Some Aspects of Title Boundary Location in NSW

K. E. Hamer FIS

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Title boundary definition is recognised by surveyors, but unfortunately not by the general public, as being far from an exact science. Unlike some other branches of surveying, the problems encountered in cadastral work do not as a rule fall within certain well-defined limits nor are they governed by any well-established formulae which, if correctly applied, will provide the required answers.

This is a feature which seems to puzzle those who are used to dealing with a more mathematical type of problem for which there is a standard method of procedure to obtain what is probably a definite and unequivocal answer. On this account, however, it should not be assumed that this branch of surveying is in desperate need of a major overhaul to remedy these defects, if indeed they are defects. There has as yet been no successful attempt to apply modern mass production methods to the solution of problems in boundary definition.

There may be many reasons for this, but two which immediately come to mind are:

(a) the problems are infinite and no two appear to be absolutely identical; and

(b) a surveyor, whether private or departmental is not the final arbiter in the location of a title boundary.

Dealing with (a), it is sufficient to point out that the location of a title boundary, while not being wholly dependent upon the particular circumstances of the case, may be influenced by them to an extent sufficient to obtain an answer which differs from that which might reasonably be expected after study of an apparently identical problem. This, the great variety in problems, is one of the doubtful pleasures associated with this branch of surveying.

So far as (b) is concerned, matters of boundary definition are almost always associated with law to some extent, and any surveyor who has engaged in this type of work knows that members of the legal profession are very reluctant to express general views on aspects of boundary location which could be used as precedents. There is good reason for this, as indicated in my comments on (a) above and also taking into account a natural leaning of the legal profession towards caution.

The final decision on any question of boundary location rests with the Courts, although, fortunately for the individuals most concerned, matters are usually settled in some way before proceeding to that extent. On the other hand it would be of great benefit to the surveying profession to have more Court decisions on matters of this nature.

All these features which have been mentioned render it very difficult to discuss the subject of boundary definition in wide or general terms. This is no doubt the main reason for the shortage of text books dealing with cadastral work.

Probably the most widely studied book on the subject in New South Wales is that by a former Registrar General, Mr RW Willis, entitled Notes on Survey Investigation.

According to its preface, it was intended for the use of draftsmen in Mr Willis' Department to help them to a better knowledge of the principles of investigation of surveys made in connection with title to land as well as a wider appreciation of the reasons for and results of their work.

On account of the great deal of useful information it contains, it is probably just as widely referred to by surveyors, who find it extremely helpful as a guide toward the location of those boundaries which will later be the subject of an investigation by the Registrar General's Department.

It is proposed to give only an outline of the main principles applicable to boundary definition with, in some instances, emphasis on common sources of error which have come to the writer's notice during many years of highly concentrated work in this field.

It is perhaps appropriate at this time to remind readers that this paper refers to the practice in New South Wales, and to mention that some methods advocated may be influenced by a departmental outlook in which the time factor does not play as important a role as it does in the work of the private practitioner.

Before turning to the actual question of location, some reference should be made to the preliminary work leading up to that stage. The search information, both survey and title, and the field work, are all essential parts of the process of boundary definition.

SEARCH INFORMATION

The importance of obtaining a full and accurate search cannot be over emphasised. There seems to be, on the part of some surveyors, a tendency to dismiss this part of the survey as rather elementary and therefore not deserving of over much attention. This is a great mistake. There are probably more errors in boundary location originating from faulty or insufficient search than from any other single source.

Before commencing a survey it is a distinct advantage to make a thorough study of the title and survey information as this provides the background to the survey and also gives the history of any particular boundary. If possible, it is advantageous at this time to try and plan some method of field attack on the problem. In this connection however, one has to be careful to preserve an open mind on the question otherwise preconceived ideas may blind one to features in the field which do not fit the idea in mind but which really have an obvious and perhaps important bearing on the correct position of the boundary in question.

So far as New South Wales is concerned, searching titles to land held under Old System Title is generally regarded as a task for an expert searcher. It can be a long and tedious job and is rarely attempted by surveyors both on account of the difficulties involved and the fact that it is not an economic proposition. The average surveyor probably feels more at home when searching the Torrens Title Register, although searches can become complicated even under this system.

When dealing with very old sub divisions in closely settled areas such as may be found in Sydney's inner suburbs it can prove worthwhile to search at least the titles on either side of the subject land. Sometimes it pays to search the titles in the whole section. The reason for this may not exist in other States but in New South Wales the following conditions are quite common.

Most old sub divisions show the lot boundaries as lines without improvements, yet many a title search will disclose a diagram showing substantial improvements on or adjacent to a boundary. It is obvious that this information can only have been derived from a survey, yet quite often, search of the charting map will not disclose it. prior to about 1920 charting of those dealings was not systematically carried out, and the survey must be traced by searching back through the titles to the first edition showing the improvements. This title will refer to the dealing or order on which it issued and inspection of that instrument will reveal either a plan annexed or one endorsed on the back thereof.

When it is realised that many of the buildings shown in these old surveys are still in existence it may be readily seen that possession of this survey and title information is essential when locating a boundary on or adjacent to which the title shows improvements, and desirable when they are on a boundary in reasonable proximity to that being located.

Apart from title searches the surveyor must be armed with all relevant survey information including the basic plan and nearby surveys. To obtain this he searches mostly in the Registrar General's and/or Lands Departments according to whether he is searching alienated or Crown land. Other departments also contain specialised information which at times can be of great assistance.

FIELD WORK

No attempt will be made to elaborate on the field work as each surveyor develops his own methods of conducting his field operations. As previously mentioned, it is helpful to have studied the case after obtaining the search information and before proceeding to the field.

