RESTORATION OF LOST
OR OBLITERATED CORNERS
AND
SUBDIVISION OF SECTIONS
1939
RESTORATION OF LOST
OR OBLITERATED CORNERS
AND
SUBDIVISION OF SECTIONS

A compendium of the rules that are applicable within the
area of the United States Rectangular Surveys, for the
guidance of county and other local surveyors, with
explanation of the methods relating to
RETRACEMENTS
1939

Circular 1452

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PENALTY FOR THE DESTRUCTION OF MONUMENTS

The act of Congress approved March 4, 1909, entitled "An act to codify, revise, and amend the penal laws of the United States," provides a penalty for the unauthorized alteration or removal of any Government survey-monument or marked trees, as follows:

"Whoever shall willfully destroy, deface, change, or remove to another place any section corner, quarter-section corner, or meander post, on any Government line of survey, or shall willfully cut down any witness tree or any tree blazed to mark the line of a Government survey, or shall willfully deface, change, or remove any monument or bench mark of any Government survey, shall be fined not more than $250, or imprisoned not more than six months, or both." (55 Stat. 1099, sec. 57.)

The Superintendent of Documents, United States Government Printing Office, Washington, D. C., has on hand for sale to the public, the following publications of the General Land Office, at current cost of printing:


Standard Field Tables (a supplement to the Manual of Surveying Instructions).

Ephemera of the Sun and Polaris, and Tables of Azimuths and Altitudes of Polaris, published annually in advance (a supplement to the Manual of Surveying Instructions).

Wall map of the United States, scale 57 miles to 1 inch, and separate maps of the several public-land States, scale 12 miles to 1 inch, showing the developed rectangular surveys.

Map of the United States showing Principal Meridians and Base Lines and areas governed thereby.

Copies of the approved field notes and plats of the public-land, mineral-patent, and private-land-claim-patent surveys may be procured from the Commissioner of the General Land Office, Washington, D. C., also from the United States public survey offices or the appropriate State office, as noted in secs. 1012 and 1013 herein. A charge is usually made for making copies of records furnished to the public; opportunity is afforded for making extracts from or copies of records.

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Key to Citation of Authorities, by Volume and Page

Stat.: United States Statutes at Large.
R. S.: Revised Statutes of the United States; citation will include section number.
U. S.: United States reports: Decisions of the Supreme Court of the United States. The early reports include in the title the name of the authorized reporter.
RESTORATION OF LOST OR OBLITERATED CORNERS AND SUBDIVISION OF SECTIONS

United States Department of the Interior,
General Land Office,
Washington, D.C., April 5, 1939.

FOREWORD

1001. The following rules have been prepared for the information of county and local surveyors and others who may have occasion to retrace the lines of the public land surveys; the questions which are dealt with are found repeatedly in letters that are addressed to the General Land Office. The majority of the questions to be answered are in regard to the interpretation that is to be placed upon the field notes and plats of the very early surveys, and to the matter of the restoration of lost corners, where it is becoming more difficult to recover the marks that were established long ago. The questions come from many who do not specialize in land surveying, to whom there is afforded such explanation as can be given. There is purposely avoided, as far as possible, a discussion of controversial questions, and of those that are presented only in complicated or exceptional situations.

The subject is treated in four parts, as follows:

FOREWORD: A statement concerning the jurisdiction, the original records, and the general rules.

RESTORATION OF LOST OR OBLITERATED CORNERS: The specific rules that are applicable after the evidence has been fully developed.

SUBDIVISION OF SECTIONS: The rules when all necessary corners on the section boundaries are in position.

RETRACMENTS: Explanation of the technique found by experienced surveyors to be the most generally successful in the recovery of the evidence of the early public land surveys.

A limited amount of additional material has been added in response to frequent inquiries on the subject of meander lines and riparian rights, though the points are not strictly within the scope of the main title.

JURISDICTION

1002. Pursuant to the provisions of law quoted below, the Commissioner of the General Land Office has complete jurisdiction over the survey and resurvey of the public lands of the United States, including the Territory of Alaska.
Sec. 32. The Commissioner of the General Land Office shall perform, under the direction of the Secretary of the Interior, all executive duties appertaining to the surveying and sale of the public lands of the United States, or in any wise respecting such public lands; and, also, such as relate to private claims of lands, and the issuing of patents for all grants of land under the authority of the Government. (R. S. 453.)

Sec. 61. The Commissioner, under the direction of the Secretary of the Interior, is authorized to enforce and carry into execution every part of the public land laws not otherwise specially provided for. (R. S. 2478.)

The term “public lands” as above employed relates to those parts of the public domain that have been made subject to the provisions of the various public land laws.

1003. After the granting of the title by the United States the jurisdiction over the property passes to the State, as the Federal Government retains its authority only with respect to the public lands. Thus, where the lands are in private ownership it is a function of the county surveyor, principally, to restore lost corners and to subdivide the sections, and disputes concerning these questions must come before the State courts, unless settled by joint survey or agreement, although it should be understood that no adjoining owner can make a valid encroachment upon the public lands.

1004. The various States were surveyed under somewhat different practices according to the date of survey. The earliest rules were sent out in manuscript and printed circulars; regulations more in detail, improving the rectangular system, were issued in Manuals of 1855, 1881, 1890, 1894, 1902, and 1930.

1005. Both the public and the privately owned lands may be resurveyed in certain cases, if found necessary, as indicated in this and the following sections.

The act of Congress approved March 3, 1909, entitled “An Act authorizing the necessary resurvey of public lands,” as amended by joint resolution approved June 25, 1910, provides as follows:

“That the Secretary of the Interior may, in his discretion, cause to be made, as he may deem wise under the rectangular system now provided by law, such resurveys or retracements of the surveys of public lands as, after full investigation, he may deem essential to properly mark the boundaries of the public lands remaining undisposed of.” (35 Stat. 845; 36 Stat. 884.)

The act of 1909 is generally invoked where the lands are largely in Federal ownership, and where there may be extensive obliteration or other equally unsatisfactory conditions.


Restoration of Lost or Obliterated Corners

1006. The act of Congress approved September 21, 1918, entitled “An act authorizing the resurvey or retracement of lands heretofore returned as surveyed public lands of the United States under certain conditions” provides authority for the resurvey by the Government of townships heretofore held to be ineligible for resurvey by reason of the dispositions being in excess of fifty per centum of the total area thereof. And it provides—“that the Secretary of the Interior is authorized to make all necessary rules and regulations to carry this act into full force and effect.” (40 Stat. 965.)

