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Provincial Survey and Mapping Activities
IN THE PROVINCE OF ALBERTA
THE PRINCIPLES OF EVIDENCE*
J. H. Holloway, A.L.S.

In the operations of the land surveyor, the discovery, appraisal and use of evidence plays a highly important part. Since the value and validity of the land surveyor's work will depend largely upon the skill and judgment with which he deals with evidence, it is essential that he possess a sound knowledge and understanding of the legal elements which questions of evidence involve.

In the course of a survey, problems of evidence do not often arise. A land surveyor who is called upon to subdivide a township usually starts off from an established base line and lays out the section boundaries in accordance with the routine specified in the D.L.S. manual of instructions. In making such a survey, the only circumstances under which it might be necessary for him to seek and utilize evidence would be in the event that some of the base line monuments have disappeared and their original positions have to be re-established before the township subdivision survey can be proceeded with. Until recently, that contingency was of rare occurrence, but today it is likely to be more frequently met with in northern Alberta, owing to the depredations of oil exploration parties whose habit of using survey cut-lines as thoroughfares for tractors during the past two or three years has caused the destruction of numerous base line monuments.

However, in the course of ordinary practice, land surveyors are mostly concerned with what might be termed secondary surveys—surveys, that is, which are founded upon the original township survey, and which consist, in some form or other, of further subdivisions of one or more of the sections comprising the original subdivision; the delineation on the ground of townsite blocks and lots or of a roadway or a railway right-of-way or any other unit of land smaller than a section is in essence a further subdivision of the section or sections affected and it may thus be regarded as a survey subdivision survey. Although the use of the terms primary and secondary in that connection is undesirable, because those terms are generally associated with certain types of geodetic surveys, this distinction between original surveys and subsequent surveys which may be based upon them is one which is worth keeping in mind.

These secondary surveys almost invariably give rise to problems of evidence, because in nearly all cases the land involved will have been occupied perhaps for many years and the activities of the occupiers, as well as exposure to the elements of nature, will often have destroyed or damaged the original survey marks. Usually, too, the original surveys will have been carried out at a comparatively early date and the monuments then placed may have been of the wooden post and bearing tree type. Under those circumstances, it is unlikely that the original monuments will be found intact and before the surveyor can proceed with any survey of a secondary type, he may have to spend a good deal of time seeking and checking such evidence as may be available in order to locate the original lines and corners to which his survey must be tied.

It might be noted at this point that the land surveyor acts not only as an investigator and appraiser of evidence, but also as a creator and recorder of evidence. Every survey post that is placed and every survey measurement made and entered in the field book, together with every plan or description prepared as a record of the survey operations, constitute evidence which is created for the purpose of indicating certain facts. That evidence will be

* This article contains the subject matter of a lecture given by Mr. Holloway at a special course for Land Surveying candidates arranged in April, 1952, by the University of Alberta and the Alberta Land Surveyors' Association.
used, perhaps long after its creator has vanished from the scene, as a means of reasserting those facts, and the degree of success with which it can be so used will be proportionate to the degree of accuracy and care with which it is created in the first place. Evidence, in practically all the various forms in which it may exist, is thus both the raw material and the end product of the process of land surveying, and every surveyor should have a reasonably clear conception of what evidence is and of its proper uses.

To begin with, we need to know what is meant by the term "evidence". In the legal sense, "evidence" may be defined as all the means by which any alleged matter of fact, the truth of which is submitted to investigation, is established or disproved.

