BOUNDARY DEMARCATION BETWEEN BRITISH AND PORTUGUESE COLONIAL TERRITORIES IN EAST AFRICA

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pp 223-238

Introduction

The late 19th century saw an unprecedented growth in boundary surveys and demarcations. Britain, Portugal and other colonial powers were busy defining the territorial limits of their colonies and dependent territories in Asia, Africa and the Americas. Some territorial boundaries were never fully defined and are still bones of contention between successor nations (Malaysia and Yemen). That these boundaries were often decided paying no regard to the wishes of the indigenous inhabitants is well known. What is, perhaps, less well known is that in most cases the boundaries of these territories were decided at conferences, often held thousands of miles away from the boundary itself, with little or no say given to the surveyors who would, ultimately need to define the boundary on the ground. As the post-colonial period has seen a consensus amongst the peoples of the former colonial territories to respect the colonial boundaries, the work of the diplomats who delimited the boundaries, and the surveyors who carried out the demarcation has left a permanent legacy in boundary markers on the ground and in the depiction of those boundaries on maps.

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The consequence of boundary making by conference was that lines were drawn on a map, which often paid scant regard to the geography of the area to be divided. Ratzel (1897) made the first real attempt to bring some logic, or order, to bear upon the process of boundary making. In Ratzel's (1897) view, the boundary was an abstraction and that what really existed was the border area. The boundary for Ratzel was like the skin of an organism that defended the organism, but also allowed exchanges to occur. Ratzel also viewed boundaries as a factor influencing state power, and as a measure of state power. A State would grow, or contract at its periphery. Strong states would grow by the absorption of territory from weaker states, or by their wholesale incorporation. Weak states would lose territory, either through the assertion of independence by peripheral territories, or by the loss of territory to neighbouring states. In viewing boundaries in this way, Ratzel was simply reflecting the growth of Prussia and the establishment of the German Empire through the 19th century. Ratzel also drew attention to the need for defensible boundaries, a view that was also held very strongly by the two major British writers on boundaries, Curzon and Holdich. While Ratzel's attempt to establish general laws relating to boundaries has been shown to be futile because each boundary is unique (see Jones, 1945), nonetheless, his ideas were very influential in the boundary making of the early 20th century.

Types of Boundaries

Curzon's *Romanes Lecture* on frontiers, given in Oxford in 1907, provides a very clear overview of British political thinking on the subject of boundaries (Curzon, 1907), while Holdich's *Political Frontiers and Boundary Making* of 1916 provides a clear exposition of the views of someone intimately involved in the practice of boundary making and demarcation over many years. The main ideas contained in both Curzon's and Holdich's work had been discussed a little earlier by Hills (1906). Although virtually unknown today, Hills was a key player at the time, a well-known astronomer and a Major in the Geographical Section of the General Staff (GSGS). He was sent on a number of tours of colonial survey departments and seems to have acted as a 'trouble-shooter', for

example, he was called in to advise on the problematic boundary in the lower Shire watershed. Of the three writers, Hills (1906) was the most outspoken in his criticism of boundary definition by diplomats 'whose knowledge of geography may be small and whose knowledge of practical survey is *nil*' (emphasis in the original).

Hills, Curzon and Holdich all held the view that boundaries could be described as 'natural' or 'artificial'. By these terms they meant that boundaries were dependent on, or independent of, physical features such as rivers or mountain chains. These views were attacked since all boundaries could be regarded as being artificial. However, What Hills, Curzon and Holdich had in mind was that certain physical features were intrinsically more defensible. As Prescott (1965) noted, Curzon was very careful to distinguish between 'natural boundaries' based on physical features and a 'class of so-called Natural Frontiers....namely those which are claimed by nations as natural on grounds of ambition, or expediency, or more often sentiment. The attempt to realize Frontiers of this type has been responsible for many wars, and some of the most tragic vicissitudes in history'. Nearly one hundred years after Curzon's lecture, events in the Balkans, the Caucasus and the Middle East show this to be no less true today.