The act of 1918 may be invoked where the major portion of the area is in private ownership, where it is shown that the need for retracement and remonumentation is extensive, and especially if the work that is proposed may be beyond the scope of ordinary local practice. The act requires that the proportionate costs be borne by the landowners.

1007. Under the above mentioned laws, and in principle as well, it is required that no resurvey or retracement shall be so executed as to impair the bona fide rights or claims of any claimant, entryman, or owner of lands so affected.

Likewise in general practice, the surveyor should take precaution not to exercise unwarranted jurisdiction, nor to apply an arbitrary rule, and he should be careful to note the distinction between the rules for original surveys and those that relate to the retracement. The unfortunate disregard of these principles, and in some cases for acquired property rights, prompts the suggestions herein that are intended to help avoid possible oversights.

In unusual cases where the evidence of the survey can not be identified with ample certainty to enable the application of the regular rules the surveyor may submit the questions to the Commissioner of the General Land Office, or to the proper public survey office.

Original Records

1008. The township plats furnish the basic representation of the surveys and the description of all areas therein. All title records within the area of the former public domain are initiated from a Government grant or patent, with description referred to an official plat; the lands so entered are identified on the ground through the retracement, restoration, and maintenance of the official subdivisions.

For many years each township plat has carried a certificate that reads substantially as follows:

The above plat of Township ______ Range ______ of the ________ Meridian, is strictly conformable to the field notes of the survey thereof which have been examined and approved.
The plats are developed from the field notes; both are permanently filed for reference purposes; all are accessible for examination, and copies may be secured.

1009. An opinion by the Department of the Interior relating to the importance, or legal significance, of the plats and field notes (45 L. D. 330, 336) is set out as follows:

"It has been repeatedly held by both State and Federal courts that plats and field notes referred to in patents may be resorted to for the purpose of determining the limits of the area that passed under such patents. In the case of Cragin v. Powell (128 U. S. 691, 696) the Supreme Court said:"

"It is a well settled principle that when lands are granted according to an official plat of the survey of such lands, the plat, itself, with all its notes, lines, descriptions and landmarks, becomes as much a part of the grant or deed by which they were conveyed, and controls so far as limits are concerned, as if such descriptive features were written out upon the face of the deed or the grant itself."

Altogether, the numbers on the section lines indicate the normal order of subdivision and arrangement of the field notes.

1010. There are many supplemental plats whereon are shown new or additional lottings within one or more sections, which are designed to supersede the original lottings. There are also many plats of the survey of islands and other fragmentary parcels of public land, where such areas were brought under survey subsequent to the approval of the original township plat. These supplemental plats are necessary in tracing the descriptions that are based upon any such new or additional lottings.

1011. The plats and field notes of resurveys become a part of the official record; these fall into two principal classes according to the type of resurvey, as follows:

The dependent resurvey represents a restoration of what purports to be the original conditions according to the record, based, first, upon the identified corners of the original survey and other acceptable points of control, and, second, upon the restoration of the lost corners in accordance with the rules of proportional measurement as herein set out.

The independent resurvey is one which makes a new subdivision and new lottings of the vacant public lands, which are designed to supersede the original survey. Provision is made for the segregation of individual tracts of privately-owned lands, entries, or claims that may be based upon the original plat, when necessary for their protection, or for their conformation to the regular subdivisions of the resurvey if that may be feasible, or for an amendment of the entry or patent after an adjudication of the rights that may be involved.

1012. There have been transferred to the older public-land States all the field notes, plats, maps, and other papers appertaining to the survey, entry, and patent of the public lands, that are no longer required by the United States, for the safekeeping of the same as public records, and for the allowance of free access to the same by the authorities of the United States (R. S. 2218, 2219, 2220, 2221; 44 Stat. 672). No provision has been made, within the requirements of law, for the transfer of the records to the State of Oklahoma.

In those States where the original surveys have been completed, application may be made to the proper offices for permission to examine the records and for the making of copies, as follows:

Alabama: Secretary of State, Montgomery.
Arkansas: Commissioner of State Lands, Little Rock.
Florida: Commissioner of Agriculture, Tallahassee.
Illinois: Auditor of State, Springfield.
Indiana: Auditor of State, Indianapolis.
Iowa: Secretary of State, Des Moines.
Kansas: Auditor of State and Register of State Lands, Topeka.
Louisiana: Register of State Lands, Baton Rouge.
Michigan: Director, Department of Conservation, Lansing.
Minnesota: Secretary of State, St. Paul.
Mississippi: Commissioner of State Lands, Jackson.
Missouri: Secretary of State, Jefferson City.
Nebraska: Commissioner of Public Lands and Buildings, Lincoln.
North Dakota: State Engineer, Bismarck.
Ohio: Auditor of State, Columbus.
Oklahoma: Commissioner of the General Land Office, Washington, D. C.
South Dakota: Commissioner of School and Public Lands, Pierre.
Wisconsin: Commissioners of Public Lands, Madison.
The surveys are continuing in the other public-land States, where the records may be examined in the United States public survey offices, as follows:

Arizona: Phoenix.
California: Glendale.
Colorado: Supervisor of Surveys, Denver.
Idaho: Boise.
Montana: Helena.
Nevada: Reno.
New Mexico: Santa Fe.
Oregon: Portland.
Utah: Salt Lake City.
Washington: Olympia.
Wyoming: Cheyenne.
Territory of Alaska: Juneau.

Copies of the approved field notes and plats may be procured from the Commissioner of the General Land Office, who retains custody of all duplicate and many of the original records.

GENERAL RULES

1014. The basic Federal laws from which there have been derived the rules for the establishment of the original surveys and for necessary resurveys or retracements include the acts of Congress approved February 11, 1805 (2 Stat. 313); April 24, 1820 (3 Stat. 566); and April 5, 1832 (4 Stat. 503); the provisions are set out at length in the Manual.

1015. The rules for the restoration of lost corners have remained substantially the same since 1883, when first published as such, all of them having been brought into harmony with the leading judicial opinions, and what has been regarded as the most approved surveying practice.

These are applicable to the public land rectangular surveys, within the States listed above, and to the retracement of these surveys as distinguished from the running of property lines in those cases that have legal authority only under State law, court decree, or agreement.

