

INTERNATIONAL COURT OF JUSTICE

CASE CONCERNING KASIKILI/SEDUDU ISLAND

(BOTSWANA/NAMIBIA)

REPLY

OF

THE REPUBLIC OF BOTSWANA

VOLUME I

NOVEMBER 1998

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INTRODUCTION

1. The *Reply* of Botswana is submitted in accordance with the Order of the Court of 27 February 1998, fixing 27 November 1998 as the time-limit for the filing of a *Reply* by each of the Parties. The filing of further written pleadings had been requested by the Parties in a joint letter dated 16 February 1998.

2. Whilst the Government of Botswana was prepared to agree to the filing of a third pleading in a spirit of co-operation consonant with the terms of the Special Agreement, it considers that the role of the present *Reply* is essentially subsidiary to the previous pleadings submitted by Botswana.

3. In presenting this response to the Namibian *Counter-Memorial* the Government of Botswana finds it necessary to correct a serious misrepresentation of fact in the Namibian pleading. The relevant passage is as follows:

"If, as Botswana suggests, a major reason behind the rules about navigability is to ensure that both riparian states have access to the economic benefits of the river then clearly the southern channel is the navigable channel. *Since 1991*, when Botswana armed forces unilaterally occupied the Island, *boats from the resort lodges in Namibia have been prevented from using the southern channel*, which, as shown above, is the optimal channel for tourism. *The prohibition has been enforced by armed Botswana boats patrolling in both the northern and the southern channel*. As a result the economic prospects of the Namibian lodges have been limited, and the growth of the tourist industry along the northern bank of the river has been seriously inhibited. On the other hand, neither Namibia nor its predecessors has prevented Botswana from using the northern channel. It is Botswana's position that deprives Namibia of access to the benefits of the Chobe 'in relation to the needs of the regional economy', not the reverse."(emphasis supplied) (Namibian *Counter-Memorial* (p. 21, para. 48)

4. This unfounded complaint, that tourist boats are being denied access by Botswana's armed forces, is repeated in a later passage of the *Counter-Memorial* (page 37, para. 74).

5. The Government of Botswana is bound to point out that these assertions lack any basis in fact. There is no policy of preventing tourist boats from Namibia from using the southern channel. The accusation of the use of "armed Botswana boats patrolling" is groundless. Since 1993 BDF patrol boats in the vicinity have not had guns in their mountings. The boundary zone has been peaceful and the Defence and Security Committee of the Defence Forces has maintained close co-operation to avoid friction.

6. Cross-border incidents involving the Defence Forces of the two States have been few in number and there is a history of successful co-operation between the Defence Forces. A Protocol of Understanding between the Government of the Republic of Namibia and the Government of the Republic of Botswana was signed on 26 July 1990 (Botswana *Counter-*

Memorial, Annex 41), and this instrument established a Joint Commission for Defence and Security. There is also a Joint Committee of the Defence Forces of the two States.

7. It is necessary to recall that at Kasane in 1992 the Heads of State of Namibia and Botswana "resolved that" :

- (i) each government shall politically and administratively impress upon their people to reduce tension between their two countries;
- (ii) the situation on the Island should not be seen as one of tension;
- (iii) existing social interaction between the people of Namibia and Botswana should continue;
- (iv) the economic activities such as fishing shall continue on the understanding that fishing nets should not be laid across the river;
- (v) navigation should remain unimpeded including free movement of tourists;
- (vi) military presence on the Island should be lessened except for the purpose of anti-poaching activities.

CHAPTER 1

The Scope of the Question Submitted to the Court

(A) The Nature of the Dispute: The Determination of the Boundary around Kasikili/Sedudu Island

8. In Chapter I of the Namibian *Counter-Memorial* the Government of Namibia revisits the issue of the scope of the dispute and contends that the language of the Special Agreement allows the Court to decide the dispute on the basis of "the rules and principles of international law concerning acquiescence, recognition and prescription" (*Counter-Memorial*, p. 5, para. 13).