Curzon advanced three ideas, which were subsequently used by others, and are restated here because they directly relate to the central focus of this paper. Firstly, Curzon classified artificial boundaries into three types: astronomical, mathematical and referential. Astronomical boundaries followed a parallel of latitude or a meridian of longitude, mathematical boundaries connected two specified points, while referential boundaries were defined relative to points or points, and could include arc or straight lines. Thus, the United States border with Canada is for much of its length an astronomical boundary as it follows the 49th parallel. That between Alaska and Canada is, in part, a meridional boundary. State and province boundaries in the United States and Canada are also largely defined astronomically. Mathematical boundaries are used to define the boundaries between Libya and Chad or Algeria and Niger, or of more relevance here, much of the boundary between Kenya and Tanzania. Referential boundaries includes much

of the boundary between Gambia and Senegal, but are much more common in defining maritime boundaries. The boundaries between Portuguese and British East Africa were a complex arrangement of astronomical, mathematical and natural boundaries.

Secondly, Curzon mentions the idea that boundaries could be frontiers of separation of contact. The old 'Iron Curtain' was very much a boundary of separation, while that between North and South Korea remains one to the present day. Boundaries within the European Union are boundaries of contact, especially those between signatories to the Schengen agreement.

Thirdly, Curzon drew attention to the need to constantly reconsider the suitability of frontiers in the light of changes in military technologies. This was to be a major factor in the thinking of military theorists, but went largely unconsidered by geographers for many years (Prescott, 1965).

While the types of artificial boundaries discussed by Curzon are easy to define on paper, they often posed significant problems when it came to demarcation on the ground. To understand the nature of the problems encountered by a boundary survey party attempting to mark an astronomical boundary, it is first necessary to understand the limitations of the survey techniques of the day. The nature of these problems can best be illustrated by looking at the work of particular survey parties. The simplest artificial boundary to define, is one which follows a line of latitude, such as the 49th parallel between the United States and Canada (Anderson, 1876). It was relatively easy, if time consuming, to determine the latitude of an unknown point. 19th century surveyors could have measured their latitude by reference to the elevation of the sun above the horizon. This did not give a very precise answer, so for more precise surveys observations to stars were used instead. To carry out star observations for precise determination of latitude, it was also necessary to know the time to a high level of precision. In a time before time signals, this meant that the survey party would need accurate chronometers. Multiple observations of stars, using a zenith instrument, would then be needed to yield a latitude of

sufficient accuracy. However, this simply gave the surveyor the position of the unknown point, not the position of the boundary latitude. To work out where the boundary was relative to the determined point, it was then necessary to calculate the distance on the ground of the required latitude from the determined point, based on an accepted 'figure of the Earth' (i.e. an accepted size of the Earth at that latitude). This distance could then be measured and check observations of latitude made on the line of the parallel if necessary. This would work reasonably well, so long as there were no significant gravitational anomalies. Once the position of the parallel had been found to the required precision, the point could be marked. The direction, or azimuth, of the parallel could then be determined by more astronomical observations. The whole process took, on average 7 days to complete for each surveyed point.

A type of referential survey was that carried out on the part of the boundary between Portuguese and British East Africa. In this case the boundary was defined as a series of straight lines joining known points. Unfortunately, the known points turned out to occupy different positions to those that they were believed to occupy at the time of the Congress of Berlin. Triangulation, controlled by astronomical observation, was used to determine the position of the boundary during this survey. This technique was to become the norm for most future surveys. Smith (1894) gives some idea of how this kind of survey was conducted. In this case, the latitudes of eight stations were determined astronomically and linked in to the triangulation scheme, which was made up of 86 triangles. In addition to the triangulation, a plane table survey was normally carried out of the topography either side of the boundary.

An example of a natural boundary is that which separated Portuguese and British East Africa in the area of the Shire River. Although quite easy to define in theory, in practice this gave rise to problems where the watershed was difficult to define. In the case of the Shire there were problems near the Ndinde Marsh. The boundary commissioners were unsure whether the Ziwi Ziwi flowed into the Zambesi or from the Zambesi into the Shire. This uncertainty was due to the Shire backing up when the Zambesi was in flood, and the water finding an alternative route into the Zambesi via the Ziwi

Ziwi. Although the boundary commissioners were able to arrive at an amicable arrangement on the ground, if there had been a more difficult relationship between the commissioners, it could have led to the issue needing to be sent for international arbitration. Difficulties in defining the boundary between Portuguese and British East Africa did lead to arbitration in the case of Manica, on the boundary between modern Mozambique and Zimbabwe.