Neither these rules, nor those for the original surveys, are applicable within the New England and Atlantic Coast States, excepting Florida, nor in the States of Pennsylvania, West Virginia, Kentucky, Tennessee, or Texas, where the jurisdiction over the vacant lands was not vested in the Federal Government.

1016. The rules herein are in accord with the related provisions of the Manual, but they have been segregated for the convenience of the reader in order to set them apart from the instructions that pertain only to the making of original surveys.

The rules, as such, are herein made noticeable by being set up in bold-face type; many or all of them have been enacted into law in some of the States. The remainder of the text may be regarded as explanatory and advisory only, the purpose being to exemplify the best general practice.

The explanations are directed to those factors that make for greater skill in doing the work; this requires a clear understanding of what is being undertaken, care in placing the trial or random lines in close proximity to the most probable original location, and painstaking search for the evidence.

1017. The general rules, which are controlling upon the location of all lands that have been granted or patented, are summarized in the following paragraphs:

First. That the boundaries of the public lands, when approved and accepted, are unchangeable.

Second. That the original township, section, and quarter-section corners must stand as the true corners which they were intended to represent, whether in the place shown by the field notes or not.

Third. That quarter-quarter-section corners not established in the original survey shall be placed on the line connecting the section and quarter-section corners, and midway between them, except on the last half mile of section lines closing on the north and west boundaries of the township, or on the lines between fractional or irregular sections. (Secs. 1042, 1043, 1049, 1052.)

Fourth. That the center lines of a section are to be straight, running from the quarter-section corner on one boundary to the corresponding corner on the opposite boundary.

Fifth. That in a fractional section where no opposite corresponding quarter-section corner has been or can be established, the center line must be run from the proper quarter-section corner as nearly in a cardinal direction to the meander line, reservation, or other boundary of such fractional section, as due parallelism with the section boundaries will permit. (Secs. 1050, 1051, 1060.)

Sixth. That lost or obliterated corners are to be restored to their original locations whenever it is possible to do so.
RESTORATION OF LOST OR OBLITERATED CORNERS

1018. The rules for the restoration of lost corners are not to be applied until after the development of all evidence, both original and collateral, that may be found acceptable, though the methods of proportionate measurement will aid materially in the recovery of the evidence, and will indicate what the resulting locations may be as based upon the known control.

An existent corner is one whose position can be identified by verifying the evidence of the monument, or its accessories, by reference to the description that is contained in the field notes, or where the point can be located by an acceptable supplemental survey record, some physical evidence, or testimony.

Even though its physical evidence may have entirely disappeared, a corner will not be regarded as lost if its position can be recovered through the testimony of one or more witnesses who have a dependable knowledge of the original location.

1019. An obliterated corner is one at whose point there are no remaining traces of the monument, or its accessories, but whose location has been perpetuated, or the point for which may be recovered beyond reasonable doubt, by the acts and testimony of the interested landowners, competent surveyors, or other qualified local authorities, or witnesses, or by some acceptable record evidence.

A position that depends upon the use of collateral evidence can be accepted only as duly supported, generally through proper relation to known corners, and agreement with the field notes regarding distances to natural objects, stream crossings, line trees, and off-line tree blazes, etc., or unquestionable testimony.

1020. A lost corner is a point of a survey whose position can not be determined, beyond reasonable doubt, either from traces of the original marks or from acceptable evidence or testimony that bears upon the original position, and whose location can be restored only by reference to one or more interdependent corners.

If there is some acceptable evidence of the original location that position will be employed in preference to the rule that would be applied to a lost corner.

No decision should be made in regard to the restoration of a corner until every means has been exercised that might aid in identifying its true original position. The retracements, which are usually begun at known corners, and run in accord with the plan of the original survey, will ascertain the probable position, and will show what discrepancies are to be expected; any supplemental survey
record or testimony should then be considered in the light of the facts thus developed. A line will not be regarded as doubtful if the retrace-
ment affords the recovery of acceptable evidence.

1021. In cases where the probable position can not be made to
harmonize with some of the calls of the field notes due to errors in
description or to discrepancies in measurement, made apparent by
the retracement, it must be ascertained which of the calls for distances
along the line are entitled to the greater weight. Aside from the
technique of recovering the traces of the marks, the main problem is
one that treats with the discrepancies in measurement. (Sec. 1068.)

Existing original corners can not be disturbed; consequently, discrep-
ancies between the new and those of the record measurements will
not in any manner affect the measurements beyond the identified corners,
but the differences will be distributed proportionately within the several
intervals along the line between the corners.

1022. The ordinary field problem consists in distributing the ex-
cess or deficiency between two existent corners in such a manner that
the amount given to each interval shall bear the same proportion to
the whole difference as the record length of the interval bears to the
whole record distance. After having applied the proportionate differ-
ence to the record length of each interval the sum of the several
parts will equal the new measurement of the whole distance.

A proportionate measurement is one that gives concordant relation
between all parts of the line, i.e.—the new values given to the several
parts, as determined by the remeasurement, shall bear the same relation
to the record lengths as the new measurement of the whole line bears
to that record.

1023. The term "single proportionate measurement" is applied to
a new measurement made on a line to determine one or more positions
on that line.

By single proportionate measurement the position of two identified
corners controls the direction of that line; the method is sometimes
referred to as a "two-way" proportion, such as a meridional or north
and south proportion, or a latitudinal or east and west proportion.
Examples, a quarter-section corner on the line between two section
corners; all corners on standard parallels; and all intermediate posi-
tions on any township boundary line.

1024. The term "double proportionate measurement" is applied to
a new measurement made between four known corners, two each on
intersecting meridional and latitudinal lines, for the purpose of relating
the intersection to both.

In effect, by double proportionate measurement the record direc-
tions are disregarded, excepting only where there is some acceptable
supplemental survey record, some physical evidence, or testimony,

that may be brought into the control. The method may be referred
to as a "four-way" proportion. Examples, a corner common to four
townships, or one common to four sections within a township.

The double proportionate measurement is the best example of the
principle that existent or known corners to the north and to the
south should control any intermediate latitudinal position, and that
corners east and west should control the position in longitude.
Lengths of proportioned lines are comparable only when reduced to
their cardinal equivalents.
Standard parallels will be given precedence over other township exteriors, and ordinarily the latter will be given precedence over subdivisional lines; section corners will be relocated before the position of lost quarter-section corners can be determined.