Experience plays an important part in the field work as it enables a surveyor to know just what he is looking for and, what is of equal importance, where to look for it. it also helps him to recognise the relative significance of such marks, monuments or features as he may find.

AZIMUTH

In many surveys, insufficient thought or care is exercised in the choice or adoption of points for azimuth purposes. If at all possible, these should be points shown or marks placed in the basic plan and not those of some later accepted plan in the vicinity. It should be remembered that a datum line of azimuth is not merely a means of quoting an initial bearing but is really an important link between the basic survey

and that being carried out. Errors in boundary location are often caused through the adoption of marks of some recent survey or even marks of a peg out, when those marks are in no way related or connected to the basic plan.

It is by no means uncommon to find a street bearing from the basic plan applied to two points of a recent survey when in fact the location of the street in the two plans is quite different. The natural corollary is an attempt to set out lot boundaries using the title bearings and distances from this incorrect basis. Location of title corners will of course be erroneous in proportion to the extent that the two street definitions vary.

Marks, from whatever source, should not be adopted for azimuth purposes without investigation and verification of their position as prescribed by regulations. The consequences of adopting a mark which was originally incorrectly placed or subsequently moved should be obvious.

BOUNDARY DEFINITION

General

Title to land is usually evidenced by deeds which will be found to stem, at some time or other, from:

(a) a plan of survey,

(b) a sketch or plan compiled from a prior survey; or

(c) a description based on a survey.

It is a function of the cadastral surveyor to provide the information used in the preparation of these deeds and it is equally his province to locate and mark on the ground, when required, the boundaries of the land described in them.

In the relocation of title boundaries, it is often said that a surveyor employs a mixture of fact and law. To these may be added two further ingredients, experience and common sense.

The facts referred to are those obtained from search of the title deeds and later supplemented by the field work when marks, monuments or improvements on the ground are related to the search information.

When the surveyor has ascertained all his facts he must next apply to them any relevant principles of law. In this he may be assisted by his experience in general practice as well as decisions in stated law cases if they are applicable.

It is true that there are certain basic principles associated with title boundary location which are constantly referred to and applied by surveyors. Nevertheless, a difficulty with this class of work lies in the fact that it is equally true, due to some particular

feature or set of circumstances, that the location of a boundary could rest on a matter of opinion.

When such a difference of opinion occurs between surveyors who each consider they have good and sufficient reasons to support their respective boundary fixations, and their clients have the necessary inclination and funds to spare, the matter may well be taken to Court to obtain a decision.

With all due respect to the legal profession, the decision reached in a Court case must depend, at least to some extent, upon:

(a) the evidence submitted by each party, for which a surveyor could be largely responsible in any suit concerning the position of a boundary;

(b) the emphasis placed on certain aspects of the evidence, which again could be governed to some extent by a surveyor; and

(c) the manner in which the case is presented which is out of the surveyor's hands completely.

While court cases are, perhaps fortunately, the exception rather than the rule, it should not be expected that all other problems encountered in actual practice will easily yield a solution.

If a surveyor is able to arrive at a definite and satisfactory decision on the position of a boundary at the field work stage he is extremely lucky. More often that decision is only reached after much thought and calculation in the office. It is sometimes necessary, in view of what may be revealed by the office investigation, to extend the field work to resolve some doubt or pursue some other course of enquiry which has become evident.

Before any decision is finally reached careful consideration should be given to the interpretation of the deed and also to any special features exhibited by the particular case.

With regard to the interpretation of a deed, the words of Sir Samuel Griffith in the case Overland v Lenehan (11 QLJ 59) are helpful:

"In construing instruments relating to landor the purpose of determining the identity of the subject matter, most weight should be given to those points on which the parties, at the time, were least likely to be mistaken."

Despite this, it is difficult to give any hard and fast rule as to which features may be of more importance than others as these could well vary with circumstances.

However, a rough guide to the relative importance of various matters, subject to abnormal conditions or evidence to the contrary, is given below:

(1) Natural features

(2) Original crown markings of grant boundaries

(3) Monuments

(4) Original undisturbed markings of private surveys

(5) Occupations and

(6) Measurements.

It is a principle of law that a transfer or conveyance is construed more strongly against the grantor.

For example, a lot with frontage of 106ft 3½in might be subdivided, by compilation, into two lots of 50ft and 56ft 3½in in frontage respectively and the former sold. If subsequent survey showed that the full frontage of the original lot was never available, then a reasonable construction would be that the subdivider intended to sell 50ft of his land, unless there is some definite evidence to the contrary.

The residue lot would probably suffer any deficiency or gain any excess which was available.

However, if the land has been subdivided into two lots of 53ft 1¾in frontage each, it might just as easily be argued that the prime intention was to sever the original lot in half.

Two cases worth reading in connection with this principle are Jaques v Doyle (1881) 2 NSW LR 113 and Dempster v Richardson (1930) 44 CLR 576.

There is a generally accepted division of boundaries into two categories, natural and artificial which will be dealt with separately.

NATURAL BOUNDARIES

General

These may be formed by any natural feature such as the edge of a cliff, the seashore of the bank of a lake or stream.

If such features are specified or show in the deed as forming boundaries therefore there can be no doubt as to intention in that deed. The features must be adopted subject to certain conditions, to redefine the deed boundaries irrespective of whether or not their positions conform to the measurements shown in the deed.

Edge of Cliff

There is little difficulty associated with boundary definition when a static feature such as this is involved, other than a possible difference of opinion as to what constitutes the edge of such an irregular object. If a major difference in position is observed, care must be exercised to see that the feature has not been altered by artificial means, such as quarrying, in the case of a cliff.