One of the more curious aspects of boundary demarcation between Portuguese and British East Africa lies in the differences in the accuracies with which the demarcations were executed. North of the Zambezi, where the boundary does not follow the Luangwa River, it is defined by rough bearings (nearest quarter degree) and approximate distances (to the nearest 0.1 miles). However, south of the Zambesi, the boundary is defined by more precise bearings (measured to the nearest minute), and distances (measured to the nearest metre). Since the two surveys were carried out only one year apart, in 1904 and 1905 respectively, the differences cannot be attributed to improvements in the standards of surveying. It is much more likely that the main cause was a shortage of properly trained boundary commissioners. Markham, the President of the Royal Geographical Society, had drawn attention to the lack of proper training in Britain, comparing it unfavourably with the situation in India. He was instrumental in starting a training course in surveying, run by the Royal Geographical Society, aimed at training colonial officials in appropriate survey techniques (Collier and Inkpen, 2003). However, the throughput of trainees was inadequate to meet the needs of the boundary demarcations taking place all over Africa.

Holdich's reservations about earlier work on boundary definition can be summed up in three points; there were problems of definition on the ground, the boundaries lacked a defensible nature and they ignored economic realties. Curzon had recognized the problems of defining artificial boundaries on the ground. He had alluded to them in the Romanes Lecture (1907) when he talked about the need to clear a 100 yard swath of vegetation and to monument the boundary. Curzon also made the point that the demarcation of such boundaries was extremely costly in time and money. Curzon, however, seemed much less aware

of the problems created for the surveyor by the inappropriate selection of a boundary. As an experienced boundary surveyor, what Holdich wanted were well defined and easily surveyed boundaries. From his work in South Asia, Holdich recognized that a line on the ground which did not relate to any kind of physical or cultural reality would not only be difficulty to define, it would also be difficult to enforce. Holdich was well aware that the boundary between Russia and Afghanistan and Afghanistan and India were very porous (Holdich, 1916, pp.5-7). To the nomadic tribes people of the time nationality meant nothing, let alone national boundaries. In such circumstances, inappropriate natural boundaries would be of little use, and artificial boundaries would be even worse.

However, like Curzon, he recognized that not all 'natural' boundaries made good boundaries. The most obvious 'natural' boundary is a river, and rivers are commonly used as boundaries in many parts of the world. However, rivers are also commonly the physical entity that unites people. They have been conduits from trade and are often integral to the economic life of countries. They also serve to join countries. These important roles were recognized in the Congress of Vienna where special status was accorded to major waterways.

Artificial boundaries come in for particular criticism from Holdich, as they had from Hills. As practical men they knew that artificial boundaries posed technical problems for surveyors if they were to be demarcated at the level of precision required by the treaties governing them. The United States/Canadian boundary had been especially problematic, due to the difficulty involved in determining the precise position of the 49th parallel.

In addition to the cost in time and money that it took to carry out the demarcation of an artificial boundary, there was also the problem that, in settled areas, it was likely to cut through overlapping areas of settlement. By the time the boundary surveyors reach the Dakotas, they found Canadians south of the 49th parallel, and Americans to the north of it. Any line drawn through settled areas of Africa was bound to come up against similar problems. The only circumstance under

which a straight-line boundary was considered acceptable was in an uninhabited desert area, where the desert itself was believed to act as a defensible boundary. Unfortunately, the uninhabited desert areas of the late 19th and early 20th centuries were sometimes later found to contain mineral resources, which made them very contentious.

In addition to wanting boundaries, which were easy to define and survey, what Holdich wanted was that boundaries should be 'strong'. By this he meant one that was as short as possible, well-defined and defensible. For example, in his discussion of the boundary between the Belgian Congo and Rhodesia he differentiates between different parts of the boundary in terms of their strength (Holdich, 1916, p.237).

The dividing line between Belgian territory and Rhodesia is not an ideal boundary, but it is on the whole a natural boundary, definitely fixed, and should lead to no complications. It follows a fine watershed at the head of the southernmost affluent of the Congo till it is carried to the southern end of Lake Bangweolo, and from that lake to Lake Moreo it is defined by a connecting river.

This is a strong frontier so far. A straight line (which is never a strong line) connects Lake Moero with Lake Tanganyika and finishes off the southern borders of the Belgian Congo State.

It is interesting to note that this particular stretch of the Congo/Zambian boundary has still not been settled, 110 years after the boundary was first delimited, due to problems with the definition of the starting point on Lake Tanganyika.