9. This assertion is in response to Chapter I of the Botswana *Memorial* and the Government of Botswana reaffirms the reasons and conclusions contained therein. In particular in Chapter I, the Government of Botswana argued that the character of the dispute is directly reflected in the provisions of the Special Agreement.

10. The request to the Court in Article I is as follows:

"The Court is asked to determine, on the basis of the Anglo-German Treaty of 1 July 1890 and the rules and principles of international law, the boundary between Namibia and Botswana around Kasikili/Sedudu Island and the legal status of the island."

11. The provisions of Article I are to be understood in the light of the first two paragraphs of the preamble:

"*Whereas* a Treaty between Great Britain and Germany respecting the spheres of influence of the two countries in Africa was signed on 1 July 1890 (the Anglo-German Agreement of 1890);

Whereas a dispute exists between the Republic of Botswana and the Republic of Namibia relative to the boundary around Kasikili/Sedudu Island;...."

together with the fourth:

"*Whereas* the two countries appointed on 24 May 1992 a Joint Team of Technical Experts on the Boundary between Botswana and Namibia around Kasikili/Sedudu Island "*to determine the boundary between Namibia and Botswana around Kasikili/ Sedudu Island*" on the basis of the Treaty of 1 July 1890 between Great Britain and Germany respecting the spheres of influence of the two countries in Africa and the applicable principles of international law;..." (emphasis supplied)

12. The preamble of the Special Agreement, and the provisions of Article I thereof, point unequivocally to the character of the dispute *as a boundary dispute*.

(B) The Dispute Concerns the Interpretation and Application of the Terms of Article III(2) of the Anglo-German Agreement of 1890

13. The centrality of the Anglo-German Agreement to the settlement of the dispute is confirmed by the language of the Memorandum of Understanding concluded by Botswana and Namibia in 1992: see the Botswana *Memorial*, pp. 5-8. It is also confirmed decisively by the language of the three Heads of State in the Kasane Communiqué of 24 May 1992. The relevant paragraphs are as follows:

"Their Excellencies President Sam Nujoma of Namibia and Sir Ketumile Masire of Botswana met in Kasane, on 24 May, 1992 in the presence of His Excellency President Robert G. Mugabe of Zimbabwe to discuss the boundary between Botswana and Namibia around Sedudu/Kasikili Island. After the arrival of President Mugabe and President Nujoma, the three Presidents went on a tour of the Chobe River and viewed Sedudu/Kasikili Island, *after which they examined various documents defining the boundary around the Island. These included the 1890 Anglo-German Treaty, the 1892 Anglo-German-Portuguese Treaty and Maps. The two treaties define the Botswana-Namibia boundary along the Chobe River as the middle of the main channel of that river.*"

"The three Presidents after a frank discussion, decided that the issue should be resolved peacefully. To this end they agreed that the boundary between Botswana and Namibia around Sedudu/Kasikili Island should be a subject of investigation by a joint team of six (6) technical experts - three from each country *to determine where the boundary lies in terms of the Treaty*. The team should meet within three (3) to four (4) weeks. The team shall submit its findings to the three Presidents. The Presidents agreed that the findings of the team of technical experts shall be final and binding on Botswana and Namibia." (emphasis supplied) (Botswana *Memorial*, Vol. III, Annex 55)

14. If there is some level of ambiguity in the language of the Special Agreement it is reasonable, and in accordance with the principles of treaty interpretation, to construe the Special Agreement in the light of the two related instruments, that is to say, the Kasane Communiqué and the Memorandum of Understanding (which defined the mandate of the Joint Team of Technical Experts). It is to be recalled that the Kasane Communiqué of 24 May 1992 was the result of the sudden re-emergence of the dispute when, on 6 March 1992, a Namibian official requested a meeting with the District Commissioner at Kasane, Mr. S.T. Mayane (Botswana Counter-Memorial, Vol. III, Annex 43).

