisor.

If, for any sufficient cause, any of the instructions or requirements relative to surveys can not be complied with, that cause should be stated in the field notes in its proper connection.

#### I N S T R U M E N T .

Before beginning the surveys assigned under any GROUP, it will be the duty of the Surveyor to test his instrument on the true meridian, determined by one of the approved methods of observation for



true meridian hereinafter provided for. The Surveyor is required to know, from personally conducted observations, that his instrument is in proper adjustment when he commences work and at all other times when it is in use. The instrument must be approved by the Supervising Surveyor, whose certificate of approval must appear in the field notes in place of the certificate of the Surveyor-General heretofore required.

MODIFICATIONS OF THE MANUAL OF 1902.

MEASUREMENTS.

In addition to the method of measurement prescribed by the Manual, the General Land Office now approves the use of long steel tapes, in measurements on slopes, with the use of clinometers in the determination of slope angles and proper reduction to true horizontal distances, for entry in the official field notes. The fact of the use of the long steel tape and clinometer method must be stated in the field notes. The General Land Office further approves a restricted use of the stadia method of measurements over surfaces that are not so accurately measured with the steel tape, the record of the test of the stadia wire interval to appear distinctly in the field notes. The use of the stadia method, when used, and all essential parts of the record of the measurement to appear in the field notes.

APPROVED METHODS OF OBSERVATION TO DETERMINE THE TRUE MERIDIAN:-

1. Polaris at elongation.
2. Polaris by the hour-angle method, with record of independent observations.
3. A series of three altitude observations of the Sun for azimuth, taking the resulting mean.



- 4. A series of three equal-altitude observations of the Sun for meridian, taking the resulting mean.
- 5. The solar attachment properly adjusted to hold the true meridian at all approved hours of solar work within 1' 30" of the true meridian, as determined by other approved methods outlined above.

APPROVED METHODS OF OBSERVATION FROM WHICH TO DETERMINE CORRECT LOCAL MEAN TIME FOR USE WITHIN 24 HOURS IN HOUR-ANGLE OBSERVATIONS OF POLARIS

- 1. Altitude observation of the sun.
- 2. Meridian observation of the sun.
- 3. Comparison with the standard telegraphic clock.

The essential elements of all azimuth and time determinations must appear in the field notes, but the field notes do not need to be unnecessarily elaborated to show the detailed process of reduction.

APPROVED CORNER MONUMENTS.

Three-foot iron posts, one, two, and three inches in diameter, fitted with brass caps, are to be used wherever practicable in monumenting all surveys. A sufficient number for use in the execution of the surveys of any GROUP will be delivered at the railroad station designated by the Supervising or Assistant Supervising Surveyor, to whom the Surveyor will look for information in this regard.

A diagram showing sample markings for the brass caps on these posts is attached to and made a part of these Circular "Special Instructions."

The three-inch iron posts weigh 30 pounds each; are to be used for all standard section and township corners, closing township corners, corners referring to one, two, or four townships, all section corners on township boundaries, and mile corners on boundary surveys; and must be set 24 inches in the ground.



-5-

The two-inch posts weigh 13 pounds each; are to be used for all section corners in subdivisional surveys, including closing section corners on standard lines or township boundaries; and must be set 24 inches in the ground.

The one-inch iron posts weigh 5 pounds each; are to be used for all quarter-section corners, meander corners, and corners of private claims surveyed under any assignment; and must be set 26 inches in the ground.

All witness corners are required to be of the same size as would be used for the true corner.

Iron-post corners are required to be witnessed by bearing trees, except only in the absence of sound trees of suitable size within a distance of three chains, in which case the notes will state, "No trees available" or "No other trees available," as the case may require.

When the point for a corner falls upon a rock in place, the exact corner point will be marked with a cross and the post set on a surveyed line in the most available ground within ten chains, the distance from the corner being given in the field notes and the brass cap marked for a witness corner. If the ground be such as to prevent the setting of the iron post firmly on a surveyed line within ten chains of the point, the post may be set anywhere practicable, off line, but within five chains of the point.

When impracticable, for any reason, to use iron posts, the best native stone, if of proper quality, may be used as prescribed in the Manual, the necessity for using other than an iron-post corner being stated in the field notes.