Tidal Waters

Unless a contrary intention is apparent in the deed, the rule is that title boundaries fronting tidal lakes and streams or the seashore extend to mean high water mark.

This feature is often referred to as forming an ambulatory boundary because its position may change from time to time due to processes of accretion or erosion. If these processes are gradual and imperceptible then the position of the title boundary changes with the feature otherwise it remains as it was prior to any sudden change.

The New South Wales Department of Lands Survey Directions provide good practical methods for the determination of mean high water mark according to whether the foreshore is relatively steep or very flat.

When a plan of land fronting tidal waters is to be lodged at the Registrar General's Department, the surveyor is required to furnish, for lodgment at the same time as the plan, the following information:

(1) Approval of the Maritime Services Board of New South Wales to any definition of mean high water mark changes with the feature otherwise it remains as it was prior to any sudden change.

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When a plan of land fronting tidal waters is to be lodged at the Registrar General's Department, the surveyor is required to furnish, for lodgment at the same time as the plan, the following information:

(1) Approval of the Maritime Services Board of New South Wales to any definition of mean high water mark if the land fronts Sydney Harbour, Port Hunter or botany Bay; problem

(2) Approval of the Under Secretary for Lands in all other cases where mean high water mark has been determined, except where that determination is in agreement with one approved by that Authority within the previous ten years.

As a matter of practice and by agreement with the Maritime Services Board, which has a certificate of title for the bed of Sydney Harbour, the Registrar General accepts the approval of that Authority as indicating that it is satisfied after investigation that the definition of mean high water mark of Sydney Harbour is also the definition of the Maritime Services Board title boundary.

In all other cases the approvals provided are accepted as indicating only that the Authority concerned is satisfied that the high water mark shown in the plan represents the actual physical position of that feature on the ground.

If there is any great departure from the position shown in recorded plans the surveyor may expect to be asked for a report as to the nature of the change, ie whether it has occurred gradually or suddenly. This information is necessary before a decision can be made as to the correct position of the title boundary.

Surveyors should be familiar with the decision given in the case McGrath v Williams (12 SR 477) where the Crown grant contained a reservation of all land within 100 feet of high water mark.

The Court held that the reservation operated as an exception from the grant and consequently the landward side of the reservation was to be fixed at 100 feet from the position occupied by high water mark at the time of grant. This is an important principle and the effect of the judgment is that the granted land does not enjoy the benefit from gradual accretion which, under these circumstances, accrues to the reservation.

Neither, however, does it suffer any loss by gradual erosion unless the reservation itself has first been completely eroded at that place.

The presumption of extension ad medium filum does not apply to land fronting tidal waters - see Gazette Notice of 11 May 1923.

Non-Tidal Lakes

By section 235A of the Crown Lands Consolidation Act, 1913, no title to land comprising the bed of any non-tidal lake is deemed ever to have passed by any crown grant or by any other alienation of land adjoining the lake by reason of the land being described as bounded by the margin or bank of the lake.

Note, however, by that subsection (7) of section 235A the Act does not operate to divest any land included in a Certificate of Title under the Real Property Act, 1900 which issued before 2 October 1931.

The doctrine of accretion and erosion is not applicable to non-tidal lakes, the banks of which should be defined in the position they occupied at the date of grant.

There is always some doubt as to whether coastal lagoons are tidal or non-tidal. To obtain an idea of the circumstances in which some of them in New South Wales

have been considered by Court to be non-tidal, the following cases should be consulted:

Attorney General v MereweatherI (5 SR 157)
Williams v Booth (10 CLR 341)
Attorney General v Swan (21 SR 408).

Non-Tidal Streams

Where land fronts a non-tidal stream the boundary is held to be the bank of the stream unless the deed clearly indicates otherwise.

However, there is a presumption of law that title to land fronting non-tidal stream extends to the middle line of that stream, except in the following circumstances in New South Wales:

(1) Where there is something expressed or implied in the chain of title which would rebut the presumption; or

(2) Where the land is situated in the Eastern or Central Divisions of the State and has been alienated since 3 May 1918; or

(3) Where the land is situated in the Western Division of the State and has been alienated since 31 May 1935.

Subject to the above, the presumption applies to land held under either OS Title or the provisions of the Real Property Act.

Claims for express illustration on titles of this extension ad medium filum are few and seldom of great concern to surveyors.

It is perhaps of interest to know that such claims are not encouraged by the Registrar General's Department because:

(a) it is usually difficult for an applicant to satisfy the Department that there are no surrounding circumstances which would rebut the presumption; and

(b) a claimant who has sufficient evidence to meet a challenge in court on his right to extend ad medium filum does not need express delineation to assert that claim.

The doctrine of accretion and erosion has been held to apply to non-tidal streams. The circumstances, under which it applies, together with various methods of possible apportionment of accreted lands, are very fully covered in Section 5 Part III of Mr Willis' book.

Re-survey sometimes shows that the position of a stream is not in agreement with that shown in the deed. If the change is substantial, the surveyor may expect to be asked by the Registrar General for a report as to its nature (ie) whether it has occurred by gradual means or is due to sudden flooding. Many surveyors anticipate this request by preparing a report for lodgment with their plan.

Excesses in depth disclosed when re-measuring riparian titles based on old surveys are not always indicative of movement in the position of the stream.

In old surveys measurements were often restricted to the high bank of a stream, whereas in modern surveys the tendency is to include all available land consistent with a correct definition of the bed of the stream, particularly when gravel roll-on shingle beds are involved.

Where a natural boundary has been destroyed, such as may happen to the bank of a creek during construction of a storm water channel, the usual practice in re-defining the creak boundary is to replot the position of the bank from the latest available plan of survey or other reliable information in which it is shown.