Holdich's recommendations

Holdich, like Curzon and Hills before him, believed that international boundaries were lines between enemies actual or potential. There are frequent references to this function of international boundaries. However, even before getting on to any discussion of the defensibility, or otherwise, of a boundary, Holdich believed that the first consideration

had to be the acquisition of good geographical knowledge of the area to be delimited, normally in the form of properly surveyed maps. In his view, most 19th century boundary making had been bedeviled by the inadequacy of the geographical knowledge of those delimiting boundaries.

To Holdich:

> *The delimitation of a frontier is the business for the treaty makers who should decide on trustworthy evidence the lines of a frontier delimitation which will be acceptable to both the high contracting parties with all due regard to the local conditions of topography and the will of the people who are thus to have a barrier placed between them.* Holdich (1916, p.179)

It is in the assertion that good geographical knowledge needs to precede any attempt at boundary delimitation that Hills (1906) and Holdich (1916) make their greatest contribution to the literature on boundary making. As anyone who has read the reports of the boundary commissions will know, the reports often contain the first real description of the area being demarcated. It was common for the parties to include scientists, such as botanists and geologist, to collect geographical data whilst the demarcation was in progress. If it is necessary to carry out a boundary delimitation in a previously unexplored area, Holdich is clear, that:

> *If, indeed, it is compulsory ignorance, if there is no possibility of waiting till maps can be made, and arbitrators are forced into the position of adopting the worst of all possible expedients – the straight line – a provisional or elastic agreement must take the place of a more elastic boundary.* Holdich (1916, 184-85)

It is also clear from the above the kind of boundaries that Holdich thought desirable. Boundaries should, wherever possible, follow natural features. Ideally, they should be watershed boundaries of the kind used in his demarcation between Chile and Argentina. They should be defensible, bearing in mind the military technology in use at the time

of demarcation. Like Curzon (1907), he would also like the possibility of revision in the light of changing military technologies. However, both Curzon and Holdich are, at best vague about how this could be achieved. To ensure a more defensible boundary, it would be relatively easy for a strong power to force a boundary revision on a weaker neighbour. However, a strong power would have little need for such an arrangement with a weaker neighbour. Where it would need one would be with a stronger neighbour, a neighbour much less likely to agree to such an arrangement.

Holdich also believed in trying to get the agreement of the people living in the border region to alignment of the boundary. This belief is a recurring theme throughout his work and, no doubt, derives from his experiences on the borders of India and Afghanistan. This was already common British practice, even if other powers were happy to ignore the wishes of the local population.

In the light of all the problems discussed in his book, and elsewhere, he hoped that things would be different in future:

> *It may be assumed that no future treaty-maker or boundary-delimiter would care to face the risks of failure by following the methods of a past generation of political blunderers.* Holdich (1916, p.180)

Holdich did not, however, restrict his argument to the physical nature of the boundary and the views of the local population. He also believed that due regard to be paid to economic issues, for example transport. Good transport links would aid the defensible nature of the boundary, but they would also foster the economic development of the border region and possibly trade across the boundary. Encouraging development, and hence settlement, of a border region could rendered it more defensible.

The boundaries between Portuguese and British East Africa were deficient in terms of many of Holdich's criteria. In appropriate straight-lines were used and poorly defined watershed wee used as 'natural'

boundaries, leading, in one case, to the need for arbitration, and in others to the use of considerable discretion by the boundary commissioners. As old allies, it was always likely that Portugal and Britain would arrive at generally amicable solutions. Things were frequently much more difficult where Britain was dealing with potentially hostile powers.

In the case of the Manica boundary, which went to arbitration, Viglianni (1897) defined the boundary by a combination of astronomical and referential lines (**see figures 1 and 2**[2]).

However, on the ground, the commissioners decided that the boundary would be a series of straight lines joining consecutive points, even where the 1898-1899 agreement stated it should follow the watershed.

Boundary Commissioner's narrative reports – the Shire/Zambesi watershed example

The boundary commissioner's reports are important for two major reasons. Firstly, they often reveal the underlying motives behind the actions and decisions of the commissioners, which are not mentioned in the formal descriptions of the boundary. Secondly, they frequently contain some of the earliest geographical descriptions of area through which the boundary runs.