Although the two words "evidence" and "proof", in ordinary usage, are often taken to have the same meaning, a clear distinction is made between them in the law: evidence is the process or operation by which truth or fact is arrived at. Evidence is the information used in the process of proof. It may well be that which evidence is a fact is not proof of it. For example, if a land surveyor finds an ancient fence post at the corner of a farmer's head, that is evidence indicating that the corner of the quarter section, as originally surveyed, occupied that point on the ground or one very near it, but it does not prove it. So the surveyor goes to the farmer and asks him what he knows about the position of the fence post and the farmer supplies further evidence by saying: "Oh, yes; that post is at the corner because I saw my father put it in the centre of the mound which was there in 1912." And then the surveyor looks at his township plan and finds that the section was originally surveyed in 1910 and when section corners were marked by iron posts placed at the north corners of the mounds. So the physical evidence provided by the fence post plus the oral evidence provided by the farmer, plus the documentary evidence provided by the township plan, together go to prove that the post is a quarter section corner post. That post is but 3 1/2 feet north of the corner and 3 1/2 feet south of the post is but 3 1/2 feet north of the corner.

A single item of evidence, therefore, may not be proof of the fact which it indicates. Even several items of evidence, all pointing to the same fact, may not afford conclusive proof of that fact, in which case the truth of the fact must be left to the matter of opinion rather than a matter of certainty. In land surveying, that sort of situation is often met with and it is then that the experience and judgment of the surveyor comes into play. It is up to him to decide whether or not the fact indicated by the available evidence can reasonably be accepted as being so. When the evidence obtained is conflicting, tolerable judgment and experience are more important still. The surveyor must first be sure that he has exhausted all sources of evidence and then must weigh the evidence he has and decide in what direction the greatest weight of the evidence lies in order to arrive at a sound opinion of what is most probably the fact which he is trying to establish.

The legal mind recognizes several forms of evidence but the land surveyor need only concern himself with a few of them. Evidence is classifiable in two main categories: primary evidence, which is kind which points most directly to and affords the greatest certainty of the fact in question; and secondary or indirect evidence, which is the kind of evidence which is not conclusive, but which becomes admissible when the primary evidence of the fact in question is lost or not available. For example, in connection with the re-location of a section corner, an original monument found in good condition at the nature of primary evidence; if the original monument has been destroyed, the corner post, together with measurements made from other corners, may furnish acceptable secondary evidence.

Evidence, both primary and secondary, may be in one of the three following forms: physical, oral or documentary. Each of these forms is exemplified in the incident of the farmer's fence post related above. It will readily be realized that items of evidence in any of these forms may vary a great deal in value. The quality of physical evidence, such as a survey measurement or a wooden post, may vary all the way from good to bad, depending on the ability of the chainman or on the age of the post. Oral evidence may be the sworn statement of an impartial eye-witness or it may be only hearsay, rumor or opinion. Documentary evidence may be anything from a dying man's affidavit to a report published in Pravda. One of the most frequent and important responsibilities of the land surveyor is the appraisal of the worth of evidence which may come before him in any of these three forms. If he is to carry out his responsibility successfully, he must not only be technically competent and be able to think logically, but he must also possess an understanding of human nature and of the queer ways in which it sometimes operates. There are two cardinal rules which form the foundation of the law of evidence. The first rule is that only facts which are relevant to the issue under investigation may be admitted. The relevancy of a fact is determined by deciding whether or not it directly or inferentially leads to conclusion which proves or disproves the fact in question. Those whose duty it is to receive evidence have continually tried to draw the line between relevancy and irrelevancy and for that purpose the application of common sense is usually a good and sufficient guide. In land surveying, however, technical knowledge is also sometimes essential in order to ascertain whether a fact is relevant or not. For example, the land surveyor knows, but the layman often does not know, that while the position of a survey monument on the south limit of a correction line allowance is evidence which is relevant to the position of that limit it is irrelevant as far as the position of the north limit is concerned.

The second rule is that only the best evidence procurable may be given of the fact which it is sought to prove. That means that primary evidence is more important than secondary evidence. This is particularly true of respect to oral evidence, and in law, a witness may only speak of his own knowledge and not of what he has heard someone else say. There is plenty of room for error even in the testimony of an eye-witness, and second-hand testimony is usually so far from being an accurate statement of the facts that the courts refuse to admit it. A surveyor should never give any consideration to hearsay evidence which is not thoroughly confirmed by other independent evidence.