15. The causal sequence between the Kasane Communiqué and the Special Agreement is clearly established. The final preambular paragraph of the Memorandum of Understanding reads:

"NOW THEREFORE, the Republic of Botswana and the Republic of Namibia, pursuant to the Kasane Meeting of 24 May 1992 ... have agreed as follows:..."

16. And the preamble to the Special Agreement records the diplomatic history with great clarity:

"Whereas a Treaty between Great Britain and Germany respecting the spheres of influence of the two countries in Africa was signed on 1 July 1890 (the Anglo-German Agreement of 1890);

Whereas a dispute exists between the Republic of Botswana and the Republic of Namibia relative to the boundary around Kasikili/Sedudu Island;

Whereas the two countries are desirous of settling such dispute by peaceful means in accordance with the principles of both the Charter of the United Nations and the Charter of the Organization of African Unity;

Whereas the two countries appointed on 24 May 1992 a Joint Team of Technical Experts of the Boundary between Botswana and Namibia around Kasikili/Sedudu Island "to determine the boundary between Namibia and Botswana around Kasikili/Sedudu Island" on the basis of the Treaty of 1 July 1890 between Great Britain and Germany respecting the spheres of influence of the two countries in Africa and the applicable principles of international law;

Whereas the Joint Team of Technical Experts was unable to reach a conclusion on the question referred to it and recommended "recourse to the peaceful settlement of the dispute on the basis of the applicable rules and principles of international law";

Whereas at the Summit Meeting held in Harare, Zimbabwe, on 15 February 1995, and attended by Their Excellencies President Sir Ketumile Masire of Botswana, President Sam Nujoma of Namibia and President Robert Mugabe of Zimbabwe, the Heads of State of the Republic of Botswana and the Republic of Namibia, acting on behalf of their respective Governments, agreed to submit the dispute to the International Court of Justice for a final and binding determination;

Now therefore the Republic of Botswana and the Republic of Namibia have concluded the following Special Agreement ..." (emphasis supplied)

17. As the Court will appreciate, the sequence of the three instruments, the Kasane Communiqué, the Memorandum of Understanding, and the Special Agreement, occupies a period of less than four years. Moreover, it is both significant and also understandable that the preamble to the Special Agreement should refer to the Summit Meeting held in Harare on 15 February 1995 where the Heads of State of Botswana, Namibia and Zimbabwe agreed to submit "the dispute" to the Court. The Heads of State were, of course, the same Heads of State who had agreed to the terms of the Kasane Communiqué of 1992, which refers to the role of the joint team of technical experts "to determine where the boundary lies in terms of the Treaty".

18. The Communiqué of the Summit Meeting held in Harare confirms the causal link between the reference of the dispute to the Court and the earlier decisions of the Heads of State. The relevant paragraphs of the Harare Communiqué make this absolutely clear:

"2. The purpose of the Summit was to receive and consider a report of the Joint Team of Technical Experts on the boundary between Botswana and Namibia around Kasikili/Sedudu Island.

3. The Co-Chairmen formally presented their report to the Heads of State and reported that they had failed to reach a common agreement as mandated by the Heads of State in the Kasane Communiqué and the Memorandum of Understanding.

4. However, they recommended to the Summit that *the dispute* be resolved peacefully in terms of international law and be referred to international arbitration.

5. After deliberating on the report the Presidents of Botswana and Namibia accepted this recommendation and further agreed that *the matter* should be referred to the International Court of Justice.

6. The Summit noted that the process of taking *the issue* to international arbitration had been reached amicably and should not mar the excellent bilateral relations that exist between the two parties to *the dispute*." (emphasis supplied) (*Botswana Memorial*, Vol. III, Annex 59)

19. It is thus evident that "the dispute", "the matter", and "the issue", being referred to the Court are seen by the Heads of State as *identical* to the dispute to which the Kasane Communiqué and the Memorandum of Understanding had referred. And that dispute related exclusively to the interpretation of the Anglo-German Agreement of 1890.