1026. In order to restore a lost corner of four townships, a retrace-ment will first be made between the nearest known corners on the meridional line, north and south of the missing corner, and upon that line a temporary stake will be placed at the proper proportionate distance; this will determine the latitude of the lost corner.

Next, the nearest corners on the latitudinal line will be connected, and a second point will be marked for the proportionate measurement east and west; this point will determine the position of the lost corner in departure (or longitude).

Then, through the first temporary stake run a line east or west, and through the second temporary stake a line north or south, as relative situations may determine; the intersection of these two lines will fix the position for the restored corner.

A lost township corner can not safely be restored, nor the boundaries ascertained, without first considering the field notes of the four intersecting lines; it is desirable also to examine the four township plats. In most cases there is a fractional distance in the half-mile to the east of the township corner, and frequently in the half-mile to the south. The lines to the north and to the west are usually regular, i.e.—quarter-section and section corners at normal intervals of 40.00 and 80.00 chains, but there may be closing-section corners on any or all of the boundaries so that it is important to verify all of the distances by reference to the field notes.

1027. A lost interior corner of four sections will be restored by double proportionate measurement.

When a number of interior corners of four sections, and the intermediate quarter-section corners, are missing on all sides of the one sought to be reestablished, the entire distance must, of course, be measured between the nearest identified corners both north and south, and east and west, in accordance with the rule laid down, after first relocating the required lost section corners on the township exteriors.

1028. Where the line has not been established in one direction from the missing township or section corner, the record distance will be used to the nearest identified corner in the opposite direction.

Thus, in the same diagram, if the latitudinal line in the direction of the point $D$ has not been established, the position of the point $F$ in departure would have been determined by reference to the record distance from the point $C$; the point $X$ would then be fixed by cardinal offsets from the points $E$ and $F$ as already explained.
1029. Where the intersecting lines have been established in only two of the directions, the record distances to the nearest identified corners on these two lines will control the position of the temporary points; then from the latter the cardinal offsets will be made to fix the desired point of intersection.

1030. In many of the surveys the field notes and plat indicate two sets of corners along township boundaries, and frequently along section lines where parts of the township were subdivided at different dates. In these cases there are usually corners of two sections at regular intervals, and closing section corners that are placed upon the same line, but which were established later at the points of intersection in accordance with a developed offset. The quarter-section corners on such lines are usually controlling for one side only in the older practice.

In the more recent surveys, where the record calls for two sets of corners, those that are regarded as the corners of the two sections first established, and the quarter-section corners relating to the same sections, will be employed for the retracement, and will govern both the alinement and the proportional measurement along that line. The closing section corners, set at the intersections, will be employed in the usual way, i.e.—to govern the direction of the closing lines.

1031. In order to restore a lost corner by single proportionate measurement, a retracement will be made connecting the nearest identified regular corners on the line in question; a temporary stake (or stakes) will be set on the trial line at the original record distance (or distances); the total distance will be measured, also the falling at the objective corner.

On meridional township lines an adjustment will be made at each temporary stake for the proportional distance along the line, and then it will be set over to the east or to the west for falling, counting its proportional part from the point of beginning.

On east-and-west township lines and on standard parallels the proper adjustment should be made at each temporary stake for the proportional distance along the line, for the falling, and to secure the latitudinal curve (see Manual 1); i.e.—the temporary stake will be either advanced or set back for the proportional part of the difference between the record distance and the new measurement, then set over for the curvature of the line, and last corrected for the proportional part of the true falling.

The adjusted position is thus placed on the true line that connects the nearest identified corners, and at the same proportional interval from either as existed in the original survey. Any number of intermediate lost corners may be located on the same plan, by setting a temporary stake for each when making the retracement.

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1 Sec. 125 to 128, incl.: the true latitudinal curve. Secs. 150 to 158, incl.: the running of township exteriors. The term latitudinal curve as here employed denotes an easterly and westerly line properly adjusted to the same mean bearing from each monument to the next one in regular order, as distinguished from the long chord or great circle that would connect the initial and terminal points.
1032. The term "original standard corners" will be understood to mean standard township, section, and quarter-section corners, meander corners terminating the survey of a standard parallel, and closing corners in those cases where they were originally established by measurement along the standard line as points from which to start a survey. No other meander or closing corners along a standard parallel will control the restoration of lost standard corners.

Lost standard corners will be restored to their original positions on a base line, standard parallel or correction line, by single proportionate measurement on the true line connecting the nearest identified standard corners on opposite sides of the missing corner or corners, as the case may be.

Corners on base lines are to be regarded the same as those on standard parallels. In the older practice the term "correction line" was used for what has later been called the standard parallel. The corners first set in the running of a correction line will be treated as original standard corners; those that were set afterwards at the intersection of a meridional line will be regarded as closing corners.

1033. All lost section and quarter-section corners on the township boundary lines will be restored by single proportionate measurement between the nearest identified corners on opposite sides of the missing corner, north and south on a meridional line, or east and west on a latitudinal line, after the township corners have been identified or relocated.

An exception to this rule will be noted in the case of any exterior the record of which shows deflections in alignment between the township corners. (Sec. 1039.)

1034. A second exception to the above rule is occasionally important, to be found in those cases where there may be persuasive proof of a deflection in alignment of the exterior, though the record shows the line to be straight. For example, measurements east and west across a range line, or north and south across a latitudinal township line, counting from a straight-line exterior adjustment, may show distances to the nearest identified subdivisional corners to be materially long in one direction and correspondingly short in the opposite direction. This condition, when supported by corroborative collateral evidence as might generally be expected, would warrant an exception to the straight-line or two-way adjustment under the rules for the acceptance of evidence, i.e., the evidence outweighs the record. See Retracement. The rules for a four-way or double proportionate measurement would then apply here, provided there is conclusive proof.

1035. All lost quarter-section corners on the section boundaries within the township will be restored by single proportionate measurement between the adjoining section corners, after the section corners have been identified or relocated.

1036. Lost meander corners, originally established on a line projected across the meanderable body of water and marked upon both sides will be relocated by single proportionate measurement, after the section or quarter-section corners upon the opposite sides of the missing meander corner have been duly identified or relocated.

1037. A lost closing corner will be reestablished on the true line that was closed upon, and at the proper proportional interval between the nearest regular corners to the right and left.

In order to reestablish a lost closing corner on a standard parallel or other controlling boundary, the line that was closed upon will be retraced, beginning at the corner from which the connecting measurement was originally made, itself properly identified or relocated; a temporary stake will be set at the record connecting distance, and the total distance and falling will be noted at the next regular corner on that line on the opposite side of the missing closing corner; the temporary stake will then be adjusted as in single proportionate measurement. (Sec. 1068.)

