

Mapping in Support of Frontier Arbitration: Maps as Evidence

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Introduction

Maps inevitably play a major part in boundary arbitrations, both as historic evidence of the location of the boundary as seen at particular times by interested parties and as the vehicle for presentation and discussion of other geographically based evidence. The following article concerns maps to be presented by the parties to a case as evidence in both the written and oral pleadings. The importance of including professional cartographic advice in the preparations for an arbitration is explained in a previous article.¹ This article is written from the point of view of a cartographic expert who is a member of a team preparing for arbitration.

The admissibility and relative weight of maps as evidence in land frontier arbitrations is a subject that is raised from time to time in legal circles. Apart from judgements by the International Court of Justice and other arbitration tribunals, legal scholars have commented on when and how map evidence is relevant. These comments usually arise from particular cases and are not always applicable to general circumstances.² It would be a valuable contribution to an understanding of the subject if a scholarly international lawyer was to pull all these comments together and give overall guidance on the subject.³ In addition to any value such a work would have to lawyers, it would be of great assistance to cartographic advisers responsible for assembling maps as evidence.

One point on which I am quite certain is that it is a great mistake for expert advisers in arbitration cases to try to become amateur lawyers, so I do not intend to attempt to fill the gap I have identified above. Cartographers pronouncing on points of law are likely to cause even more problems than lawyers who think they understand all about maps. In this article I shall restrict myself to setting out the type of maps that have proved useful and relevant in land boundary arbitrations, what tribunals need to know about them and how to acquire and present the maps to those tribunals.

Characteristics of Maps Suitable as Evidence

The form of disputes about boundaries varies but the usual pattern is for there to be a conflict about the interpretation of an imprecise agreement in the past. The most important map evidence will be any maps attached to the agreement or otherwise used in the original settlement of the boundary. In addition, any other maps of the boundary that were in use at the time of the agreement will be of value in illustrating the state of contemporary geographic knowledge.

If a dispute has proceeded to arbitration it is almost certain that the original agreement is not susceptible to an obvious interpretation and subsequent treatment of the border on maps will be important to the case. Maps produced by one of the parties which clearly show a position for the boundary on an accurate topographic representation of the ground will obviously be the most valuable. However, relevant deductions can often be made about the boundary from maps which at first sight seem too deficient in accuracy or quality to be of value. Manuscript sketch maps or annotated printed copies submitted by field workers as reports can often be significant. Usually, but not necessarily, the maps produced closest to the date of the agreement will be of most importance. Similarly, maps produced or sponsored by government departments are usually given more weight than privately produced maps. However, a privately produced map that can be shown to have been extensively used by government departments will acquire many of attributes of an official map.

In addition to historic maps it is important to include modern accurate maps at as large a scale as is available. These will serve as a point of reference and comparison throughout the case, as well as the eventual basis for the delimitation. Where such a map does not exist the tribunal may decide that one should be made, as was done, for example, in the *Palena Case* (Argentina/Chile). However, it is unlikely that the International Court will take such a

course, preferring to make do with the best mapping that is available.

While rejecting maps that are clearly lacking in useful information (such as those of much too small a scale to be relevant) it is as well to assemble all maps covering the area that could possibly be significant so that the lawyers in the arbitration team, under advice from the expert, can select which maps should form part of their case. When gathering the maps, it is most important not to select just those maps that appear to be favourable to the party that you are advising, for two reasons.

Firstly, the team lawyers need to anticipate the points the opposition will put, even if they leave the bad news out of their own pleadings. Secondly, professional expert witnesses are required to be impartial and not to suppress points that are unfavourable to the party employing them. An expert report which is seen to cover the case in all aspects will carry greater weight than one which is selective. Any oral or written expert opinion should cover all relevant maps that can be found.⁴

In addition to acquiring copies of the relevant maps it is often valuable to obtain information about their background. Records are often available showing how the map was conceived, why it was made, how it was made, who made it and what use it was put to. Such information may provide guidance on the accuracy of the map, both in general terms and in particular on how the boundary symbol was placed on the map. Survey records, field sheets, air photographs and intermediate drafts that were used in making the map often reveal information that is not on the map itself. For example, in the land part of the *El Salvador/Honduras Frontier Dispute*⁵ there were no historic maps showing a claimed frontier which could be used in evidence but there were numerous records of land grants from the 17th to the 19th century which were expressed as bearings and distances. Translating these survey records on to modern maps was the basis of the claims of the parties and the subsequent judgement.