The best evidence procurable where a document is concerned is, of course, the original document itself. If an original document is not available, next, a certified copy, sworn as being such by some responsible person, is the next best thing. In some of the statutes relating to surveys and land titles, there are special provisions which allow certified copies of certain official documents to be accepted as originals—for example, lithographed copies of township plans which bear a facsimile signature of the Surveyor General. Land surveyors should make themselves familiar with those provisions, and with care and with regard to other documents of which the originals may not be available, they should satisfy themselves that any copy submitted is acceptable as a true and correct copy of the original.

The operation of this second rule of evidence is something which the land surveyor should keep in mind, whether he is functioning as a creator and recorder of evidence or as an appraiser of evidence or when he is giving evidence himself as a professional or expert witness. The primary evidence in the form of survey monuments which he makes and leaves behind him should be founded on accurate measurement and be as well-fashioned and as permanent as the specifications permit. As a recorder, he should carefully and clearly enter all measurements and, other particulars of his surveys in his notebook. He should see that his plans are neatly drawn and that the figures and other information shown on them are accurate and complete. In searching for and appraising evidence he should make sure he overlooks nothing and that he
used, perhaps long after its creator has vanished from the scene, as a means of re-ascertaining those facts, and the degree of success with which it can be so used will be proportionate to the degree of accuracy and care with which it is created in the first place. Evidence, in practically all the various forms in which it may exist, is thus both the raw material and the end product of the scientific surveying, and every surveyor should have a reasonably clear conception of what evidence is and of its proper uses.

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A single item of evidence, therefore, may not be proof of the fact which it indicates. Even several items of evidence, all pointing to the same fact, may not afford conclusive proof of that fact, in which case the truth of the fact remains a matter of opinion rather than a matter of certainty. In land surveying, that sort of situation is often met with and it is then that the experience and judgment of the surveyor comes into play. It is up to him to decide whether or not the fact indicated by the available evidence can reasonably be accepted as being so. When the evidence obtained is conflicting, then good judgment and experience are more important still. The surveyor must first be sure that he has exhausted all sources of evidence and then he must weigh the evidence he has and decide in which direction the greatest weight of the evidence lies in order to arrive at a sound opinion of what is most probably the fact which he is trying to establish.

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Evidence, both primary and secondary, may be in one of the three following forms: physical, oral or documentary. Each of these forms is exemplified in the resident of the farmer's fence post related above. It will readily be realized that items of evidence in any of these forms may vary a great deal in value. The quality of physical evidence, such as a survey measurement or a wooden post, may vary all the way from good to bad, depending on the ability of the chainmen or on the age of the post. Oral evidence may be the sworn statement of an impartial eye-witness or it may be only hearsay, rumor or gossip. Documentary evidence may be the dying man's affidavit to a report published in Pravda. One of the most frequent and important responsibilities of the land surveyor is the appraisal of the worth of evidence which may come before him in any of these three forms. If he is to carry that responsibility successfully, he must not only be technically competent and be able to think logically, but he must also possess an understanding of human nature and of the queer ways in which it sometimes operates.

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takes nothing for granted. He should examine all evidence impartially and not allow himself to be biased in favor of his client, for if he does so and his conclusions are afterwards disputed, it may very well turn out that he has done his client more harm than good. Every item of evidence should be assessed on its own merits according to the surveyor's best judgment, and if he has difficulty in deciding what conclusions ought to be drawn from the available evidence, he should have no hesitation in consulting the Director of Surveys or in asking for another surveyor's opinion. If a surveyor is called upon to give evidence in court, he should stick to facts within his own knowledge, refrain from guess work and speculation and only express an opinion when it is asked for.