1038. A closing corner not actually located on the line that was closed upon will determine the direction of the closing line, but not its legal terminus; the correct position is at the true point of intersection of the two lines.

1039. Some township boundaries were not established as straight lines, termed an "irregular" exterior; e.g., where parts were surveyed from opposite directions and the intermediate portion was completed later by random and true line, leaving a fractional distance; such irregularity follows some material departure from the basic rules for the establishment of original surveys.

In order to restore one or more lost corners or angle points on such irregular exteriors, a retracement between the nearest known corners will be made on the record courses and distances, to ascertain the direction and length of the closing distance; a temporary stake will be set for each missing corner or angle point; the closing distance will be reduced to its equivalent latitude and departure.

On a meridional line the latitude of the closing distance will be distributed along the measurement of each course in proportion to its own difference in latitude, and then each temporary stake will be set over to the east or to the west for the departure of the closing distance in proportion to the total distance from the starting point.

Angle points and intermediate corners will be treated alike.

On a latitudinal line the temporary stakes should be placed to suit the usual adjustments for the curvature. The departure of the closing distance will be distributed along the measurement of each course in proportion to its own difference in departure, and then each temporary stake will be set over to the north or to the south for the latitude of the closing distance in proportion to the total distance from the starting point.
1040. Where a line has been terminated with measurement in one direction only, a lost corner will be restored by record bearing and distance, counting from the nearest regular corner, the latter having been duly identified or restored.

Examples will be found where lines have been discontinued at the intersection with large meanderable bodies of water, or at the border of what was classed as impassable ground.

In cases where a retracement has been made of many miles of the original lines, between identified original corners, and there has been developed a definite surplus or deficiency in measurement, or a definite angle from cardinal that characterizes the original survey, it will be proper to make allowance for the average differences. An adjustment will be taken care of automatically in all cases where there exists a suitable basis for proportional measurement, but where such control in one direction is lacking, an average difference, if conclusive, will be made use of by applying the same to the record courses and distances.

SUBDIVISION OF SECTIONS

1041. The sections are not usually subdivided in the field by the United States surveyors, but certain of the subdivision-of-section lines are protracted upon the township plats to indicate the lottings in the manner prescribed by law, and the boundaries of the quarter sections are generally shown.

1042. The sections bordering the north and west boundaries of a normal township, excepting section 6, are subdivided by protraction into parts that contain two regular quarter sections, two regular half-quarter sections, and four lots, the latter being the fractional quarter-quarter units that result from the plan of subdivision. In these sections the lines of the half-quarter sections are protracted from three points 20 chains distant from the line that connects the opposite quarter-section corners, i.e.—two on the opposite section lines, and one counting on the center line between the fractional quarter sections. The lines subdividing the fractional half-quarter sections into the fractional lots are protracted from mid-points on the opposite boundaries of the fractional quarter section.

1043. The two interior sixteenth-section corners on the boundaries of the fractional northwest quarter of section 6 are similarly fixed at points 20 chains distant north and west from the center of the section, from which points the lines are protracted to the corresponding points on the west and north boundaries of the section, which results in one regular quarter-quarter section and three fractional lots.

1044. Entrymen are allowed, under the law, to acquire title to any regular quarter-quarter section; such subdivisions are aliquot parts of quarter sections based upon mid-point protraction; it has not been regarded as necessary to indicate the lines upon the plat.

1045. Sections that are invaded by meanderable bodies of water, or by approved claims at variance with the regular legal subdivisions, are subdivided by protraction into regular and fractional parts as may be necessary to form a suitable basis for the entry of the public lands.

1046. The meander line of a body of water and the boundary lines of private claims are plotted in accordance with lines run and connections made in the field; the sections so invaded are subdivided as nearly as possible in conformity with the uniform plan already outlined. The subdivision-of-section lines are terminated at the meander line or claim boundary, as the case may be, but their position is controlled precisely as though the section had been completed regularly.
RESTORATION OF LOST OR OBLITERATED CORNERS

Examples of subdivision by protraction.

Examples of subdivision of fractional sections.

Figures 47, 48, Manual.

N. 89°5′0″ E.

Showing normal subdivision of sections.

Showing areas.

Showing calculated distances.

Examples of subdivision by protraction.
In the case of a section whose boundary lines are partly within the limits of a meanderable body of water, or within the boundaries of a private claim, the said fractional section lines are, for the purpose of uniformity, completed in theory; the protracted position of the subdivision-of-section lines is controlled by the theoretical points so determined.

1047. Preliminary to subdivision it is essential to identify the boundaries of the section, as it can not be subdivided until the section corners and quarter-section corners have been found, or restored by proper methods, and the resulting courses and distances determined by survey.

The order of procedure is: First, identify or reestablish the section boundary corners; next, fix the lines of quarter sections; then, form the smaller tracts by equitable and proportionate division, according to the rules that follow.

**SUBDIVISION OF SECTIONS INTO QUARTER SECTIONS**

1048. The method to be followed in the subdivision of a section into quarter sections is to run straight lines from the established quarter-section corners to the opposite quarter-section corners; the point of intersection of the lines thus run will be the corner common to the several quarter sections, or the legal center of the section.

1049. Upon the lines closing on the north and west boundaries of a regular township the quarter-section corners were established originally at 40 chains to the north or west of the last interior section corners, and the excess or deficiency in the measurement was thrown into the half mile next to the township or range line, as the case may be. If such quarter-section corners are lost they should be reestablished by proportionate measurement based upon the original record.

1050. Where there are double sets of section corners on township and range lines, the quarter-section corners for the sections south of the township line and east of the range line have not usually been established in the original surveys; in subdividing such sections new quarter-section corners are required, to be so placed as to suit the calculations of the areas that adjoin the township boundary, as expressed upon the official plat, adopting proportional measurements where the new measurements of the north or west boundaries of the section differ from the record distances. (Secs. 1030, 1057.)