An assessment should also be made of the positional accuracy and completeness of any map selected as evidence. This can often be done by visual comparison with an accurate modern map but in some cases a rigorous mathematical evaluation of the accuracy of a map is appropriate, using standard cartometric tests.⁶

Depiction of Boundaries on Maps

Laymen often have misconceptions about how boundary line symbols come to appear on maps. It needs to be explained that this is invariably an office task using the relevant treaties, agreements or awards to add the line to the map as described. Even if the field surveyor has positioned boundary pillars on the map, the draughtsman will have to check that they are in accordance with the documentation and also place the line between them as specified in the relevant instrument. Cartography is an exact science and, in well-organised cartographic offices such as established government departments, its practitioners are required to follow strict guidelines on accuracy, with frequent checks by superior officers. The depiction of international boundaries on official maps requires particular attention and is usually undertaken by experienced staff. It is likely that the line of an international boundary on a map will be the most carefully placed component. Where there is any doubt about the correct line, specialist staff or other agencies are usually consulted.

Compiled Maps

Some legal authorities express a reluctance to accept any maps except those made from original surveys, and reject compiled maps. This prejudice usually arises from a particular circumstance and there is no justification for extending it to become a general rule. It shows a lack of understanding of how maps are made. Virtually all maps are, to some extent, 'compiled', since at least part of the information they show comes from other sources than a specially commissioned field survey. For example, any map that shows an international boundary is partly compiled since a boundary can only be added to a map in the drawing office, using the relevant treaties or agreements. Maps with a large element of compilation in their production are not necessarily inferior to maps primarily based on original surveys. A well compiled map should consist of the best available data for each aspect it is depicting and may well be a much more complete map than any of the individually surveyed maps that were used in its compilation. If the compilation is performed carefully there should be no loss of accuracy. The value of a map depends on its completeness and accuracy compared with ground truth, irrespective of how it has been made.

The Scale of Maps that are Relevant

There is a temptation to define the minimum scale of map which is relevant to a particular case and automatically exclude all those of smaller scale. This is a mistake as the test of whether a map is relevant to a dispute is what detail it shows. Maps are normally produced with an object in mind. They may be for general use or for more specific purposes such as development, tourism, aerial navigation, etc. The use will determine which features are shown in detail and as accurately as possible and which are generalised. Thus two maps may be of the same scale but what one shows in detail another will omit. It is therefore not possible to set a scale below which a particular feature will be shown on all maps in sufficient detail to be relevant and above which all maps will be irrelevant to the case. Whether such detail appears will depend on the specification of the map, the availability of source material and the skill of the compiler.

Two examples of maps that have been key issues in frontier arbitration cases will serve to show how any limitation on scale should be applied. The relevance of the map in each case depends on what can be seen on it and not on what scale it is. In the *Temple Case* the key map, around which the whole judgement revolved, was a French 1:200,000 map. Apart from Judge Wellington Koo, who dissented from the judgement on this and other points, the International Court found no difficulty in using this map to define the claims and the awarded frontier line, although the critical distance was only 500 metres.⁷ However in the *Taba Case* (Egypt/Israel) the Tribunal found that: "*The Tribunal does not consider these map-based indications to be conclusive since the scale of the map (1:100,000) is too small to demonstrate a location on the ground exactly as required in these instances where the distances between disputed pillar locations are sometimes only a few metres.*"⁸

Third Country Maps

The official maps that are relevant to a dispute will usually have been produced by one of the parties to the disputes since normally no other country will have had cause to map the area. However, where a disputed area is close to another international frontier it may well appear on the map of a third country. In earlier times the detail on maps often stopped at the border but for some time the usual practice has been to fill the gap between the frontier and the edge of the sheet with mapping from the

adjacent country. It would not be practical or good manners to produce original mapping in these circumstances. Thus third country maps of disputed areas are usually derivatives of the maps of one of the two parties to the dispute and not an independent expression of opinion on the boundary. Such maps are only of limited value as evidence.

Finding the Maps

The location of the required maps will vary greatly depending on the history of the disputed border. In most cases the dispute will have been gradually coming to the surface over a number of years and some of the relevant mapping will have already been identified by whichever government department is handling the case. In many cases the expert adviser will come from the national survey department and if someone qualified and suitable is available that is the best solution as he will have a head start in understanding the mapping. If this arrangement is made it is essential that the person concerned is senior enough to command respect in other government departments, will be sufficiently free of departmental duties to give priority to the case, is willing to do detailed investigations himself and, if he is to give evidence, is fluent in the language of the Court (English or French for the International Court).