Alternatively the boundary may be treated as lost, and an arbitrary boundary adopted. This can only be done with the written consent of all interested parties.

ARTIFICIAL BOUNDARIES

General

These are boundaries created by the agency of man and include roads and sub divisional boundaries.

In dealing with these and some methods applicable to their relocation, what is envisaged are urban sub divisions as distinct from the larger rural type where redefinition is more often than not related to the marking of Crown portions.

Monuments

Little difficulty, other than in the physical process of making the survey, is experienced in the location of artificial boundaries if they are defined by monuments which are still in existence.

It is sufficient to quote the well established rule of law that if the position of the monuments conflicts with the deed measurements the former prevail. This is, of course, subject to there being no evidence produced or reason to believe that the monuments are not in their original positions.

Reference to Basic Plan

In defining title boundaries, including street frontages, it is important that reference should be made to the plan from which the deed is derived.

If it is a plan of survey, every endeavour should be made to relocate the boundaries in the same positions as they are shown therein and from marks or monuments of that survey if possible. If a definition, perhaps different to that in the basic plan has been accepted in a later plan and it is desirable to agree with it, some allowance may have to be made at a later stage as regards the depths.

It is as well to realise that, although a plan has been accepted by the Titles Office, this has been done on the basis of the information shown together with the usual office investigation. If a resurvey shows that some information in the plan was erroneous or that the investigation was incorrectly carried out then the basic plan should not be followed where it is incorrect merely because it is an accepted plan. However, sufficient verification should be made in the first instance before deciding to discard any part of the basic information.

Where a title is based upon a compiled plan, sketch or description it becomes necessary to go behind that information until the basic plan of survey from which it or prior similar information originated, is found.

Titles which have issued on primary applications without a special survey for that purpose are usually found to be based on what was regarded as a reliable Old System survey, normally of fairly recent date; or if taken from an older source, are bounded by abuttals.

In the latter case, it is essential to fix the boundaries of the abutting titles in order to correctly relocate the limits of the land brought under the provisions of the Real Property Act without a modern survey.

Roads and Streets

Where roads or streets have been the subject of alignment or re-alignment, the marks placed in those surveys must be used in any redefinition of street boundaries unless it can be shown that they have been disturbed.

It is preferable to use, wherever possible, those marks in the kerb line on the same side of the street as the subject survey, rather than the marks in the opposite kerb line.

The advisability of this has been learned from experience, as illustrated in the two following examples.

The field book of a certain alignment survey in Sydney shows that the alignment posts were placed so that the width of the carriageway is six inches less than shown in the plan and subsequently gazetted.

In another case, in a country town, the alignment plan shows carriageways 66 feet in width while the field book is most definite that eth width marked was 67 feet.

A practice usually considered unsound, unless supported by confirmatory evidence, is the adoption for the purpose of fixing the alignment of Street A, of marks in the

kerb line of a cross or intersecting Street B, which marks were placed supposedly on the alignment of Street A.

The object of an alignment survey is to fix the alignment and kerb lines of streets and therefore it is logical to assume that when the marks were placed, more care would be exercised over their relationship to the kerb line then as to their lateral positions. The same remarks apply to the use of permanent and reference marks to fix streets other than those in which they are placed.

It is also worth remembering that in older alignment surveys it was often the custom, when aligning Street A, to place marks in the return of the kerb line in Street B even if that street was not included in the scheme for alignment. Generally, no particular effort was made to correctly define Street B and consequently these alignment marks, if used to fix that street, are quite liable to give an incorrect definition.

Reference to Alignment Field Book

After alignment marks have disappeared the position of a kerb line may often be re-established with the aid of the alignment field book. Radiations and offsets to buildings are often shown in the field book but for some unknown reason, while offsets will sometimes appear, the particulars of the radiations are never shown on the plan.

If sufficient buildings shown can be identified and if they agree with the information in the field book it is quite legitimate practice to refix the kerb line from them, using the radiations shown in the field book.

Reference to Detail Survey Field Book

Another method by which the position of alignment marks may be re-established is by the use of old field books of the sewerage detail surveys. This method requires a reasonable amount of calculation and, it should be remembered, introduces the work of an additional survey and consequently increases the possibility of error.

The field books of old detail surveys within the Metropolitan Area may be inspected at the office of the Metropolitan Water Sewerage & Drainage Board, while those in the Newcastle and Maitland areas are kept at the Registrar General's Department.

Field traverses in these old surveys were made with surprising accuracy. Besides the traverses the books contain radiations and measurements, usually to the nearest tenth of a link, to alignment marks, kerbs, buildings and other features.

More recent detail surveys are of little value for the purpose of refixation of marks, as they are usually carried out with an accuracy more in keeping with the purpose for which they are made.

When using the detail field books it is advisable to first calculate comparisons between the desired alignment marks by both detail and alignment surveys. If agreement is obtained, and it usually is within normal survey limits, further

calculations must be made. However, should the comparison indicate a substantial difference in the position of a mark it would be unwise to pursue this method further, because it may be open to challenge on the ground that the radiation in the detail survey, which was usually unchecked in the field, may have been in error.

The other calculations referred to involve the computation and relationship of the kerb line or alignment marks in the detail field book to the various buildings shown therein which may still be in existence. Procedure from this point is the same as for refixation of the alignment from the alignment field book.

Old Kerbs

It is very often found that old sandstone kerbs in the Metropolitan area have been laid on or close to the kerb line. This is not universally true however, and neither this type of kerb nor any other should be adopted as defining a kerb line without supporting evidence, such as connections. Even if a kerb has been previously shown on a plan and accepted as correct its position should be verified before adoption. Municipal Councils sometimes lift and relay stone kerbs, and their established value as a monument is then destroyed.