-6-

When impracticable to use iron posts or suitable native stones, wooden posts, witnessed by bearing trees, may be used as prescribed in the Manual and the proper explanation inserted in the field notes.

The usual accessories prescribed in the Manual are required at all corners.

#### BLAZING OF TREES.

The provisions of the Manual in regard to the blazing of tree trunks must be strictly complied with, excepting only the blazing of trees having branches growing to the ground, the expense of blazing such trees being prohibitive.

#### CUTTING OF UNDERGROWTH ON LINES OF SURVEY.

Undergrowth must be sufficiently removed to permit the proper projection of all lines. Within distances of five chains of all corners, within two chains of lines of travel, and over the tops of ridges, the undergrowth must be sufficiently removed to enable settlers and other interested people to identify the true line of survey readily.

#### INFORMATION RELATIVE TO LAND, SOIL, TIMBER, ETC.

In order that this office may compile "Descriptive Sheets" in accordance with recent requirements of the General Land Office, U. S. Surveyors and Transitmen are required to go more fully into the matter of kind of soil, timber, etc., at the end of the field notes of each mile than heretofore required under the Manual of 1902.

It is not intended to set aside any considerable space in the notes for this purpose; hence, entries should be as concise as possible, yet specific, for each portion of the line surveyed, while features common to large portions of the township should, to avoid



repetition, appear in the "General Description" at the end of the notes. No additional entries are contemplated in the line-notes proper, other than to record more fully what the Manual already prescribes, when needed for the fuller purpose above stated.

Topographic features should be considered, as affecting the use of the lands; and as exposing to or sheltering from storms or unfavorable winds. The position of the lands relative to adjacent areas, as being higher or lower, and the "exposure" (to the south, east, etc.), as being favorable or otherwise, should be noted. When lands are rolling or hilly, the character of the uplands, slopes, and valleys should be observed, for, quite often, the uplands and slopes are denuded of good soil and the valleys are of small value. Steep slopes are often subject to soil denudation. The systems of natural drainage in several portions of the township should also be stated.

In addition to noting streams or other sources of water, with the character of the latter, the presence in the soil of water available for plant use should be observed, and also what can be readily done for lands needing irrigation or drainage.

The agricultural value of lands depends to no small extent upon the relations existing between soils and subsoils. The usual excavations at corners will aid in this determination to some extent, and exposures on steep banks and in ravines and drains should also be examined for this purpose.

The ordinary record, as "soil, sandy loam, 3d rate," should be supplemented wherever possible with a more definite description. In regions where surveys are contemplated, soils, ordinarily speaking, are in general composed of humus or decomposed organic matter, clay,



and sand of various kinds, or of a friable mixture of all these called loam, in widely varying proportions; and with the soils may be stones, gravel, broken or partly disintegrated rocks and shales, etc. As the relative amounts of the constituents determine in a large degree a proper use of the land, whatever brief terms with usual significations are employed, although not expected to be quantitatively exact, should be sufficiently descriptive in this respect. Texture, depending on the relative amounts of grains of various sizes, is of importance as affecting the aeration of soils and plant use of moisture. Color is often indicative of constituents. Soils are also popularly described as stiff, friable, strong, weak, rich, poor, dry, wet, cold, warm, sharp, fine, or soft, etc. If calcareous, that fact should be stated.

If farming is done, DRY or OTHERWISE, along or near any line, the vegetable or cereal crop should be noted as to kind, condition, yield, etc. In other cases, conclusions should be drawn from facts and conditions observed, as to the agricultural uses of the lands, but care should be taken that this be done only within the surveyor's knowledge of the subject.

A description at the end of the notes of a line surveyed, prepared in harmony with the above, may, for instance, be found as follows:

"S. 30 chs., high, gently rolling prairie, E. slope; soil, rich dark clay loam, 4 to 8 ins. deep, medium texture, moist, on clay subsoil; good growth bunch grass: N. 50 chs., broken and hilly; ridges with light, poor, sandy loam, washed on slopes, stony; valleys, good brown clay loam with some gravel, drains to NE.; subsoil clay and decomposing shales. No timber."