(C) The Language of Article 1 of the Special Agreement

20. The Namibian *Counter-Memorial* plays down the significance of the Memorandum of Understanding and makes no reference to the Kasane Communiqué. According to Namibia everything turns upon the language of Article 1 of the Special Agreement, in which the Court is asked:

"to determine, on the basis of the Anglo-German Treaty of 1 July 1890 and the rules and principles of international law, the boundary between Namibia and Botswana around Kasikili/Sedudu Island and the legal status of the island."

21. In the contention of Namibia, the words "and the rules and principles of international law" unequivocally establish that the dispute referred to the Court is not limited to the interpretation of the Treaty. The position of Botswana is criticised on the ground that this contravenes the principle that "an interpretation is not admissible which would make a provision meaningless, or ineffective". (Namibian *Counter-Memorial*, p. 7, para. 16, quoting *Oppenheim's International Law*).

22. Is it true that Botswana's interpretation would involve such a solecism? The answer is in the negative for several reasons. The first is that the invocation of the principles of acquiescence, recognition and prescription (which is what this is all about) would indeed produce a contravention of the principle deployed by Namibia. If prescription were to be applicable then the provisions of the Anglo-German Agreement would become completely and utterly redundant. Even if it be accepted that the reference to "the rules and principles of international law" is rather puzzling, there is no sound reason for resolving the puzzle by ignoring the Anglo-German Agreement.

23. Whilst the problem under examination does not fall specifically within the doctrine or presumption *expressio unius est exclusio alterius*, it should attract the broader principle according to which special words have a more decisive role than general words. It is contrary to common sense to presume that the general reference to "the rules and principles of international law" should prevail over the reference to a specific international agreement *which defines the boundary in question*. This approach would lead to an unreasonable and absurd result.

24. The interpretation insisted upon by Namibia is also contradicted by a whole series of other principles of treaty interpretation. Thus:

(i) The meaning of a term is to be determined "not in the abstract but in its context": *Oppenheim's International Law*, 9th ed., Vol. 1, by Jennings and Watts, p. 1273. As *Oppenheim's International Law* stipulates (*ibid.*):

"For this purpose the context of a treaty includes not only its text, preamble, and annexes, but also any agreement relating to the treaty and made between all the parties in connection with the conclusion of the treaty ..."

In the context both of the Special Agreement as a whole and of the series of related agreements, including the Kasane Communiqué and the Memorandum of Understanding, the dispute concerns the interpretation and application of the Anglo-German Agreement.

(ii) The meaning of a term is to be determined in the light of the object and purpose of the treaty: *Oppenheim's International Law*, 9th ed., Vol. 1, p. 1273. The preamble to the Special Agreement emphasises the connection with the Memorandum of Understanding and the fact that the purpose of the Special Agreement is to ensure the settling of the dispute which the Joint Team of Technical Experts (created by the Memorandum of Understanding) had failed to resolve. The Communiqué of the Summit Meeting held in Harare in 1995 confirms that this was the precise purpose of the reference to the Court.

(iii) As *Oppenheim's International Law* observes:

"The circumstances of a treaty's conclusion may be invoked to ascertain its meaning, since a treaty is not concluded as an isolated act but as part of a continuing series of international acts which shape and limit the circumstances with which the treaty deals." (9th ed., Vol. 1, p. 1278)

This principle of common sense applies very appropriately to the sequence of transactions constituted by the Kasane Communiqué (1992), the Memorandum of Understanding (1992), the Communiqué of the Harare Summit Meeting (1995), and the Special Agreement (1996).