From what I have said, it will be evident that the land surveyor's work has as its object the establishment of the facts as to the positions of boundaries on the ground. The primary, and therefore the most relevant evidence of those facts is provided by the positions of the survey monuments which are placed on the ground to define boundaries. Field notes and plans are simply records of the primary evidence; they are made for the purpose of enabling land owners or other interested parties to locate the primary evidence and are themselves of value as secondary evidence only when the primary evidence has disappeared. On the basis of that reasoning, it has become a well-established legal principle that the position of a boundary is governed by the survey monuments on the ground, and that such evidence, such as the measurements shown on plans or the statements of witnesses should only be used for determining the position of a boundary if the monuments which were needed to define it cannot be found. That principle is enunciated in Section 62 of the Dominion Land Surveys Act which says that "all boundary lines of townships, sections or other authorized subdivisions and of towns or villages and all boundary lines of blocks, gores or commons, all section lines and all lines of lots or parcels of land surveyed or resurveyed, as defined by monuments placed at the corners (thereof) shall be the true boundaries . . . whether the same are or are not found to contain the exact area or dimensions mentioned or expressed in any plan or any letters patent, grant or other instrument." And Section 63 says "Every township, section, etc., etc., shall consist of the whole width included between the several corners thereof and no more or less, notwithstanding any quantity or measure expressed in the official plan, letters patent, grant or other instrument." You will find the same principle stated in Sections 27 and 28 of The Alberta Surveys Act and in every other statute dealing with legal surveys in those provinces where official survey and land registration systems are in operation.

That principle applies even though the position of a monument is found to be in error. Once a monument is placed and the survey has been confirmed, the monument governs the position of the boundary which it was intended to define, even though it may have been put in the wrong place. When such an error is found to have occurred, it can only be corrected with the consent of the parties interested in the lands whose boundaries it defines, and the procedure by which the correction has to be made is rigidly and elaborately specified by statute. Until such time as the error may be corrected, the position of the monument on the ground will govern the position of the boundary, and if a surveyor finds a monument wrongly placed, he must nevertheless be guided by it.

In those sections of the various survey statutes which deal with the re-establishment of boundaries, it is laid down that if an original survey monument cannot be found, any surveyor seeking to re-establish the position of the monument shall first obtain the best evidence which the case admits of before resorting to other methods of re-establishment. That means that he must endeavor to secure secondary evidence, such as the location of fences or the
sworn statements of persons who may know where the monument was, and that all evidence of that nature should be checked by measurement from other corners. Only in the event that no evidence of that kind is available should the surveyor resort to the "mechanical" method of re-establishment which consists of finding the nearest monuments on a line in both directions from the lost corner and proportioning the distance between them according to the measurements shown on the official plan.

Too many surveyors are prone to resort too readily to the mechanical method and it is important to remember that two other alternatives are always preferable. First, do everything possible to find the primary evidence—that is, the original monument or whatever may remain of it. Be conscientious and thorough in the use of the spade and dip-needle. If that fails, the second step is to look for secondary evidence. Only if that fails or if the evidence obtained is not sufficiently conclusive should the proportioning operation be used to re-establish the corner.

The surveyor should remember that he may be called upon to explain and justify his operations before a court of law, and in order to be able to do so with confidence and assurance, he should always satisfy himself thoroughly that the evidence which he creates or uses in the course of his field operations is as good as the best that any other surveyor can point to. Many people are prone to think that if a registered land surveyor re-establishes a boundary line, his decision as to its location is final and conclusive. That is not so. It is true that very often adjoining owners in dispute over a boundary will voluntarily submit their differences to a land surveyor and will agree to abide by his decision rather than go to law about it. It is also true that the law recognizes the qualified land surveyor as an expert in calculation and precise measurement and allows due credit to be given to his judgment and experience in cases where the evidence requires expert appraisal. But if disputants are dubious or the surveyors have no more authority than any other men to determine boundaries. The location of any boundary or corner in dispute is, in the final legal analysis, a question of fact to be determined exclusively by the courts, and the surveyor's role is not that of an expert witness skilled in the finding, appraisal and recording of evidence by which the facts in question may be determined.

Aristotle from what has been said here about the relative value of different forms of evidence there are three instances of practical application which might be mentioned at this point.