In any case, the national survey department should be the starting point for the expert adviser as the staff are likely to have extensive knowledge of the country's mapping as well as very useful expertise to support a cartographic adviser. After that a search is necessary in the national archives and any other major libraries, often located in Universities. Government departments (such as Defence, Police, Transport, Agriculture) usually hold some historic maps in their records, though they are frequently unaware of what they have got. For ex-colonies and dependencies the archives of the former ruling power will usually provide a good source of maps. It is also necessary to search in the archives of the opposition, as far as that is possible, as they will not necessarily produce all the maps they hold as evidence.

For researchers based in the UK, the Map Library of the Royal Geographical Society is always a good starting point. Not only does it have a wide range of maps covering the world but the staff provide good advice on what other libraries are likely to hold maps of a particular area. The Public Record Office has the largest collection of maps in the UK and is particularly valuable for any countries with a

strong British connection. However, it is not an easy place to find things unless you have a fairly good idea of what you want and a strategy for finding it. Other sources are the British Library Map Library, the India Office Library (which is being incorporated into the British Library), the National Library of Scotland, the Ordnance Survey International Library (formerly the Directorate of Overseas Surveys) and University Libraries (particularly Oxford and Cambridge). The Ministry of Defence Map Library also has much valuable material but it is not open to the public and requires diplomatic clearance for access.

In all cases, searching by remote control is rarely successful and personal attendance at the library by the researcher is necessary for two reasons. Firstly, because maps are notoriously difficult to catalogue compared to, for example, books. The ideal solution is for the researcher to actually go through all the likely plan press drawers and pull out any items that seem interesting. However, few librarians allow this, so indexes of contents have to be scanned imaginatively and any likely items called up for study. As many will be quite irrelevant this can be a slow process. Secondly, because the researcher needs to study the original maps himself so that he can then be sure that he has drawn the correct conclusions. He will also be able to say in oral evidence that he has seen the original. Nothing is more devastating than a cross-examining counsel saying scornfully, "*You mean to say that you have not seen this map...*".

Assembling the Maps

When assembling maps for assessment it is often sufficient to study the originals in an archive and then take away a monochrome photocopy, which the archive will provide. Sometimes the archive will only have a small format copier but a complete copy of the map should still be acquired in sections. However, it must be borne in mind that rough monochrome photocopies will not necessarily show all relevant detail and a high quality colour copy will eventually be required for important maps. To supplement the copy and to provide a systematic inventory, the details of each map should be listed together with any particular characteristics, especially those concerned with the depiction of the boundary. The essential details are: Title - Scale - Authority - Series/Reference Number - Sheet Number - Edition Number. This will form the full title of the map which will identify it unequivocally but which will be too cumbersome for general use. It is therefore as well to also list a short title and try

to persuade the team lawyers to use it consistently in the pleadings. It is also important to note the archive reference number so that the item can be retrieved if necessary and so that it can be quoted for any item that is submitted as evidence. The number of maps collected will invariably be greater than originally expected, so a map press should be acquired at an early stage to store the maps at a location that is easily accessible to all members of the arbitration team.

Presentation of the Maps in Written Pleadings

In a frontier arbitration the standard procedure is for each side to simultaneously present a Memorial stating their case. After an interval, usually of 6-12 months, a Counter Memorial is similarly produced and sometimes there is a further stage of a Response. After a further interval there are Oral Hearings. The written pleadings will need to be supported by copies of the relevant maps. It is usual for the text of the Memorial to have map inserts that are referred to in the text. Most Memorials are at A4 size and the map inserts can be A4 or A3 fold-outs. Smaller map inserts on pages of text are possible but require careful co-ordination with the producers of the text. It is also usual for the Memorial to have an Atlas of maps as a separate volume. The size of the Atlas will vary but A2 is common. Ring binding is recommended so that the Atlas will open flat and extra maps can be added at a later stage. Stiff covers are usual though with soft covers the Atlas can be folded and taken away for study at the week-end by the Judges. Reproduction of maps takes longer than text so it is very important to get the arbitration team to decide what maps are required at an early stage, usually before they have finalised the text. It is also necessary to persuade them not to change their mind after production of the maps has been put in hand.