Permanent Marks

According to Ordinance 32 under the Local Government Act, 1919, the positions of streets provided in sub divisions made under the provisions of that Act should be refixed from the permanent marks required to be placed in accordance with the Ordinance.

Ordinance 32 was first proclaimed on 23 June 1920 and permanent marks were required to be placed at offsets of 3ft 6in from the street alignment.

The ordinance was repealed and reproclaimed on 30 June 1933, the position sophisticated the permanent marks being altered to offsets of 1ft 6in, a position since found to be particularly liable to destruction during cable laying operations of the Postmaster General's Department.

Due to the wholesale destruction of permanent marks it was finally realised that the surveyor on the ground was in the best position to site these marks with a view to their preservation.

On 30 October 1964, Ordinance 32 was again amended to allow the permanent marks, with some minor restrictions, to be placed where the surveyor considered they were least likely to be disturbed.

It is useful to remember the dates when the various amendments came into force because some earlier plans show only the notation "PM" without any connection by bearing and distance to a corner of the sub division. A glance at the date of survey will always resolve the question as to which Ordinance they were placed under and therefore at which the statutory offsets search should be made.

Despite the provisions of Ordinance 32, problems can still occur in street definition even when permanent marks have been found. For instance, take the case of a street to be fixed when the original pegging of the sub division is still extant, or even if the sub division is fully occupied, in both cases in accordance with the plan dimensions but not in agreement with the permanent marks which nevertheless are in agreement between themselves.

What is legally the position of the street? Is it, as the Ordinance says, to be defined by reference to the permanent marks, or is it in the position as pegged or occupied in accordance with the plan bearing the signatures of the dedicating parties and accepted by the Council?

This is a situation which does not appear to have been tested in Court but surely the Ordinance must be presumed to refer to permanent marks which have been correctly placed.

Fixation from Occupations

Street fixations causing most trouble to surveyors are generally those provided in sub divisions made prior to 1920, the date of commencement of the Local Government Act.

Original survey marks of these sub divisions are seldom found now and the surveyor is usually confronted with a fully occupied street. The position in which such a street is refixed is very often largely a matter of opinion and depends almost entirely upon what exists on the ground.

If a street has been located in reasonable agreement with the occupation it is difficult to say that the fixation is incorrect, although another surveyor may arrive at a fixation which disagrees to some extent with the first but which it is equally difficult to disprove.

In order to arrive at a solution which may reasonably be expected to withstand a challenge, the following information should have first been obtained in the field:

(1) Offsets to all frontage occupations, on both sides of the street, between cross streets or angle points if first occurring; and

(2) Connections to occupations along cross streets on either side of the street under review.

Consideration of this information will probably yield some solution, or at least, a line which will be least harmful to the occupations while still satisfying any other necessary conditions of the case. It is usually a great help in any of these problems to get the available information into some recognisable and compact form in the first instance. In this connection it is particularly recommended so far as offsets are concerned that a plot on a distorted scale should be made with both sides of the street referred to the one plotting base, or one side superimposed on the other.

The fairly common practice of refixing a straight street for part only of its length is unsatisfactory, and is eventually the source of much trouble.

For example, two surveyors working at opposite ends of a street may each survey a lot having, by comparison with the length of the street, a small frontage only and for the purpose of street definition, locate it by simply turning the original angles off cross streets which they may have gone to some trouble to locate.

This may be understandable to some extent in the case of these surveys with only very small street frontages, but when either or both short definitions are subsequently adopted in other surveys and produced further towards each other the position becomes accentuated. Eventually some surveyor is forced to define that section remaining. Under the circumstances it would be sheer luck if the street boundary finished as a straight line.

If the first short definitions converged the street might finish with one angle in it, but if they were parallel or divergent two angles would have to be introduced in what was originally a straight street.

In any case, while perhaps justified under some circumstances, the method of defining a street simply by turning an angle from another street, however well the latter may have been defined, is not good survey practice.

Kerbs in Unaligned Streets

Another method of street location which is hard to justify is the adoption of a distance from a kerb as laid to fix the street alignment in an unaligned street. This can be justified when the kerb has been shown and connected to in a previously accepted plan because the kerb then becomes a monument related to the previous street location.

Other than this, as there is no statutory width for the footway of an unaligned street, what support can be offered for the arbitrary selection of any particular distance from the kerb as laid to fix the street alignment?

Interpolation

Interpolation between original or otherwise reliable marks has always been accepted as standard survey practice to refix points which cannot be satisfactorily located due to absence of adjacent marks or occupations.

On the other hand, extrapolation has always been regarded as basically unsound practice on account of the consequent magnification of any errors which may exist in the positions of the basic points.

Use of this second method is, of recent years, not as uncommon as it should be, and unfortunately is often associated with a poor choice of marks as a datum line and starting point such as markings of a modern survey not directly related to the section of road being located. According to circumstances this latter is either fixed by an

inordinately long prolongation of the basic line or by setting out a series of original bearings and distances there from. This method may perhaps be used as a last expedient if no other information or marks are available but it is otherwise very difficult to justify.

SIDE BOUNDARIES

Abuttals

With regard to titles bounded by abuttals, surveyors should be acquainted with the established rule of law stated in the case Small v Glen (6 VLR 154):

"A description by abuttals will, as a rule, override measurements expressed in figures if conflict exists between description and measurement."

Pegs

While original markings of a sub division normally provide the best basis for determination of the lot boundaries created therein, it is necessary to exercise caution when dealing with old pegs.