**SUBDIVISION OF FRACTIONAL SECTIONS**

1051. The law provides that where opposite corresponding quarter-section corners have not been or can not be fixed, the subdivision-of-section lines shall be ascertained by running from the established corners north, south, east, or west lines, as the case may be, to the water course, reservation line, or other boundary of such fractional section, as represented upon the official plat.
In this the law presumes that the section lines are due north and south, or east and west lines, but this is not usually the case. Hence, in order to carry out the spirit of the law, it will be necessary in running the center lines through fractional sections to adopt mean courses, where the section lines are not on due cardinal, or to run parallel to the east, south, west, or north boundary of the section, as conditions may require, where there is no opposite section line.

SUBDIVISION OF QUARTER SECTIONS

1052. Preliminary to the subdivision of quarter sections, the quarter-quarter- or sixteenth-section corners will be established at points midway between the section and quarter-section corners, and between the quarter-section corners and the center of the section, except on the last half mile of the lines closing on township boundaries, where they should be placed at 20 chains, proportionate measurement, counting from the regular quarter-section corner.

The quarter-quarter- or sixteenth-section corners having been established as directed above, the center lines of the quarter section will be run straight between opposite corresponding quarter-quarter- or sixteenth-section corners on the quarter-section boundaries. The intersection of the lines thus run will determine the legal center of a quarter section.

SUBDIVISION OF FRACTIONAL QUARTER SECTIONS

1053. The subdivisional lines of fractional quarter sections will be run from properly established quarter-quarter- or sixteenth-section corners, with courses governed by the conditions represented upon the official plat, to the lake, water-course, reservation, or other irregular boundary which renders such sections fractional.

RETRACMENTS

1054. Where the surveyor is called upon to retrace the township or section boundary lines of the rectangular subdivisions, the problem requires a careful study of the record data; the first step is to assemble copies of the field notes and plats; the second step is to prepare an ownership map showing the limits of the properties, and the names of the owners who will be concerned in the retracement and survey; the third step is to make a thorough search and inquiry with regard to the additional survey records that have intervened subsequent to the approval of the original survey, for this purpose consulting the county surveyor, county clerk, register of deeds, practicing engineers and surveyors, landowners, and others who may furnish useful information.

The matter of boundary disputes should be carefully reviewed, particularly as to whether claimants have based their locations upon evidence of the original survey and a proper application of surveying rules. If there has been a boundary suit, the record testimony and the court's opinion and decree should be carefully examined in so far as these may have a bearing upon the problem in hand.

1055. The law requires that the position of original corners shall not be changed, and there is a penalty for the defacing of the marks, and for changing or removing a corner. (Fly leaf III.) The monuments afford the principal means for the identification of the survey, and accordingly the courts attach the greatest weight to the evidence of their location. Discrepancies that may be developed in the directions and lengths of lines, as compared with the original record, do not warrant any alteration of the corner position. (Sec. 1021.)

Obviously, on account of roadways or other improvements, it is frequently necessary to reconstruct a monument in some manner. Alterations of that kind are not regarded as changes in willful violation of the law, but rather that this is in complete accord with the intent, which is to safeguard the evidence. (Sec. 1080.)

1056. Therefore, whatever the purpose of the retracement may be—if it calls for the ascertainment of the true lines of the original survey, or for the running of the subdivisional lines of a section, the rules as outlined require some or all of certain definite steps, as follows:

a. Secure a copy of the original plat and field notes;
b. Secure all available data regarding subsequent surveys;
c. Secure the names and contact the owners of the property adjacent to the lines that are involved in the retracement;
d. Find the corners that may be required—
   First: By the remaining physical evidence;
   Second: By collateral evidence, supplemental survey records, or testimony, if
   the original monument is to be regarded as obliterated, but not lost; or,
   Third: By the application of the rules for proportionate measurement, if lost;
   e. Reconstruct the monuments as required, including the placing of reference
      markers where improvements of any kind might interfere, or if the site is such as
      to suggest the need for supplemental monumentation;
   f. Note the rules for the subdivision of sections where these lines are to be run; and
   g. Prepare and file a suitable record of what was found, the supplemental
      data that was employed, a description of the methods, the direction and length
      of lines, the new markers, and any other facts regarded as important.

1057. A study of the early practices, and of the instructions that
were in effect at the time of the original survey, will be exceedingly
helpful to an understanding of the problem as it was then presented,
indicating what was required and how it was intended that the survey
should be made.

The plats should be carefully studied with regard to the placing of
all fractional parts of sections, and where to expect two sets of corners
along township or section lines. It should be noted that certain
quarter-section corners relate to one section only, and that corresponding
points needed for the subdivision of the adjoining section, usually
those located between closing corners on the lines closed upon, were
not established in the original survey. The plats will indicate whether
these should be at mid-point between the closing corners, or if they
should be placed with regard to a fractional distance. (Secs. 1030,
1050.)

It is essential to have the plats for both sides of a township or range
line, and for the adjoining parts of a township wherever the whole
was not subdivided at one time.

1058. The data for the township boundaries should be examined
to ascertain whether there may be certain closing-section corners in
addition to the regular quarter-section and section corners. The
latter are regarded as having maximum control if the subdivisional
lines on both sides of the boundary are based upon the one set of
corners. Frequently, in the older surveys, there is a second set of
corners, i.e.—the first being the quarter-section and section corners
of minimum control that govern the subdivisions on one side only,
which are the corners that should be employed for the retracement
and that will control the proportional measurement; the second set
are the closing-section corners for the subdivisional surveys upon the
opposite side of the boundary.

1059. The closing-section corners should be carefully considered
for their value in the solution of the whole problem, and as evidence.

The descriptions of the closing-section corners, and the connecting
distances to the regular corners of two sections, will be found in
the field notes of the later survey for which these corners are controlling.

1060. Where the section corners on the exteriors are of minimum
control, the quarter-section corners have the same status for the same
side of the boundary; in the older surveys there are usually no quarter-
section corners for the sections on the opposite side of the boundary.
Beginning with 1919 the practice has been to establish the second set
of quarter-section corners; these are placed on the true boundary, at
mid-point for the distance between the closing-section corners, excepting
where placed at 40.00 chains from one of them if there are
fractional distances to be regarded in the lotting of the section.

1061. There is nothing especially different or complicated in the
matter of one or two sets of corners on the township boundary lines,
it is merely a question of assembling the complete data, and of making
a proper interpretation of the status of each monument.

The same principles should be applied in the consideration of the
data of the subdivisional surveys, where for any of several causes there
may be two sets of interior corners.