The first of these is the principle that older monuments are always to be preferred to more recent monuments in determining the position of a section line or original boundary. The original monuments at the section or quarter section corners constitute the most direct evidence of the location of a section boundary, whereas monuments subsequently established, such as those of a road survey intersecting the section line or townsite block corners placed on the line, are in the nature of secondary and indirect evidence. When only part of a section line needs to be re-established, it is often much easier to accept and use one or more of these secondary marks than it would be to set up the whole line from the original section corner monuments. But if the original monuments still exist, it is always better to take the extra trouble of seeking them out and using them in preference to more recent monuments which happen to be close at hand.

Another situation often met with in practice is that in which no monuments are found. If the available physical evidence as to the position of a line is a fence or fences. The surveyor should always be cautious in either accepting or ignoring the position of a fence. An old fence may provide very good secondary evidence of the position of the line as originally surveyed, but if a surveyor is inclined to accept it, he should, before doing so, seek every other item of confirmatory evidence that he can get. Its position should be checked from the position of other lines, and oral evidence as to the location of the fence should be obtained from any local residents who may have knowledge of its erection.

On the other hand, if an old fence indicates that a line is in one place while other independent evidence tends to show that the line is somewhere else, it becomes a serious matter for the surveyor to declare the fence to be wrong and thus unseat the peaceful conditions which have existed between neighboring owners. It should always be remembered that a boundary can become legally established by usance or through use over a term of years, even though the fence or other structure defining it may not be the line which was originally surveyed as the boundary. The position of a fence should therefore not be lightly regarded unless there is other strong evidence that the original line is elsewhere.

Another factor which may affect the evidential value of a found survey post is the degree of skill and care exercised by the surveyor who placed it there. Posts placed by a prior surveyor who is known to have been a consistently good workman can be accepted as good evidence, but some of the work done in the past has been of the kind that needs careful checking before further surveys can safely be based upon it. When the evidence provided by two or more earlier surveys is conflicting, then it becomes very necessary for the surveyor who encounters such a situation to know something about the repute of the previous surveyors concerned, so that the work of each may be given its proper relative appraisal.

As another writer on the subject has aptly put it, posts should be given values in keeping with their history. Who placed the post? How good a surveyor was he? Was it an original or a secondary survey? What is the likelihood that the post may have been disturbed or moved? If the position of the survey is seen as dubious, those are the kind of questions concerning its history to which the surveyor must find answers before he can properly evaluate it.

So much for the appraisal of evidence. Turning now to the surveyor's functions in taking and giving evidence of an oral nature, we cannot do better than to quote extensively from Mr. Hossie's excellent paper read in 1928 at the R.C. Land Surveyors' annual meeting.

"As a professional witness you may have to appear in Court or to come before some enquiring tribunal. The rules which guide you as an ordinary witness will, of course, be applicable then as well, but as a professional man you should remember that you are naturally expected, because of your training and skill, to exhibit a higher standard of observance and intelligence than is expected of the man on the street. You may appear as an expert witness to give evidence of facts within your own knowledge and prove a survey you have made or checked or some measurements you have taken. In that you need no guidance. On the other hand, you may appear as an expert to give evidence as to your opinion on a matter in which you are peculiarly qualified. The expert witness is perhaps the most uncertain quantity known to my profession. He may be everything or nothing, and that irrespective of whether he be or be not fully qualified. An expert should never lose sight of the fact that he is there to assist the Court in forming a proper conclusion. It is not his duty to tell the Court what decision it should give but to tell the Court what facts it considers should be taken into account and their relative importance. When those facts upon which he has formed his opinion have been fairly placed before the Court it is the duty of the expert to let his expert's evidence be given have considerable effect. When it is in your lot to appear as an expert remember that you are not an advocate and combine yourself to your own subject, deal with it fairly, correctly and firmly. Do not hazard conjectures nor insist that because you think so nobody else is entitled.
to hold any other opinion. Remember that if your facts are correct and are all the facts of the case, then the Court will in all probability come to the same conclusion as that which you have reached. With under-examination remember that cross-examining counsel is probably just as fair-minded as you are, and would come to the same conclusion as you have come to from the same facts. He is probably not of your opinion because he has not taken into account all the facts or has been misled into treating as facts that which you know to be otherwise. Deal fairly with him and set him straight if you can, but so long as you can show him that what he thinks are flaws in your arguments are not flaws and that what he thinks are unimportant facts are not important, or facts at all, your evidence will not suffer. So long as you have neither overstated nor understated your position when giving your evidence in chief you need have nothing to fear from cross-examination; but, above all things, do not lose your temper.