Firstly, it is extremely difficult to estimate the age of a peg with any degree of accuracy as its appearance may depend upon its situation, the quality of the wood from which it was made or other factors.

Secondly, a peg, or for that matter any other survey mark of a like nature, should not be used without first verifying its position as far as practicable.

It would, for instance, be risky to accept a peg for the purpose of boundary definition if it disagreed to a marked degree with surrounding information, such as old substantial occupations which showed agreement between themselves in accordance with the measurements of the sub division.

Much depends upon circumstances, but it must be borne in mind that a peg may quite easily be moved subsequent to the original survey.

Even apparent verification of a peg can be misleading. This always raises memories of a survey in which a surveyor found and accepted to define a street a line of three of four old pegs, the distances between which agreed with the original sub division. The disclosure of an excess in depth led to an investigation which showed that while the pegs were undoubtedly original markings of the sub division, the street alignment had been altered in that plan in response to requisitions but the marking on the ground had never been moved to conform to the plan as amended.

Occupations

In the absence of satisfactory original markings, probably the best evidence of the true position of a boundary will be obtained by reference to occupations either on the subject boundary or nearby boundaries or both.

Greater weight can usually be given to older occupations but here again it is necessary to proceed with caution, as it is just as difficult to form an accurate estimate of the age of a fence as of a peg. The appearance of a fence depends to a large extent upon the quality of the material used and to a lesser degree upon the locality in which it is situated. It is also easy to be deceived by the apparent age of a fence erected from old material.

Due to disappearance of original marks, the present day surveyor finds himself more and more faced with the problem of defining boundaries from occupations only. In spite of the difficulties arising from the absence of a definite starting point or from the lack of a good datum line of azimuth these boundaries seem to be generally located to the satisfaction of all concerned. The chances are however, that the surveyor is not defining the boundary in the exact position in which it was originally laid out, but is, in fact, locating a boundary in a position which is acceptable as an equitable definition of the original.

The Survey Practice Regulations provide that where original monuments of a survey are missing or where excess land is found to be available, the surveyor should show that there is no encroachment upon adjoining lands.

The accepted method of satisfying this provision is by means of connections to marks or occupations of adjoining and adjacent lots. In assessing these connections, care is necessary where the side boundaries of lots meet the streets at acute angles. Such connections are of little value unless:

(a) the lots have parallel sides and the square width can be compared with the original; or

(b) the street has been fixed and the occupations also related to it by offset, so that the correct connections along the street alignment can be shown or calculated.

When endeavouring to fix a side boundary from occupations alone, it is recommended that, where practicable, all occupations in the section should be measured along the street frontage and as many as possible along the rear lot boundaries. While doing this, it is advisable to make some estimate of the age of these side occupations and to note whether any of them appear to have more value than others as indications of a boundary position.

The next step is to compare these measurements with the dimensions of the original plan of sub division and to group any excesses and deficiencies disclosed. Usually,

after referring to these and to the notes previously made about ages etc some reasonably satisfactory attempt may be made to fix the boundary from the information to hand. In view of the infinite number of variations which can occur it is impossible to quote any definite rule or method to be used in this process other than to attempt to least an equitable position of the boundary.

While long continued and undisturbed occupation raises the presumption that such occupation has been erected to the boundary as originally laid down it is estimated that this is a presumption only. It does not mean that because an occupation is old it indisputably indicates the true position of a boundary. It merely provides helpful evidence in the ultimate determination of that position.

Evidence of old occupations brings reference to that much overworked and misquoted case Turner v Myerson (18 SR 133). If properly applied to an appropriate case, the judgment given is probably of more value to surveyors than that in any other stated law case. Part of that judgment was:

"I say unhesitatingly that occupation that has continued uninterrupted for thirty years requires the most positive and direct overwhelming evidence to upset the presumption that the land as occupied is in accordance with the boundaries as originally plotted."

This statement is often quoted by surveyors in support of the adoption of an old occupation as the title boundary.

The circumstances which undoubtedly influenced the Judge in giving that decision, and which are often conveniently overlooked when an oattempt is made to apply it, are:

(1) The starting point of the old sub division could not be determined with any degree of certainty; and

(2) The old occupations were in very close agreement with the measurements shown in the plan of the sub division.

Clearly, therefore, it is not sufficient that an occupation should merely be old to apply the above principle to boundary definition. Good general agreement with original dimensions should be apparent in the occupations in the vicinity, or at least consistent differences which might reasonably be attributed to difference in chainage standard, coupled with absence of any definite starting point from which it might be possible to lay down the original dimensions with any degree of certainty.

Other stated cases along the same lines as that just quoted are:

Cable v Roche (1961 New Zealand LR 614)

Equitable Building and Investment Co v Ross New Zealand LR Vol 5 SP p.229.

James v Stevenson (1893) AC 162.

Chainage Standard

The initial measurement of all frontages in a section may disclose a variation with original which may be due to difference in chainage standard. This is a factor which must be taken into account when dealing with older sub divisions.

It may well be that if original measurements are maintained for each lot, encroachments of varying degrees by occupations will become evident and an excess or deficiency will be left in one lot.

If a difference in chainage standard can be determined and applied it is often found that the boundaries so fixed are in better agreement with the occupations.

Some surveys appear to have been carried out using a different method which involves location of the boundary by measurement from a street or some previously accepted title corner with proof thereof by way of two or three connections to indicate that the adjoining titles are satisfied. Office investigation, using information from other plans, will sometimes raise a doubt that this is so. if that doubt is verified by further connections it simply means that the surveyor originally only connected far enough until he found an occupation to fit his preconceived idea of the boundary position. This is misleading, and unless revealed by office investigation could, and sometimes does, lead to acceptance of a boundary which, prima facie, is reasonably located on the information disclosed but which later will probably cause considerable concern to some other surveyor.