(D) Prescription is the Complete Antithesis of the Application of a Valid Treaty

25. Whatever the persuasiveness or otherwise of the position of Namibia relating to the scope of the Special Agreement, it does not lack ambition. If the Namibian Government is correct, the Special Agreement authorises the Court to decide this case *without any reference to the provisions of the Anglo-German Agreement*. In such a scenario the following conditions would be present:

(i) The clearly expressed expectations of the Heads of State as recorded in the Kasane Communiqué and the Memorandum of Understanding would have been set aside.

(ii) The preamble to the Special Agreement would have been ignored.

(iii) The words "on the basis of the Anglo-German Treaty of 1st July 1890" in Article 1 of the Special Agreement would have been ignored completely.

(iv) The words "and the rules and principles of international law" would have been treated as overriding the reference to the Anglo-German Agreement rather than as subsidiary to it.

26. The whole point of prescription is that it *replaces* the originally lawful *status quo*. It is the perfect antithesis of the application of a valid international agreement which, for boundary purposes, is what the Anglo-German Agreement consists of.

(E) The Mandate of the Court to Determine "The Legal Status of the Island"

27. The provisions of Article 1 of the Special Agreement also ask the Court "to determine ... the legal status of the island". The natural assumption would be that this formulation simply reflects the fact that, once the Court has determined "the boundary between Namibia and Botswana around Kasikili/Sedudu Island", the legal status of the Island would be determined by operation of law.

28. In the *Counter-Memorial* of Namibia there is a suggestion that this is not necessarily the case. In the view of the Namibian Government:

"Moreover, the Court is asked to determine not only the location of the boundary between Namibia and Botswana at Kasikili Island, but also 'the legal status of the island'. In this respect, the wording of the question here is to be contrasted with the language of the question submitted in the *Minquiers and Ecrehos* case, which requested the Court 'to determine whether the sovereignty over the islets and rocks ... belongs to the United Kingdom or the French Republic' without more. *In the present case, the question, by asking generally for a determination of 'the legal status of the island', permits the Court to declare any legal rights*

in the Island, whether or not treaty-based, as they may emerge from the evidence in the light of the submissions of the parties." (emphasis supplied) (*Counter-Memorial*, page 8, para. 18)

29. In face of this remarkable hypothesis two observations are called for. First, at no time has Namibia proposed an 'enclave' solution, according to which, even if the boundary were held to be in the northern channel, Namibia would then be claiming sovereignty or more limited rights over the Island on the basis of prescription. Nor does such a solution form part of the *Submissions* of Namibia as formulated in the *Counter-Memorial*.

30. In the second place, such a solution would not result in a stable and effective settlement of the dispute and was clearly not envisaged by the three Heads of State involved in the various transactions leading up to the conclusion of the Special Agreement.

(F) Conclusions

31. It is submitted that the related issues of acquiescence, recognition and prescription are not included in the scope of the question submitted to the Court, for the following reasons:

(i) The purpose of the Special Agreement was to determine the boundary "on the basis of the Anglo-German Treaty" and reliance upon prescription or its congeners would involve reliance on an entirely different basis.

(ii) There is no consideration of policy, or principle of treaty interpretation (including therein subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation), which would justify giving the words "and the rules and principles of international law" a meaning which would set aside the Anglo-German Agreement.

(iii) The context of Article 1 of the Special Agreement, including the preamble and the instruments which prefigured the reference to the Court - the Kasane Communiqué (1992), the Memorandum of Understanding (1992) and the Communiqué of the Harare Summit (1995) - strongly militates against the marginalisation of the Anglo-German Agreement.

(iv) Prescription replaces an originally lawful *status quo* and is the perfect antithesis of the application of a valid international agreement the purpose of which was to define the boundary in question.