On the same topic, Mr. A. D. Crease, in a paper read in 1937 at the B.C.L.S. meeting had this to say:

"On an investigation the surveyor's work should be thorough so that he may be able to give definite answers to all probable proper questions. E.g., if it is a question of determining the accuracy of a previous survey it is necessary not only to be sure of one's own observations but to be able to say that the particulars of the other survey had been examined and, if found to be incorrect, why this conclusion was arrived at.

If a previous survey stated that a sight had been taken from A to B, he should be in a position to state whether this was physically possible or not.

Referring again to the thoroughness of a surveyor's observations; a recent case in which the existence of certain bearing trees was called in question showed the necessity of being able to say that their absence was not caused by clearing operations, road making, slides or other physical changes which had occurred in the intervening years. The witness may not be permitted by his counsel by any leading questions which suggest their own answers.

When in the witness box the witness should remember the record, that is, he should remember that the stenographer's notes will record what he has said but not his gestures.

If the evidence given refers to a locality, that locality should be identified by verbal description or by reference to a plan if possible marked thereon.

In giving evidence in Court surveyors like all professional men except lawyers should assume the Court knows nothing of the technicalities of their profession and should be careful not to assume that what to the witness is a matter of course and therefore not worth mentioning is or can be regarded as such by the Court and accepted without proof.

Those facts which the Court can assume to exist without proof are few in number.

A judge is allowed, for instance, to take "judicial notice" as it is called, of the existence and contents of a public statute and of the calendar.

He could not take for granted that perfect accuracy in a survey is not always essential. He could not be assumed to know and to refer to without proof any regulations issued by the Surveyor-General or of your by-laws.

These instances are only a few illustrations of the limitation of a judge's right to take "judicial notice" of unproved facts which a surveyor might naturally take for granted.

Returning to Mr. Hossie's paper, he points out that the land surveyor, in taking evidence from witnesses, acts in a capacity similar to that of a judge. He hears certain testimony and from it he forms his conclusions. Since the conclusions he forms have legal consequences bearing upon the property rights of his client and his client's neighbors, it is important that the evidence upon which those conclusions are based be obtained, heard and recorded with due regard to legal form and procedure. Mr. Hossie draws attention to the provisions in the survey statutes which empower surveyors to hear evidence under oath and, if necessary, to compel the attendance of witnesses on oaths in regard to the taking of oral evidence.

"While your task will probably be a simple one, you must, nevertheless, be guided by the proper rules. You will have to decide upon the relevancy of the evidence, secure the best evidence, and act, not only as judge, but also as counsel. You may have to cross-examine a witness, because cross-examination is the most salutary test of the truth of evidence which has yet been found and the greatest safeguard against error. When weighing the evidence you should remember that the admission by a witness against the interest of himself or his friends is entitled to more weight than any statements he makes in his own favor. The statement made by an independent, disinterested witness is more likely to be worthy of credence than a disputed statement made by one of the parties, and a statement corroborated should be worth more than one which is not corroborated. You will have to take into account the demeanor of witnesses and form your own conclusions as to the truth or otherwise of their statements.