In the "General Description," the geological formations, whence



come the bases of the soil and subsoil, should be noted, if known, and what apparent action of the kind is now in progress.

SUPERVISION.

The Supervising and Assistant Supervising Surveyors of the District will superintend the organization of parties, their equipment, instruments, camping outfit, and subsistence. In general, they will exercise their judgment and experience in promoting efficiency in field work, economy in expenses, and uniformity and correctness in field methods of executing surveys and in the preparation of returns and accounts.

ACCOUNTS.

In the matter of accounts, the surveyor will be guided largely by the circular of July 21, 1905, governing traveling and other expenses, as modified under authority of the Commissioner of the General Land Office dated August 18, 1910. Too much emphasis can not be placed upon the imperative necessity for the Surveyor's observing every requirement and detail of his instructions in this regard; otherwise, his accounts can not be paid.

In order to secure a check on expenditures and to expedite the payment of accounts for salaries, subsistence, and other miscellaneous expenses of or connected with the inauguration and execution of surveys under the Act of Congress approved June 25, 1910, each United States Surveyor or Transitman, not a special disbursing agent, in charge of a camp will be required to render monthly accounts to the United States Surveyor-General of all expenses, duly certified to by



his. These accounts will be audited and paid by the Surveyor-General, or submitted to the proper authority for consideration and report, if found questionable. Regular blanks will be furnished by this office for use in the preparation of these accounts.

United States Surveyors who are engaged in original surveys and have been designated as special disbursing agents (therefore rendering accounts direct to the Commissioner of the General Land Office) will be required to transmit a monthly abstract of expenditures to the Surveyor-General in order that all disbursements of funds under this Act may be properly accounted for.

When transmitting the completed returns of the survey of any one GROUP, the surveyor or transitman in charge of the party will submit a report on the following items, in order that the Surveyor-General's final report on the cost of the survey of that GROUP may be intelligently compiled:-

| GROUP NO. _____, ARIZONA.          |   | Stock and                   |
|------------------------------------|---|-----------------------------|
|                                    |   | Camp Outfit:Transportation: |
|                                    |   | Equipment                   |
| Total value on entering field      | : | :                           |
| Additions during work              | : | :                           |
| Losses                             | : | :                           |
| Estimated depreciation during work | : | :                           |

| IRON POSTS, GROUP NO. _____, ARIZONA. |   | Received | Used | Returned |
|---------------------------------------|---|----------|------|----------|
| Kind                                  |   |          |      |          |
| Three-inch                            | : | :        | :    | :        |
| Two-inch                              | : | :        | :    | :        |
| One-inch                              | : | :        | :    | :        |
| Totals                                | : | :        | :    | :        |

PROGRESS REPORTS.

All United States Surveyors and Transitmen rendering accounts to



the Surveyor-General and engaged in the execution of surveys or in the preparation of returns thereof will be required to report weekly to the Surveyor-General their daily progress or nature of employment, such reports to constitute a basis of settlement for time employed.

All United States Surveyors and Transitmen, whether special disbursing agents or not, will be required to file with the Surveyor-General a weekly diagram report, showing the miles of survey of standard, township, and subdivisional lines executed each day. For the present, at least, the weekly reports of surveys executed will be submitted on regular township blanks, which will be furnished by this office. It is suggested that the lines run each week be marked over in color and that the date of surveying each line be marked thus: "7-2" (indicating July 2d) on the north side of latitudinal lines and on the west side of meridional lines.

A general classification report is required of every Surveyor or Transitman in charge of a party, to be rendered weekly to the Surveyor-General, to cover the cost of subdivisional and other lines surveyed during the week. The scope and nature of classification are to include the following items in reference to the difficulty and cost of survey:-

- A. Minimum.
  - B. Intermediate.
  - C. Maximum.
- 1.-Surface.
- A. Level or rolling land.
  - B. Rolling, mountainous land.
  - C. Rough, mountainous land.
- 2.-Timber.
- A. No timber.
  - B. Scattering timber.
  - C. Heavy timber.



3.--Undergrowth.

- A. Little or no undergrowth.
- B. Considerable short undergrowth.
- C. Considerable undergrowth exceeding 4 ft. in height.

4.--Transportation.