Lawyers will often wish to include only that fragment of a map that covers the disputed area but to give the map due weight as evidence it is important to show the whole map, including the marginal information. The usual way that this is done is to reproduce the complete map in the Atlas, reduced in scale to fit if necessary, and to include an extract covering the disputed area, at the original scale or enlarged, as an insert to the text. Until the advent of the microchip, maps were probably the most effective way of storing a huge amount of information in a small space. In order to retrieve and understand that information accurately, where

it is not possible to study original copies (usually because the original is in an archive from which it cannot be removed), it is essential that any copies that are produced as evidence are as faithful to the original as possible.

Archive maps normally have to be copied within the archive. Arrangements vary but, typically, the researcher will need to hire a photographer to photograph the map in premises provided by the archive. Where it is possible, a half-plate photograph by a specialist in such work will give a better result than an electronic scan which has become the normal printer's copying method. High quality reproduction is also needed, for which specialist printers should be employed. For an International Court case 200 copies will be needed (150 for the Court and opposition and, say, 50 for the team and distribution to government departments and libraries) so that it will normally be economic to use lithographic printing rather than photographic reproduction for the maps. Electrostatic (Xerox) colour copying is at present too crude to provide adequate quality.

Presentation of the Maps in Oral Pleadings

During the Oral Hearings advocates will need to draw the Judges attention to the details of maps, both as evidence in themselves and as the background to other evidence of a positional or geographic nature. This can be difficult as there are not normally any facilities in courtrooms for using visual aids, though projectors are sometimes introduced to display graphic material. The problem is to ensure that all the Judges and the opposition can see the display clearly when lighting and eyesight are liable to be sub-standard. This is particularly difficult in the International Court where there are 15 Judges (or 17 if *ad hoc* members have been nominated) sitting on the bench along one side of the courtroom. The most common solution is to mount enlarged copies of the relevant maps on large boards which are set up on easels and supplement them with A4 'Judge's Booklets' containing extracts of maps to be referred to in that session. This approach is quite popular with Judges as the booklets are portable and the boards can be set up in retiring rooms for the discussion of the judgement. If the Judges are asked to find and study maps in their copies of A2 atlases during a hearing there is a great danger that some of them will lose the thread of the argument in the clash of turning pages.

Finally

There is one further action the cartographic adviser should take after the case is finished. That is to write up the cartographic aspects of the case and submit them as an article for the *Boundary and Security Bulletin*.

Notes

- ¹ Rushworth D. (1996) 'Mapping in Support of Frontier Arbitration', *Boundary and Security Bulletin*, 4, 2: 60-61, Durham: International Boundaries Research Unit.
- ² For example, quotations are often made from the various dicta on maps by Judge Huber in the *Palmas Case*. In fact he was not talking about maps at all but about 17th century charts of the Pacific Ocean made privately by European sea captains of varying competence using primitive methods. To a cartographer it seems odd to apply his remarks to 20th century land mapping. (Reports of International Arbitral Awards, Vol II, Case concerning the Island of Palmas.)
- ³ The only works that I am aware of on these lines are Hyde (1933) 'Maps as Evidence in International Boundary Disputes', *American Journal of International Law*, 27; Murty (1964) 'Boundaries and Maps', *Indian Journal of International Law*, 4; Akweenda (1989) 'The Legal Significance of Maps in Boundary Questions', *British Year Book of International Law*, 212. The first is good but outdated, the second is dominated by India's case in its disputes with China and the third is useful but suffers from a lack of understanding of maps.
- ⁴ I intend to write at more length on the role of the expert witness in a later article.
- ⁵ ICJ Report 1992. *Case concerning the Land, Island and Maritime Frontier Dispute*. Page 351 etseq.
- ⁶ In making such accuracy tests it is important not to be confused by variation in geographical coordinates, see Rushworth D. (1997) 'Mapping in Support of Frontier Arbitration: Coordinates', *Boundary and Security Bulletin*, 5, 3: 55-59, Durham; International Boundaries Research Unit.
- ⁷ ICJ Report 1962. *Case concerning the Temple of Preah Vihear*, Judgement para 19, page 84.
- ⁸ Reports of International Arbitral Awards, Vol E. *Case concerning the Location of Boundary Markers at Taba*, para 184, page 48.

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