In this capacity you may have to hear the evidence of many different kinds of witnesses, either the adult, the minor or even the child of tender years who does not know the value of an oath but understands the duty of telling the truth. You may receive the unsworn evidence of the child, but you may only act upon it if it be corroborated by some other material evidence. You may have to take the evidence of the Indian, the foreigner, or those who suffer under disability. In the case of the Indian who is an aboriginal, native or a native of mixed blood of this continent or the islands adjacent to it and is uncivilized and destitute of the knowledge of God or any fixed and clear belief in religion or a future state of rewards and punishments, you may take his evidence without substantial regard to the usual form of oath, but you must be satisfied that he is likely to be able to tell the truth and not be liable to incur punishment if he does not tell the truth and then take his solemn affirmation or declaration to tell the truth, the whole truth and nothing but the truth, or swear him in some other form which meets with your approval.

Particular care must be taken when the oath is taken in the manner which is best calculated to bind their conscience. If they cannot speak the English language you will have to proceed through an interpreter, who must first be sworn. The same is true of those who cannot communicate because of physical disability. The deaf and dumb may require to be examined through someone who is familiar with the language they employ. The blind, being able to hear and speak, should present no difficulty, but when any other disability is added to that of blindness, you may have to have an interpreter. Should you have to interpret any document from a foreign language the interpreter must be sworn too. Both a husband and a wife are qualified to give evidence before you, but you can compel neither of them to disclose communications made to them by the other during the marriage.

The essence of an oath is that the person taking it must call upon the Supreme Being, according to his belief, to witness the truth of his statements. It is usual with Christians to swear them upon the Bible. If they conscientiously object to being sworn in that manner you may take their affirmation with the usual form of oath, or what is called the "Scotch oath." They there are some Christians who do not consider binding upon them an oath upon the Bible unless it also bears the sign of the Cross. The Mohammedan will swear upon the Koran; the Chinaman with a piece of burning paper upon which his name has first been written, or in the presence of a chicken killed with ritual ceremony. There are many other forms of oath which different people consider binding upon their conscience, and when you have reason to believe the witness is not a Christian you should ask him whether the Christian oath is binding upon his
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conscience. If he says it is not, or you believe that it will not be, ascertain
from him what form of oath he does consider binding and swear him in that
manner. You should be careful in your proceedings, which, in accordance with
Section 11 of the "Official Surveys Act," must be reduced into writing, that
you record accurately the facts which each witness has sworn, and if other-
wise than in the usual form, then in what form. You should also record the
fact when any witness suffers under any disability, or whether an interpreter
is used, and the interpreter must, of course, be sworn too. As you are required
by the Section to have the evidence signed by the person giving it after it has
been read over to him, you should record the fact of reading it over and where
the witness is not able to write he must acknowledge in the presence of two
witnesses that the evidence is correct and those witnesses must themselves sign
the record. You will of course sign the record yourself. In all cases you should
be particular to see that any writing is clear, particularly signatures. If need
be, the correct spelling should be printed in the margin or on a separate
explanatory sheet. Full names, addresses and occupations should be given in
each instance. Such particularity is advisable because if any question should
arise as to the weight of the evidence it is important that a perusal of the record
should show that all formalities have been complied with and nothing which
was clear to you should be left in doubt to those who have to read the evidence.