Affected by Alignment

A common source of error in redefinition of title boundaries is that caused by ignoring the effect of the alignment of streets subsequent to the original plan of sub division. Alignments nearly always seem to have altered the original positions of streets to some extent, although it is sometimes very difficult to either prove this or ascertain the amount of shift.

Some alignment field books are invaluable in this respect, and sewerage detail field books may also be useful, although mainly as a means of refixing the lost alignment.

The circumstances pertaining to the case Turner v Hubner (24 SR 3) were similar to those in Turner v Myerson except that the streets were aligned after the original sub division. The decision given was the same in effect with the addition that the alignment plan did not afford any help in fixing the positions of boundaries shown in the old sub division and could not be accepted as providing a satisfactory starting point for that purpose.

Nevertheless, there are occasions when the alignment survey, through information in the field book, will definitely provide such a point and in fact may be the only means of doing so. this information may consist of original sub division markings or old occupations which have been related to the alignment in the field but are not shown in the alignment plan. From this it is often possible to fix the original position of a street or lot corner.

Where a sub division has been affected by a later alignment of streets it is logical and a generally accepted rule that any gain or loss caused thereby will accrue to or be borne by the owner of the land immediately affected.

Excess Land

If excess land is disclosed when relocating title boundaries the position should be carefully investigated to establish whether any of that excess belongs to the subject title.

In practice, however, a surveyor will rarely claim more than title dimensions unless carrying out an amendment survey or, through circumstances, he is forced to do so. From a practical point of view, this is understandable as, at this stage, the excess is probably not worth the extra work involved or the extra cost to the client in establishing its availability.

However, the continued adoption of title dimensions will have the effect of moving any excess through the sub division until it eventually becomes located in one lot to which it probably does not rightfully belong. The situation is worse in the case of a deficiency and in any event the ultimate disposal of the excess or explanation of the deficiency may become very complicated.

A general rule with regard to excess land is that it requires substantial evidence to justify its inclusion in a title if, by so doing, it has become necessarily to locate the title boundaries outside the occupations. However, this is a general rule only and its application will depend to a large extent upon the circumstances of the case.

Fences as Monuments

Title boundaries which were created by the adoption of a long fenced line, such as is often seen in some of the older primary applications, should be re-determined from that monument if it still exists and is undisturbed. While the plan shows the boundary as a straight fenced line, resurvey may show that the fence departs from a straight line in some places. It is probable that the fence was only related to the boundary at the terminal points in the original survey and was assumed to be straight. The legal view appears to be that the land in the title extends to the fence, which is a monument, and not to the straight line joining its terminals.

A useful working rule in this matter is that if a straight line passes through the material of the fence throughout its length although not necessarily through its centre that line may be maintained as the title boundary and the fence may be indicated as on the boundary. Where the line departs completely from the material of the fence, sufficient angles should be introduced to ensure that the boundary will remain within that material throughout its length.

Straight Unimproved Boundaries

As distinct from a boundary defined by monuments there are many boundaries originally created as straight lines without improvements.

On account of the age and substantial nature of some of the occupations now existing along many of these boundaries, surveyors sometimes attempt to redefine them by a series of steps and bends following occupations. If such a survey is accepted and titles issued accordingly these occupations become monuments. When the monuments are destroyed the boundary will be re-established from measurements and in this irregular form can cause difficulty when new buildings are designed up to the boundary.

Technically, there is no reason why a boundary, originally created by an unimproved straight line, should ever be relocated in any other fashion.

A situation such as this will normally occur only in old and heavily built up areas, where it is most difficult to say with any certainty that the terminals of the boundary have been located in their original positions. Under these circumstances it is usually possible to adopt a practical rather than technical viewpoint, in conjunction with such factors as the nature of the occupations, the amount of encroachment caused by the adoption of various boundary positions and the probably indirect nature of the survey.

The aim should, of course, be a straight boundary but if this is untenable then one with as few angles as possible. Plotting of occupations on scales in which the offsets are considerably distorted relative to the lengths along the boundary will often clarify the picture and assist in arriving at a reasonable boundary position.

Improved Boundaries

Cases like the above should not be confused with the redefinition of boundaries which are shown in several lines defined by improvements. There can be no attempt made to straighten such boundaries other than by fresh sub divisions for that purpose.

Plan v Marking

As to the old proposition of whether the position of a parcel of land is correctly represented as shown in a plan or as marked on the ground, no comment is offered. Opinions appear to be divided on the subject and much depends upon any special circumstances which may appear in each case considered. For what it is worth, the following is taken from a book entitled The Land Transfer Act by Mr EC Adams, a former Registrar General of Land in New Zealand.

> "Pegs are paramount to the plan

As authority for this proposition there may be cited Stevens v Williams (1886) 12 VLR 152

It must always be remembered that pegs on the ground can over-ride the plan if the latter gives an incorrect presentation of the position of the pegs, and it must be remembered too that in the absence of survey pegs, occupation lines, within reason, can over-ride a plan. A parcel of land described in a Certificate of Title means the

parcel of land marked out on the ground by pegs, the position of which pegs is shown (correctly or incorrectly) on the plan. The parcel of land so referred to is the parcel of pegged land and is not the parcel of land that would have been pegged if the pegs had been put in where a plan erroneously indicates that they had been put in. The principal difficulty in practice is where the pegs have been shifted or have disappeared; in these circumstances it is difficult to get any two licensed surveyors to agree where the pegs were placed originally. The Court leans heavily towards preserving the possessory boundaries."