- A. Wagon haul less than 25 miles to supplies.
- B. Wagon haul more than 25 miles to supplies, or pack train transportation less than 25 miles.
- C. Pack train transportation more than 25 miles to supplies.

5.--Water.

- A. Abundant.
- B. Scarce.
- C. No water within one day's haul.

6.--General complications of survey.

- A. Original surveys.
- B. Boundaries requiring re-establishment, and resurvey of subdivisinal lines.
- C. Retracement-restoration surveys, or metes and bounds survey of private claims within townships being resurveyed.

It will be understood that the general weekly classification report, with the exception of that under heading No. 6, covers only subdivisinal and such as metes and bounds surveys within the township; that is, original standard and township lines are not to be included. This report may be conveniently arranged as follows, the letters A, B, and C indicating the classification heretofore specified:-

GENERAL CLASSIFICATION REPORT FOR WEEK ENDING \_\_\_\_\_  
 T. \_\_\_\_\_, R. \_\_\_\_\_, G. & S. R. B. & M., ARIZONA.

| No. | Description           | A       |              |                | B       |              |                | C       |              |                |
|-----|-----------------------|---------|--------------|----------------|---------|--------------|----------------|---------|--------------|----------------|
|     |                       | Surveys | Subdivisinal | Metes & Bounds | Surveys | Subdivisinal | Metes & Bounds | Surveys | Subdivisinal | Metes & Bounds |
| 1   | Surface               | 14      | 45           | 10             | 11      | 10           | 75             | 4       | 24           | 13             |
| 2   | Timber                | 5       | 38           | 50             | 19      | 12           | 10             | 5       | 29           | 40             |
| 3   | Undergrowth           | 5       | 00           | 00             | 25      | 00           | 00             | 00      | 00           | 00             |
| 4   | Transportation        |         |              |                |         | B            |                |         |              |                |
| 5   | Water                 |         |              |                |         |              |                |         | C            |                |
| 6   | General Complications | 25      | 00           | 00             | 5       | 00           | 00             | 00      | 00           | 00             |

\*Note: Column "A" refers to lines surveyed within the township such as subdivisinal lines, metes and bounds, etc.

The general average classification of standard lines and township boundaries is required to be made only upon the completion of such lines from week to week when included in an assignment separate from



-13-

subdivisional surveys; that is, when a group includes only standard and township lines, the weekly diagram report will be made as usual and the general weekly classification report will be made out as in the case of surveys within a township, in which case, column A, item No. 6, will, of course, indicate the number of miles of new township or standard lines run.

In addition to the foregoing, the classifications of land, soil, and timber will be required at the end of the field notes of each mile, as hereinbefore provided.

In order that there may be no misunderstanding as to the term "weekly," it is directed that the first weekly report in connection with a GROUP be made on the Saturday after beginning work in the field and include the work done that day.

When there is a fractional week at the end of any month, it will be necessary for this office to receive prompt reports covering such fractional week, in order that the Surveyor-General's monthly report to the Commissioner of the General Land Office may be made without delay. The next weekly report on the GROUP will be made on the following Saturday, as usual.

#### RETRACEMENTS AND RESURVEYS.

In rerunning an old accepted line, if even so much as faint traces of the old corners are found, the reporting of the true courses and distances and the restoring of the dilapidated corners will constitute a RETRACEMENT. If, in rerunning an old accepted line, the original corners and their accessories are entirely obliterated, the re-establishment of this line will constitute a RESURVEY.



-14-

In any case where a misclosure is found in connecting new with accepted surveys, the presumption is in favor of the correctness of the accepted work, instead of the new lines that are being run, provided no evidence to the contrary exists. A single trial or random line run can not be held to discredit the connected system of work previously accepted. It, therefore, becomes the surveyor's duty first to retrace and examine those of his own lines liable to contain the error which caused such misclosure. If he finds all of his own work to be accurate, he will rerun the section boundaries adjoining the work in progress, in order to locate the error, and reset corners if found dilapidated or insufficiently witnessed. He is not required to rerun lines beyond the adjoining section when he finds a discrepancy in subdivisional work upon which his work is being closed. If, in subdividing a township whose boundaries are entirely or partly obliterated, a surveyor can not identify or locate some of the corners, it then becomes his duty to re-establish the line in accordance with the rules laid down in the Manual, and, when applicable, the pamphlet instructions for the "Restoration of Lost or Obliterated Corners and Subdivision of Sections," issued by the General Land Office.