1062. It is important to note that very simple needle-compass
equipment in the hands of men who possessed the necessary skill as
surveyors, coupled with natural woodcraft and faithfulness in doing
their work, satisfied the requirements of the colonial and early public-
land surveys. The technique of making field astronomical observa-
tions by which to determine the true meridian, and the methods for
running a true latitudinal curve as needed for the standard parallels,
were not developed so as to be generally applied for many years.
Without these refinements, including accuracy in the measurement
of lines, accumulated discrepancies will appear in some of the town-
ships, and cause the need for two sets of corners on some of the
boundaries.

1063. It was intended from the beginning that the directions of
lines be referred to the true meridian, but there was a general lack of
familiarity with exact methods. The solar compass was designed by
William A. Burt, United States surveyor of Michigan and Iowa, and
introduced in 1836. The instrument was an outstanding improve-
ment over the needle compass, and gave accurate determinations of
the meridian in the hands of Burt and others closely associated with
him, though it should be noted that the solar compass did not come
into general use for nearly 50 years. Beginning with the Manual of
1890 the use of the magnetic needle was prohibited except for sub-
dividing and meandering, and then only in localities that were sup-
posed to be free from local attraction; beginning with the Manual of
1894 the needle compass was entirely discontinued on all public land.
surveys. In later years the surveys are being made with the improved solar transit.

1064. It is not the purpose here to supply instructions for the use of the needle compass, but rather to point out what may be expected regarding the directions of the lines of the early needle-compass surveys when brought into comparison with the more dependable modern methods. A large proportion of the surveys made prior to 1890 are of that type, and the instrument is still used considerably in private practice. It should be noted that retracements may be made, i.e., the evidence of the marks can be developed by needle-compass methods, if it is properly employed, and the rules for the restoration of lost corners will be applied in the same manner.

1065. In addition to the uncertainties of local attraction and the temporary magnetic disturbances, the use of the needle compass is exceedingly unreliable in the vicinity of power lines, pipe lines, steel rails, steel-framed structures of all kinds, and wire fences, etc.; its use is now much more restricted on account of these improvements. The needle compass is rapidly becoming obsolete as it fails to satisfy the present need for more exact retracements.

1066. The needle-compass surveys, before being discontinued, had penetrated into the region of magnetic ore deposits of the Lake Superior watershed in northern Michigan, Wisconsin, and Minnesota; here many township plats were approved, and the lands patented, in which the section boundaries are found to be grossly distorted. There is no way in which to correct these lines, nor to make an estimate, except by retracement, of the extent of the irregularities, which involve excessive discrepancies both in the directions and lengths of lines. Greater experience is required here to make successful retracements, but there are no exceptions to be taken in the application of the rules of procedure either for the restoration of lost corners or for the subdivision of the sections.

1067. One other condition should be considered preparatory to solving the problem of these adjustments—the record will show that in many townships one surveyor ran the south boundary, a second the east boundary, and others the remaining exteriors and subdivisonal lines. Accordingly, on needle-compass surveys, all may be reported on cardinal, but no two exactly comparable, i.e., the east boundary will not be truly normal to the south boundary, etc. Recalling also that under the plan of subdivision the meridional section lines were placed as nearly parallel with the east boundary as could be by actual test of one or more miles of that boundary, these should be found in reasonable agreement. The latitudinal section lines should show an agreement with the south boundary, but the parallelism is frequently disturbed by the discrepancies in measurement. Stated differently, the corrections for bearings may not be the same for the east and west lines as for the north and south lines, and should be considered separately.

1068. The retracements will show various degrees of accuracy in the lengths of lines, where in every case it was intended to secure true horizontal distances. Until after 1900 most of the lines were measured with the Gunter's link chain, so that the surveyor must recall the difficulties of keeping a chain at standard length, and the inaccuracies of measuring steep slopes by this method.

All discrepancies in measurement should be carefully verified, if possible, with the object of placing each difference where it properly belongs. This is exceedingly important at times, because, if disregarded, the effect will be to give weight to a position where it is obviously not justified.

Accordingly, wherever it is possible to do so, the manifest errors in measurement will be removed from the general average difference, and will be placed where the blunder was made. The accumulated surplus or deficiency that then remains is the quantity that is to be uniformly distributed by the methods of proportional measurement.

1069. It is evident that if the trial lines are to be placed in close proximity to the most probable location of the original survey some corrections are thus frequently required in order to orient the record directions to the true meridian, and to adjust the record lengths of lines to a closer agreement with the actual distances that are to be found on the ground.

Where the surveys were faithfully made, there will generally be considerable uniformity in the directions and lengths of lines, so that the methods as explained will indicate what may be expected, excepting where there is local attraction; it will be appreciated that this will give a greatly improved placing of the trial lines.

1070. The problem, as analyzed above, therefore, has to do mainly with the early needle-compass surveys, and the inaccuracies and errors in measurement by the early methods, as in the more recent surveys there will be less difficulty in finding abundant evidence, and less doubt concerning the directions and lengths of lines.

Where the record shows that the lines were run by solar compass, or by solar transit, or by transit lines on directions that were determined by Polaris observation, or by altitude observation on the sun, and the improved measurements of later years, the retracement differences, by any of these methods, may be expected to come within the Manual limits allowable at the date of survey.

1071. Having developed certain known corners whose locations can be identified, that constitute the main control upon which the survey pattern may be tested, and before proceeding with restorations by proportionate measurement, consideration will be given to the calls of the field notes, such as distances to stream crossings and to
other natural objects, and to the questions of acceptance or non-
acceptance of the submitted testimony, later survey marks and records,
and the location of roads and property fences.

1073. A retracement between known corners will indicate whether
the record courses may be improved by a correction to the right or to
the left, and whether the record lengths may be uniformly long or
short; these determined values, or corrections, will aid materially
in the search for evidence, and in a better placing of the trial lines.

The object sought is to place the temporary lines of the retracement
as closely as possible to the probable position of the original survey;
this is necessary for the search that is to be made for the marks of the
old bearing trees, line blazes, line trees, and to verify the topographic
calls of the field notes. Let it be emphasized that in the retracement
of the very old surveys there often is no hope whatever of finding the
obscure marks except by experienced, intelligent search in the imme-
diate vicinity of the lines.

1074. Original line-tree marks, off-line tree blazes, and scribe
marks on bearing trees and tree corner-monuments, whose age exceeds
one hundred years, are found occasionally, and are recovered in much
greater number for the later surveys. There will be many distinctive
marks—some surveyors used hacks instead of blazes, and some used
hacks over and under the blazes; some employed distinctive forms of
letters and figures. All these will be recognized while retracing the
lines of the same survey.