CHAPTER 2

The Interpretation of the Anglo-German Agreement of 1890

(A) Introduction

32. The present chapter constitutes a response to the arguments presented in Chapter II of the Namibian *Counter-Memorial*. At the outset of that chapter Namibia makes the following assertion:

"Both parties are agreed that on the question of treaty interpretation, the task of the Court is to determine whether the northern or the southern channel of the Chobe River around Kasikili Island is the 'main channel'. Both are also agreed that this is a question of scientific fact to be resolved on the basis of expertise in hydrology, geology and hydrogeomorphology."
(*Namibian Counter-Memorial*, p. 9, para. 21)

33. The statement that both parties "are also agreed that this is a question of scientific fact..." is incorrect. As the Botswana *Memorial* makes clear, the identification of "the main channel" of the River Chobe is "essentially a question of fact" (*Memorial*, p. 87, para. 200). Botswana prefaces this view with the statement:

"The Court's task is to identify the main channel of the Chobe River in the vicinity of Kasikili/Sedudu Island in accordance with the 1890 Agreement."

34. The governing principle must be that the question of fact is to be determined not in an abstract or scientific mode but within the context of the Anglo-German Agreement, and in relation to the effective implementation of the purpose of the Agreement, which was to construct a viable boundary.

35. The Namibian *Counter-Memorial*, like the *Memorial*, employs a series of intellectual devices, unrelated to the world of the negotiators of 1890, in order to make a case for identifying the southern channel as the main channel. Those intellectual constructs are as follows:

First: according to Namibia, the Chobe is not a normal river but is "an ephemeral river that is dry over most of its length for much of the year" or, alternatively, what counts is the flood-zone and not the river as such.

Secondly: in the contention of Namibia, for this (and other) reasons the criterion of navigability does not apply.

Thirdly: the rejection of the relevance of navigability necessitates the deconstruction of the thalweg concept and the unfounded assertion that it is based upon the flow or current of the river, and not upon depth.

Fourthly: the rejection of the criterion of navigability necessitates the concomitant rejection of any subsequent practice to the effect that the northern channel was recognised over a very long period as the main channel.

36. These intellectual devices will now be evaluated in relation to the interpretation and application of the Anglo-German Agreement of 1890.

(B) The Treaty Concept of a River

37. In its *Counter-Memorial* the Government of Botswana demonstrates that the Chobe River was the geographical feature referred to in Article III of the Anglo-German Agreement (*Counter-Memorial*, pp. 138-141, paras. 355-362). As the Namibian *Memorial* acknowledges:

"In choosing the Chobe River, the negotiators selected what they could identify as a major and prominent geographical feature." (*Memorial*, p. 44, para. 116)

38. The Government of Namibia alleges that the Chobe is an eccentric feature. In the words of the *Counter-Memorial*:

"The Chobe River is not a watercourse carrying water more or less continuously from its catchment area downstream to its mouth or the junction with another river. Unlike the major European rivers and others that spring readily to mind, the Chobe River is an ephemeral river that is dry over most of its length for much of the year. In the area of specific concern in this case, it is part of a complex system closely associated with the Zambezi River to the north that, in the high flow season, carries the flood waters of the Zambezi back into that river below the Mambova Rapids." (Namibian *Counter-Memorial*, p. 3, para. 10)

39. Botswana strongly contests this picture of the Chobe. In the first place, it does not reflect the concept of the Chobe River as it appears in the provisions of the Anglo-German Agreement. The position has already been explained in the following passage of Botswana's *Counter-Memorial*:

"Article III(2) of the Anglo-German Agreement of 1890 provides that the boundary in the relevant sector "descends" the Chobe River. The treaty-makers intended the line drawn on the 1889 Map labelled "Kuando or Chobe R." to be the boundary, not an indeterminate flood zone of the Zambezi River. They identified the Chobe River as "the prominent geographical feature", not the Zambezi floodplain. The use of the word "descends" is particularly significant in that it indicates gradient and the directional flow of a river and can have no application to a ridge which neither ascends nor descends. Similarly gradient, but in an upstream direction, was in the minds of the treaty-makers when drafting Article I(2) of the 1890 Agreement which describes the German sphere of influence in East Africa by a line "till it reaches and *ascends* that river", and again in the section of the boundary between the German Protectorate of Togo and the British Gold Coast where Article IV states that the line '... runs along that parallel westwards till it reaches the left bank of the River Aka; it ascends the mid-channel of that river to the 6°20' parallel of north latitude...!'." (Botswana *Counter-Memorial*, p. 138, para. 355)