Lost Boundaries

Finally, there remains those cases, fortunately few in number, which cause any surveyor to wish he had taken up some other profession.

There are occasions when pegs either cannot be found or do not agree with their assigned positions and when the measurements between occupations disagree with deed dimensions to such an extent and in such haphazard fashion as to render them useless for the purpose of assisting in boundary definition.

Under these circumstances the boundary may have to be treated as lost or confused and, as such, fixed by agreement between the adjoining owners, but only after their consent and that of any other interested party has been obtained to the adoption of some arbitrary line as the definition of the true boundary.

It should be noted that this procedure cannot be adopted merely for the purpose of overcoming an encroachment if the correct boundary is otherwise capable of determination.

Furthermore, a boundary defined in this manner should have no influence on the relocation of any nearby boundaries.

Cases worthy of study in connection with lost boundaries are Moore v Dentice (1902) 20 NZLR 128 and Piers v Whiting (1923) DLR 879.

REAR BOUNDARIES

While depth of lots are not generally regarded as being as important as frontages, sufficient attention should be paid to them to ensure the correct location of rear boundaries.

Depths can be affected by a change in the position of the frontage street caused either by acceptance of a different definition consequent upon resurvey or by alignment of the street after the original sub division.

Original depths should not be adopted from a street without every endeavour being made to verify that the position of that street is the same as in the original plan. If not, the extent to which it has altered should be determined so that the depths may be suitably adjusted.

Where two series of lots have a common rear boundary it is desirable to define the streets fronting both sets of lots and to connect between these definitions. This allows for an equitable disposal of any excess or deficiency in total depth as well as avoiding undesirable steps in the rear boundaries by enabling the line to be determined from end to end.

The mere adoption of original depths without verification, which is a very common practice, will cause overlaps if those depths are overstated in the original plan and will leave an unsightly strip of land claimed by neither lot if the original depths are understated.

AMENDMENTS

Where the description or the boundaries of land in a Certificate of Title are found to be incorrect, their rectification is a matter for the Registrar General, whose power under the Real Property Act are limited in this respect to the correction of actual errors only.

As the basis for the correction of dimensions in an erroneous title or for the issue of a new one the Registrar General will require a plan of survey.

Apart from true amendment surveys, there is a class of application for amendment based on a redefinition survey of the land in a title.

These are in fact attempts to obtain recognition of boundaries which, subject to notice to adjoining owners, may reasonably be regarded as representing the original title boundaries and may be accepted on that basis although the dimensions shown in the redefinition do not correspond with those shown in the original title.

An application for amendment of title is not appropriate when the only reason for it is to clear the encroachment of a building. In such circumstances the matter is one for:

(a) the purchase of sufficient land to cover the encroachment; or

(b) failing that, application for relief under the Encroachment of Buildings Act, 1922.

Surveyors should be familiar with the case Rourke v Schweikert 9 LR (Eq) 152 in which to was held that land not already comprised in a Certificate of Title on the true construction of its boundaries cannot be included later by way of amendment.

Clearly then, an amendment application is not appropriate when the object is the inclusion in the Certificate of Title of any land which is under Old System Title. The correct procedure is to bring that land under the provisions of the Real Property Act by a primary application.

OLD SYSTEM LAND

It is just as important to correctly define the boundaries of Old System land as it is to locate those of land held under Torrens Title.

It is quite evident from plans seen at times that this practice is not universally followed. Some surveyors appear to have the impression that fencing or other occupations, particularly if they are more than twenty years old, provide a satisfactory definition of Old System boundaries. This, of course, is quite incorrect. Exactly the same methods should be employed and the same care exercised in locating the boundaries of an Old System deed as would be employed in defining the boundaries of a Certificate of Title.

Where occupations, regardless of their age, are inconsistent with the deed boundaries that fact should be noted on any plan prepared and should be reported by the surveyor to his client together with any information he may have been able to gather concerning the age of the occupations and the circumstances under which they were erected.

The question of whether any of the land in the deed has been lost by adverse occupation or any portion of adjoining land has been gained by possession does not call for a decision on the part of a surveyor. The latter has discharged his duties when he has provided all the relevant information as facts and has drawn attention to the position as it exists on the ground.

For the same reason a surveyor would be well advised, unless instructed otherwise, to restrict a survey for a primary application to the limits of the documentary title.

If, on his own initiative, he includes in the plan, land outside the deed boundaries for the sole reason that his client appears to have occupied such land for more than twenty years, he may unwittingly cause the client quite an amount of trouble and expense when the latter acts on the plan and perhaps fails to sustain a claim for possessory title.

It is possible to bring under the provisions of the Real Property Act a title acquired by possession adverse to the true owner.

The means of doing this is by proving facts sufficient to show that the right of such owner to recover is barred. What constitutes sufficient facts and what their nature is are legal matters and consequently ground where a surveyor should tread warily.

However, some of the facts required are often within the scope of a surveyor's work to supply and consist of:

(1) details of the manner and extent to which the land has been used and occupied;

(2) the extent to and manner in which the land has been enclosed;

(3) the nature of the improvements existing on the land; and

(4) the time when such fences and improvements were erected and by whom.

Application of these facts, together with the time factor, will be carried out by a solicitor who will nevertheless probably welcome any aid which a surveyor is able to afford by means of an intelligent appreciation and picture of the position on the ground.

In conclusion, the following matters are stressed on account of their importance in relocating title boundaries:

(1) Possession of a complete and accurate search;

(2) Reference to the plan of survey from which the title has devolved;

(3) Treatment of each case on its merits, with special attention to any particular features which may be apparent or which could influence the position of the title boundary;

(4) Interpretation of the deed. In cases where there is doubt on this point, legal opinion should be sought.