The field notes will give the species and the diameter of the bearing
trees and line trees. Some of the smooth-barked trees were marked
on the surface, but with that exception most of the marks were made
on a flat smoothed-surface of the live wood tissue; the marks will
remain as long as the tree is sound. The blaze and marks, and the
hacks, will be covered by a gradual overgrowth, showing a scar for
many years. The overgrowth will have a lamination similar to the
annual rings of the tree, which may be counted in order to verify the
date of marking, and to distinguish the original marks from later
marks and blazes.
1078. The data for the replacement of those corners that may be regarded as obliterated, but not lost, are derived from such collateral evidence as has been found acceptable; the recovery of these corners completes the retracement. All other corners are to be regarded as lost, i.e.—nonexistent; these can be restored only by reference to one or more interdependent corners.

1079. The surveyor will appreciate the great extent to which a successful retracement has depended upon an available record of the previous surveys, and upon the markers that were established by those who preceded him. The same will manifestly follow on subsequent retracements, so that it may well be regarded as exceedingly important, both in the protection of the integrity and accuracy of the work in hand, of the reputation of the surveyor, and of the security of the interested property owners, that durable new markers be constructed in all places where required, and that a good record be filed of the survey as executed.

1080. The preferred markers are of stone, concrete block, glazed sewer-tile filled with concrete, cast-iron or galvanized-iron pipe, and similar durable material. Many engineers and surveyors, counties, and landowners employ specially designed markers with distinctive lettering, including various cast-iron plates or bronze tablets.

Frequently on account of roadways or other improvements, it is advisable to set a subsurface marker and in addition to place a reference monument where it may be found readily, selecting a site that is not likely to be disturbed.

**MEANDER LINES AND RIPARIAN RIGHTS**

1081. The traverse that is run by a surveyor along the bank of a stream or lake is termed a meander line. (Secs. 1017, 1045, 1046.)

The meander line is not generally a boundary in the usual sense, as ordinarily the bank itself marks the limit of the survey. All navigable bodies of water are meandered in the public-land surveying practice; also, many other important streams and lakes that have not been regarded as navigable in the broader sense.

1082. All navigable rivers, within the territory occupied by the public lands, remain, and are deemed to be public highways; and, in all cases where the opposite banks of any stream not navigable belong to different persons, the stream and the bed thereof become common to both. (R. S. 2476.)

The public has no proprietorship in the soil under small streams, which are navigable only in a modified sense for floatage of logs, as it has under navigable waters at the common law, where the tide ebbs and flows, or under the larger streams and lakes.

1083. Grants by the United States of its public lands bounded on streams or other waters, made without reservation or restriction, are to be construed as to their effect according to the law of the State in which the lands lie. If there should be changes in the position of the bank line, as by accretion, or by recession of the water, the ownership may, in many States, include the new land.

1084. The Government conveyance of title to a fractional subdivision fronting upon a nonnavigable stream, unless specific reservations are indicated, either in the patent from the Federal Government or in the laws of the State in which the land is located, carries ownership to the middle of the stream.

1085. The above principles are set out in the syllabus in 50 L. D. 678, as follows:

Whenever the question arises in any court, State or Federal, as to whether the title to land, which had once been the property of the United States, has passed, that question must be resolved by the laws of the United States; but when, according to those laws, the title shall have passed, then that property, like other property in the State, is subject to the laws of the State, so far as those laws are consistent with the admission that the title passed and vested according to the laws of the United States.

Upon the admission of a State into the Union the title to all lands under the navigable waters within the State inures to the State as an incident of sovereignty, and the laws of the State govern with respect to the extent of the riparian rights of the shore owners.

With respect to public lands bordering on nonnavigable bodies of water, the Government assumes the position of a private owner, and when it parts with its title to those lands, without reservation or restriction, the extent of the title of the patentee to the lands under water is governed by the laws of the State within which the lands are situated.

Where a survey was fraudulent or grossly inaccurate in that it purported to bound tracts of public lands upon a body of water, when in fact no such body of water existed at or near the meander line, the false meander line and not an imaginary line to fill out the fraction of the normal subdivision marks the limits of the grant of a lot abutting thereon, and, upon discovery of the mistake, the Government may survey and dispose of the omitted area as a part of the public domain.

1086. Where partition lines are to be run across accretions, the Federal rule is to apportion the new frontage along the water boundary in the same ratio as that along the line of the record meander courses, on the principle derived from the opinion of the Supreme Court of the United States in the case of Johnston v. Jones (1 Black 209, 222, 223). The application of this rule should, of course, be brought into harmony with the State law.

1087. Where there is occasion to define the partition lines within the beds of nonnavigable streams, the usual rule, under Federal surveying practice, is to begin at the property line at its intersection with the bank, and from that point run a normal to a medial line that is located at mid-point between the banks. Where the normals to the medial line are deflecting rapidly, owing to abrupt changes in the course of the stream, suitable locations are selected above and below
the doubtful positions, where acceptable normals may be placed, then
the several intervals along the medial line are apportioned in the same
ratio as the frontage along the bank. Precaution should be exercised
to modify this rule to conform with the State law.

CONCLUSION

1088. It is not to be inferred that this compendium does more than
bring out the fundamentals of the subject with reference only to the
United States rectangular surveys. These rules and explanations are
broadly applicable where the United States is the owner of the lands,
in whole or in part, and are likewise applicable to privately-owned
lands within the area of the former public domain, except where in
conflict with the State law.

1089. Many additional considerations usually enter into the treat­
ment of exceptional or controversial situations, such as where the con­
ditions on the ground are found to be seriously at variance with the
record field notes and plats, or if there is extensive obliteration to be
dealt with. The factors are altogether too numerous to be brought
within the scope of this compendium. The explanations need to be
suited to the specific problem, and in some cases the treatment may
not come within the rules of procedure herein outlined. Letters of
inquiry, if addressed to the General Land Office, should set out a
description of the lines in question and the facts as developed
by the retracement and suitable inquiry.

1090. In all cases where no public lands are involved, the surveying
procedure must necessarily be brought into harmony with the State
law and court opinion. The rules and explanations of the General
Land Office should then be regarded as advisory, and as exemplifying
the practice up to the passing of the title.

FRED W. JOHNSON,
Commissioner.

Approved: April 5, 1939.

HARRY SLATTERY,
Under Secretary.