The demarcation of the Shire/Zambezi watershed boundary illustrates that British boundary commissioners were quite prepared to take advantage, even of a friendly power, if they believed it to be in the interests of Britain. In doing so, the British commissioners, led by Swann, took advantage of the provisions Article VII of the Treaty of 1891 (Hertslet, 1909). As Swann noted:

> *In defining this Boundary I have followed as closely as possible the Treaty concluded between Great Britain and Portugal in 1891, but I found it necessary to avail myself of the powers secured in Article VII of the Treaty, and in some instances to depart from the true watershed for local reasons.* Swann (1900)

[2] In the end of this paper

What these local reasons might be is soon made clear:

I consider the country between Beacons No.22 and No.26 to be well worth prospecting, as numerous mineral veins run through the granite. The best time of year for such work is October, when the grass is burned and the river beds are dry.

A very large mass of a blue-black mineral is situated immediately South of Beacon 22. This deposit is by arrangement in British Territory as the watershed here makes an "S" bend, and we decided to accept a straight line which passes through its curves giving to each country an equal amount of territory. I had discovered this mass of metal previously and had we followed the watershed it would have left the deposit in Portuguese Territory.

Swann was able to take advantage of the situation as the Portuguese commissioner, Captain Coutinho, had not arrived until a month later than arranged. This gave Swann the opportunity to survey some 60 miles of the boundary before Captain Coutinho's arrival.

Between Beacon 27 and Beacon 34 Swann noted that there were considerable problems in delimiting the boundary due to the sinuous watershed, although there was no attempt in this area to simplify the boundary as there had been around Beacon 22. This was an area of volcanic rock which did not appear to contain mineral veins, and Swann probably saw little advantage to be gained by adopting a simpler boundary.

Near Chiwonga Swann discovered the problems that can arise in an area of a poorly defined watershed.

I found that the bank of the Shire River was the highest part of the land, and that when in flood the River Shire water flowed into the basin at the foot of the Matundu Hills and to the North of the line fixed by treaty. This being the case I followed the line due west and where it cut the watershed erected a Beacon.

> I found that on this West line, there existed several other Beacons, composed of cement and said to have been erected by the British and Portuguese some years before. These Beacons being in a direct West line were accepted by me, and we then found that the Portuguese Commissioner could not accept the line we claimed owing to the Hills during a portion of the year draining into the Dindi Basin, and not directly into the River Shire. I claimed that the Shire River and the Dindi water were connected during the rainy season and therefore the Shire River watershed extended to the Matundu Hills.
>
> *As we could not agree, we decided to mark off the watershed as claimed by me, and to accept it in order not to disturb the native population who had lived for many years under British Jurisdiction, and we decided to deal with this disputed territory after the whole Boundary was surveyed as the rains were now on, and famine very acute.* Swann (1900)

This section of Swann's report has been quoted at length as it gives a clear insight into the problems caused by a treaty drafted in ignorance of the situation on the ground. It also shows that, when it sited them, the commissioners were prepared to consider the feelings of the local population.

Of equal interest are the geographical observations of the commissioners. The report is peppered with observations on the local flora and fauna, and on the local population. For example, in describing an area of Angoni settlement near Beacon 20, Swann (1900) writes:'On account of the large population having lived in these uplands for many years, the whole country is devoid of trees, all forests having been destroyed for building, firewood, and the cultivation of their crops.'

In addition to Swann's observations about minerals near Beacon 22, he also noted that 'On the right hand side of the road leading towards Beacon No. 26, there is a large out-crop of a mineral which may be of value. Specimen of this has been forwarded to you.

This particular out-crop is in the Portuguese Territory.

Near Beacon 34 Swann noted that rhinoceros, elephant, buffalo and lion spoor were observed, as well as quantities of smaller game. However, the abundance of game did not make provisioning the demarcation party any easier. From Beacon 34 Swann had to march 60 miles to the Shire River near Chikwawa to procure food, and then to make a food base at Chiromo, another march of 50 miles. Water was also difficult to find during the dry season.

In the Matundu Hills, which Swann noted were nearly all composed of limestone, there were extensive bamboo forests that he believed might prove a source of revenue to the Protectorate. Elsewhere, between the Matundu Hills and Kirk Range Mountains, Swann noted that the plain was densely wooded and largely impassible on account of the thorn bushes, which grew very profusely.