Notes of resurveys and retracements will be full notes in every particular, and they may be incorporated with the field notes of the subdivisions to which they are directly related and, in such cases, will be covered by the preliminary and final oaths accompanying said subdivisional field notes, or they may be incorporated in a book by themselves. In the latter event, the title page thereof will clearly state, as usual, the surveys made, when and by whom, and under what authority. Following the index will be an affidavit by the sur-



-15-

veyor explanatory of the lines so resurveyed or retraced and setting forth the absolute necessity therefor. Following this affidavit will be the usual preliminary oaths of assistants covering the resurveys or retracements. Then will follow the field notes proper.

In all cases of retracements and resurveys, the surveyor will append a table of latitudes and departures showing that the exterior lines of his work close within limits. Following the notes, the usual final oaths will be inserted. They will cover only the lines resurveyed or retraced, when such notes are in a book by themselves.

#### FIELD NOTES AND PRELIMINARY PLATS.

On the completion of an assignment or assignments for the survey of public lands in this District, the Surveyor or Transitman will be directed by the Supervising Surveyor to proceed to the proper place and prepare his field notes and sketch plats of the surveys provided for in his instructions.

In writing his field notes, the surveyor will designate in the notes and on the plats the location of each and every settlement near the lines of his survey, and also any Indian settlements, whether permanent in character or not, together with names of such settlers and their improvements, if any. If no settlers are found, the notes must expressly so state. He is not authorized to report names of his own selection for natural objects. He must give those in use, if they can be obtained by reasonable diligence, or let the object go unnamed.

All Surveyors and Transitmen executing surveys are cautioned to maintain complete field notes thereof in every particular and to compute all doubtful closings in the field as the work progresses, in or-



-16-

der that the entire record of survey may always be kept complete, thus avoiding the necessity to return to the field except under the most unusual circumstances.

The limits of closing errors are set forth on pages 55 et seq. of the Manual. In irregular and fractional sections, a closing error greater than 1-640 of the perimeter will be considered acceptable.

Small bound books will be furnished by the Surveyor-General for use in taking notes in the field.

Field notes to be filed in this office must be either written by hand or typewritten with black non-copying ribbon. In either case both sides of the paper will be used and, if the notes are typewritten, they will be single-spaced. Legal eng field note paper will be furnished for this purpose, together with necessary blank forms of oaths for surveyors and assistants. These returns of surveys will be filed in this office when completed and must conform to the requirements of the Manual of 1902, and its authorized modifications, in every particular.

The preliminary plats accompanying the field notes should be drawn on tracing cloth and must show complete connected topography of the country over which the lines of survey pass. No high order of draftsmanship is required, yet the plats must be prepared with care and must accurately delineate all of the topographic features over which the lines may pass, as well as topography contiguous to or intersected by them, presenting thereby a connected representation of the country actually surveyed. Both surveys and returns should be correct in the first instance.



-37-

LOCATION OF MINERAL MONUMENTS AND PATENTED MINING CLAIMS.

On the diagrams furnished to the Surveyor in connection with any GROUP, are depicted all patented mineral claims and United States Location or Mineral Monuments shown by the records of the Surveyor-General's Office to be in the vicinity of the surveys to be executed. Necessarily the determination of the approximate locations of mining claims and mineral or location monuments as unsurveyed ground is, in many instances, attended with a great degree of uncertainty. Therefore, the diagrams furnished are not to be considered as depicting exact locations except where claims are directly or indirectly tied to accepted public land surveys.

The Surveyor or Transition is required to locate in the field, by direct measurement or triangulation, <sup>not calculation from</sup> the exact position of all United States Location or Mineral Monuments that may be found within a reasonable distance of or embraced within his lines of survey. Wherever practicable, these monuments should be connected with the nearest regular corner of the public land surveys. The correct location of all such monuments is imperative, and a mere statement that a monument can not be found, will be deemed insufficient reason for failure to comply with this requirement until the utmost diligence has been employed to locate the point in question. Copies of the original field notes of the establishment of monuments presumed to be near the lines of the public surveys to be established under any GROUP will be furnished the Surveyor before going to the field.