40. In the second place, the Government of Botswana rejects the hydro-geomorphological characterisation of the Chobe River offered by Namibia. *Inter alia*, the scientific evidence establishes that:

(i) The Chobe is the geographical feature referred to in Article III of the 1890 Agreement as the down-flowing river, down which the boundary "descends".

(ii) The Chobe is a perennial river independent of the Zambezi River, with a stable profile, continuous downstream flow and visible and stable banks.

(iii) There is flow at all seasons of the year, and that the northern channel is of greater capacity and velocity than the southern channel.

41. A further dimension of the Namibian approach is to replace the riverine geography by a "broader overlying channel" and thus, in the result, to substitute a flood plain, selected according to entirely self-serving criteria, for the river as perceived by diplomats and cartographers. The flaws in the Namibian presentation of the scientific evidence are examined in Chapter 5 of Botswana's *Counter-Memorial* and in Chapter 5 of the present *Reply*. The concept of the river as a flood-zone is difficult to reconcile with the purpose of the negotiators

to establish an effective boundary. A flood-plain is a zone whose width varies, is unrelated to linear features, and is not reflected in the extensive cartography available, which presents the Chobe as a linear feature and not as a zone.

(C) The Relevance of Navigability

42. The relevance of navigability is denied by the Government of Namibia as a matter of principle. In the Namibian *Memorial* the question of navigability was ignored, and no consideration was given to the relevance of contemporary doctrine concerning the *thalweg*. The Namibian *Counter-Memorial* is more openly hostile to what it calls "the criterion of navigability", as appears from the following passage (in the Introduction):

"On the question of navigability, Namibia maintains that it is unreasonable and therefore incorrect to apply the criterion of navigability to a river boundary over 300 kilometres in length, nine-tenths of which is clearly not navigable. Botswana resolutely confines its attention only to the last 50 kilometres of the Chobe River from the confluence with the Zambezi River. But the river boundary established by the 1890 Treaty also runs along the Chobe River westward to its juncture with the 18th parallel of south latitude, an additional distance of over 250 kilometres. Over all of this stretch, the Chobe River is dry for much of the year and in many places for years on end. The criterion of navigability is simply irrelevant to the river as a whole." (Namibian *Counter-Memorial*, p. 2, para. 5)

Similar assertions appear at pages 15-16, para. 38 of the *Counter-Memorial*.

43. By way of a preliminary reaction to this piece of reasoning, it may be said that it is remarkable to assert the irrelevance of navigability in relation to a stretch of the Chobe the navigability of which has been recognised by the following travellers and officials:

(i) Dr. David Livingstone (1856): see the Botswana *Counter-Memorial*, pp. 139-140, paras. 358-359;

(ii) Frederick Selous (1881): *ibid.*, p. 139;

(iii) Captain Eason (1912): see the Botswana *Memorial*, pp. 64-65;

(iv) Major L.F.W. Trollope, Magistrate of the Eastern Caprivi Zipfel (1948): *ibid.*, Annex 22;

(v) N.V. Redman, District Commissioner at Kasane (1948): *ibid.*, Annex 22.

44. In the Joint Report compiled by Trollope and Redman in 1948 each of the channels is described as "the waterway". Moreover, when the official correspondence of the period 1948 to 1951 is recalled, involving the British and South African Governments, it did not occur to any of those involved to characterise the Chobe as an ephemeral river.

45. The passage from the Namibian pleading quoted above consists of a series of bold assertions none of which is linked either to the text of the Anglo-German Agreement or to other legal considerations.