It is also clear that Swann was also keen to identify any areas, which might be suitable for European settlement, and on occasion makes explicit reference to that fact. For example, the land near Beacon 20 is described as 'well suited to cattle farms' (Swann, 1900). While of the land around Beacon 222 he writes:

> *The climate here was very bracing and at night quite cold enough for a warm coat: in fact the whole Plateau appeared to be eminently suited for Europeans.* Swann (1900)

Conclusions

Boundary making up until the end of the 19th century was carried out largely in the absence of any theories of boundary making. This led to many boundaries being define in ways that ignored the geography of the regions being divided, and the difficulties that would ensue for the parties charged with boundary demarcation. In the early years of the 20th century Hills, Curzon and Holdich all argued for a more rational approach to delimitation, based on defensible boundaries rooted in the

physical landscape. Despite later writers citing Holdich as the leading British expert on international boundaries in the early 20th century, there is little evidence that his ideas played any role in the practice of boundary delimitation.

The narrative reports of boundary commissioners have attracted much less attention than the wording of the boundary treaties and the descriptions of the boundary as demarcated on the ground. However, they are often amongst the earliest accounts of the areas through which the boundary passed, and contain a wealth of geographical description. In addition, the boundary commissioners often felt much freer to discuss the motives behind their actions than they did in other, more public, records.

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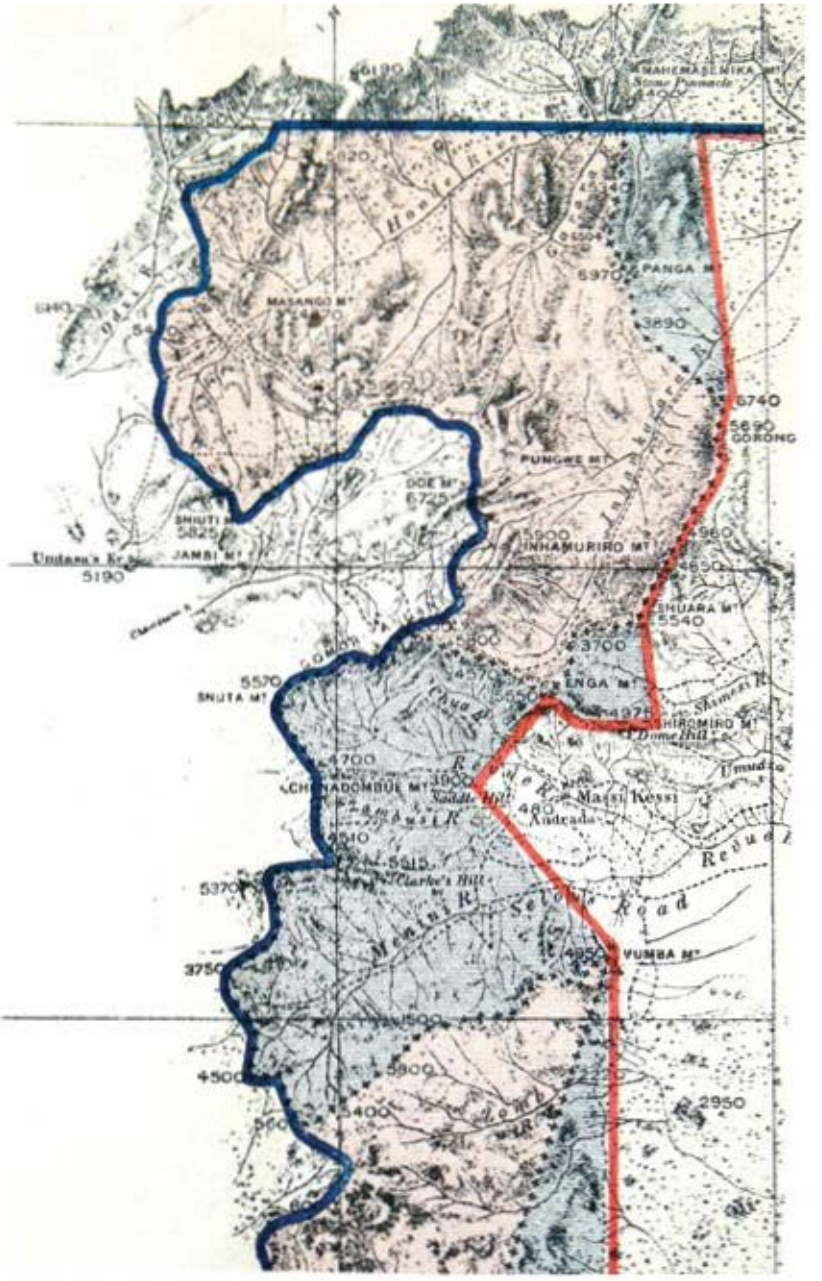