Field notes of public land surveys must state in every instance the points at which patented mineral ground is entered or left, give



-18-

ing course and distance to the nearest corner on the boundary of the claim so intersected. Missing corners will not be set, nor is it necessary to state intersections with any lines common to two patented mineral claims.

When a patented mineral claim is found to be located within a section and is not intersected by any line of the public land survey, no line will be surveyed to it if the United States Location or Mineral Monument to which it is tied is embraced within the lines to be surveyed in the GROUP. If the United States Location or Mineral Monument with which the patented mineral claim is connected, is within the public lands included in the GROUP and its position is not ascertainable for the purpose of proper segregation, the surveyor will then connect, by the shortest possible surveyed line, a corner of the patented mineral claim with a regular corner of the public survey or with some other well-defined point on a line of the same.

If there are found any patented claims within the GROUP other than those depicted on the diagrams furnished, they must be properly segregated. If the data furnished the surveyor are insufficient for the proper identification of any corners of patented mineral claims to be segregated, he should notify this office and the field notes of the claim in question will be furnished immediately in order that the proper intersections may be determined.

Where all evidence of the location of a patented mineral claim, as it was purported to have existed on the ground at the time of the survey thereof, is lost, the surveyor will specifically so state in his field notes. This office will thereafter segregate the area of such claim by theoretical computations based on the tie from said



-19-

claim to the United States Location or Mineral Monument, whose position has been previously determined by the surveyor with reference to a corner of the public land survey.

It must not be understood from the foregoing that the surveyor is to extend his lines over lands clearly non-agricultural simply for the purpose of segregating patented mineral claims.

M I S S I S S I P P I

Extension of Surveys over Non-agricultural Lands,

While, in most instances, it will be desirable and necessary to extend the survey of standard lines over mountainous or inhospitable regions in order to establish proper bases for succeeding lines and to insure correct connections, it is deemed not to be imperative to extend township exterior lines over lands that are clearly non-agricultural in character and unsurveyable, under existing law and instructions, for the sole purpose of making proper closure. It is the policy of the General Land Office to cause the survey of exterior lines to be executed at the same time as the subdivisional surveys, as the same may be called for by the actual or prospective occupation of the land. In order to reach agricultural land it is not absolutely necessary that the survey of the exterior lines of a township be completed and circumstances may arise where it will be found necessary to run section lines as township exteriors in order to avoid non-agricultural and unsurveyable land and insurmountable objects. In so far as the closing of surveys is concerned, section lines are considered as important as exterior township lines. In the execution of subdivisional and township exterior surveys, the work must be confined to



-20-

lands adapted to agriculture and possibly grazing, and, under existing law, preference is to be given to occupied lands or lands adapted to agriculture.

Grooves and Notches on Corners in Townships not Regularly Subdivided.

The notches or grooves indicating the position of a section corner within a township must always be placed as on the corresponding corner in a full township, regardless of the method or extent of subdivision.

Diagrams and Field Notes Furnished.

Diagrams of accepted lines of survey from which the surveys of a GROUP are to be initiated or upon which they are to be closed and sufficient field notes of these lines for the surveyor's guidance in the field will be furnished when the assignment of a GROUP has been made. These diagrams will indicate in a general way the key work as well as the adjacent accepted surveys.

Special Reports.

In connection with the surveys provided for in any GROUP, it is hereby directed that the surveyor locate, with reference to said public land surveys, all ruins, prehistoric or otherwise, and such natural curiosities situate upon the public domain as he may deem worthy of reservation. He will submit a special report thereon to this office immediately after determining the location of said objects, giving a complete description thereof, in order that reservation can be made, if found advisable.

Personal Attention of Surveyor Required.

Before making oath as to the correctness of returns of survey and submitting the same to this office, the Surveyor of Townships



412

with a critical personal examination of his notes and plans to  
ascertain they are correct and in accordance with the notes taken in  
the field. Special attention should be paid to the descriptions of  
all corners and to the calculations for declination, azimuth, and  
true or false observations.

Very respectfully,

S-A-CRS.

U. S. Surveyor-General.