It may be of interest to you to have some practical guidance as to the
proper manner of administering an oath. In its nature the taking of an oath
is a solemn matter, and it should not be administered lightly. The witness and
yourself should both stand up and remove your hats. The witness should
remove his glove and take the Bible or volume upon which he is being sworn
in his right hand. The oath may then be administered by having the witness
repeat after you: "I (his name in full) swear that the evidence I shall give
before you touching the matters in question shall be the truth, the whole truth
and nothing but the truth. So help me God." The witness will then kiss the
book. It is not necessary for a female witness to uncover her head. If the
witness has conscientious objections to being sworn on the Bible he may affirm
by standing up uncovered, raising his right hand and saying: "I solemnly
affirm that the evidence to be given by me shall be the truth, the whole truth
and nothing but the truth." Certain sects have special objection to the regular
oath. Quakers, for instance, may be sworn in any manner he may affirm;
repeating: "I (his name in full) being one of the people called 'Quakers' (or
one of the persuasion of the people called 'Quakers') do solemnly, sincerely
and truly declare and affirm that the evidence I shall give before you touching
the matters in question shall be the truth, the whole truth and nothing but the
truth." The interpreter's oath may be taken by his repeating: "I (his name
in full) swear that I well understand the French (or other) language and that
I will speak the truth and the whole truth; and that I will well and truly interpret
the oath that shall be administered to the witness or witnesses (stating their name or names in full) and also the evidence
such witness or witnesses shall give before you touching the matters in ques-
tion to the best of my skill, knowledge and understanding." The oath may
be taken in a proper case by a Chinaman, who is not a Christian, according to
the form which is binding upon him. If he does not speak English the inter-
preter will administer the oath. If he does speak English it may be adminis-
tered by you. The form will vary according to the form of oath. The "Saucer
Oath" is: "I tell the truth and the whole truth; and if not, as that saucer is cracked,
may my soul be broken like it." At that point you ask him, "Are you bound
by that oath?" to which he must reply, "I am." In the "Paper Oath" the wit-
ness writes his name on a piece of paper which he then holds in his hand, a
match is applied to it, and while the paper is burning you have him repeat: "I
tell the truth and the whole truth; and if not, as this paper is burned, may my soul
be burned like it," after which you ask him, "Are you bound by that oath?" and he should reply, "I am."

A convenient form for your record would be as follows:

"Dominion of Canada, Province of British Columbia, to Wit:

"In the matter of the 'Official Surveys Act' and in the matter of the north-west quarter of section 10, township 25, west of the coast meridian.

"I, A. B., being a duly qualified British Columbia Land Surveyor, employed by C. D. to survey Section 10 (here insert the full description of the property in question) and being unable to establish the original north-west corner of the said section 10 from an examination upon the ground, and for the better ascertaining the said corner having taken evidence pursuant to the powers conferred upon me by Section 9 of the 'Official Surveys Act,' did proceed to hold an inquiry at (here give the name of the place) on the day of , 19 .

There then appeared before me the following witnesses, who being duly sworn according to their religions give evidence as hereinafter appears.

"The witness, John Adams, being an Indian within the meaning of the 'Evidence Act' after first being duly cautioned affirmed that (here set out his evidence) and at the end of it:

"The above evidence having been carefully read over to him in the presence of John Smith and Edward Jones, and acknowledged by him to them and me as being correct, the said John Adams thereunto made his mark in the presence of the said witnesses.

-----------------------------------------------
(Signature of witness)
X
-----------------------------------------------
(Signature of witness)
John Adams
-----------------------------------------------
(Signature of Surveyor).

"You will then deal with each witness in turn according to the fact, being careful to have each witness sign his own evidence. At the conclusion of the evidence you may state your finding, though it is not necessary to do so as the evidence will be recorded with your field notes anyway. You must then date and sign the record. You should not make any radical changes in field or office procedure.

We three main objectives were therefore to increase the negative potential, decrease the camera weight and reduce the office plotting. These three points are discussed more fully below.

1. Negative potential—With the half plate camera the number of pictures that could be taken depended entirely upon the number of loaded plate holders available. Due to the cumbersome nature of these holders we considered 12 to be a maximum carried each day. On numerous occasions more could have been exposed.

2. Decreased Weight—A loaded half plate camera, plates and case weighs approximately 35 lbs. As most chimneys were on foot this limited the type of personnel employed and the distances to be traversed.

3. Reduce Office Plotting—With the half plate camera the print direction was plotted graphically using a prominent point in the photograph the angular position of which had previously been ascertained. This was a tedious task and the results were dependent upon the variables, focal length of print and the correlation between the identification of the prominent point in the field and on the print.

* Topographic Division, Surveys and Mapping Service, Department of Lands and Forests, Victoria, B.C.