Figure 1. The northern section of the Manica Boundary, showing the differences between the Portuguese (blue) and British (red) claims, and the adjudication of Viglianni (the line of crosses)

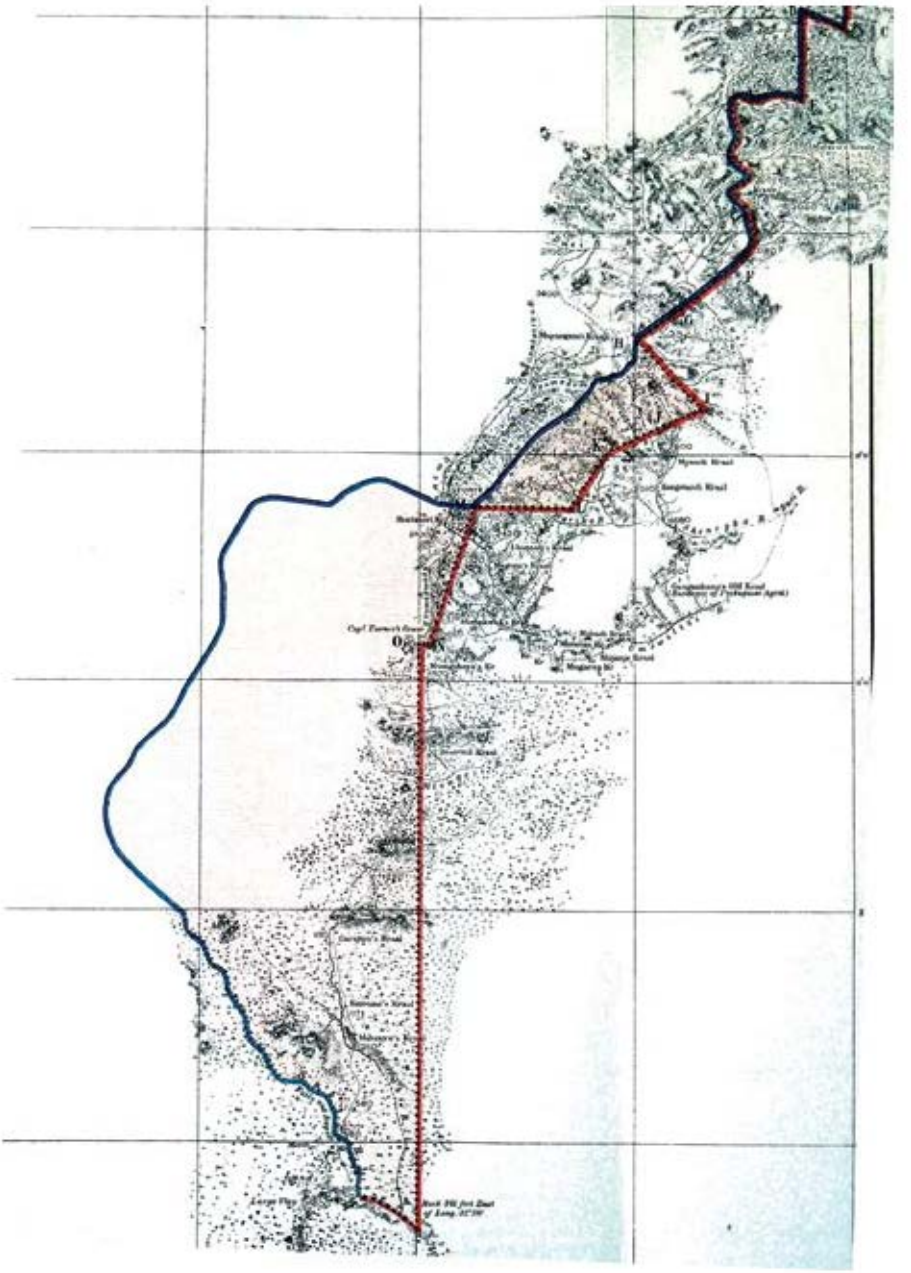

Figure 2. The southern section of the Manica Boundary, illustrating the competing claims and the lack of geographical; knowledge in some of the disputed area.