46. However, the Namibian Government, as a secondary argument, asserts that, even if navigability were an acceptable criterion, then the overwhelming bulk of the "water traffic" is

in the southern channel: see the Namibian *Counter-Memorial*, p. 2, para. 6. The Government of Botswana does not accept that this version of the evidence is correct, but the passage involves a clear admission that there is water traffic and that navigability is thus an available criterion.

47. As the Botswana Government has explained in its *Memorial*, the focus in the negotiation of the Anglo-German Agreement was upon the issue of access to the major rivers and lakes and the related issue of German access to the Zambezi: *Memorial*, pp. 52-60, paras. 118-137. The response of Namibia (*Counter-Memorial*, p. 16, para. 39) is one of equivocation. The position of Botswana is not contradicted and no reference is made to the documents of the negotiation amply cited in the Botswana *Memorial* (p. 59, paras. 134-135). However, there is a suggestion, unsupported by evidence, that the giving of access to the Zambezi related to land access and not to navigability. But the documents do not support this view. The exchange of letters between the two Governments in 1889 refers to access "to the upper waters of the Zambezi": Botswana *Memorial*, Vol. II, Annexes 4 and 5. Nor does the wording of Article III of the Agreement support the Namibian suggestion. The documents of 1910 quoted by Namibia (*Counter-Memorial*, pp. 16-17, para. 39) actually confirm the Botswana position that navigation was the focus of German interest.

48. Further, the suggestion that the giving of access to the Zambezi related to land access and not navigability is also contradicted by Namibia's own case as to the object and purpose of the 1890 Agreement in the light of contemporary knowledge that the land north of the Chobe River was "swampy and unhealthy" (Namibian *Memorial*, p. 38, para. 99). As the Namibian *Memorial* puts it:

"As argued above, a boundary along the Chobe Ridge, which generally marks the southern bank of the Chobe River (and the southern channel in the locality of the Island), would be more consistent with the object and purpose of the Treaty to establish a firm, stable and visible division between the two spheres of influence than a boundary along the northern channel lying within the swampy floodplain that would be difficult to ascertain and would be completely obscured during half the year." (Namibian *Memorial*, p. 6, para. 19)

49. The Namibian Government's reluctance to rely upon the actual documents of the negotiation, so readily available, must confirm the impression of a general lack of interest in the evidence of the object and purpose of the Anglo-German Agreement.

50. This impression is further confirmed by paragraph 41 of the Namibian *Counter-Memorial*, in which it is argued that there has not been much use of the northern channel by commercial vessels. The point of this is difficult to follow. The issue should, in treaty terms, turn on the significance *for the negotiators of the Agreement* of the element of navigability. The incidence of traffic 40 years later is irrelevant. However, as a matter of evidence of the status of the northern channel as the "main channel", the fact is that the issue of the transport of timber by barges only arose *in relation to the northern channel*. The content of paragraph 41 involves an important admission in this respect.

51. In this connection a thought-provoking exercise is to compare the letter of Noel Redman dated 18th December 1947 (Botswana *Counter-Memorial*, Vol. III, Annex 18) and the assertions of the Namibian *Counter-Memorial*. The Namibian *Counter-Memorial* states that in the dry season "there is virtually no flow at all in the Chobe River, including the portions

around the Island," and cites the Alexander Report. (Namibian *Counter-Memorial*, p. 13, para. 31). In contrast is the position reported in Redman's letter:

"I have the honour to inform you that I have received a letter from the Zambezi Transport & Trading Company stating that they *wish to recommence the transport of timber by river from Serondella* but that they have been informed by you that the channel between Kasane and Serondella which they intend to use, is in the Caprivi Strip.

2. *At low water I understand that this channel is the only water connection between Kasane and Serondella* and I suggest that if this channel does happen to run into the Caprivi Strip from the Chobe river along which our boundary runs it will be in both our interests and a matter of convenience if we can come to an arbitrary agreement that half this channel is included in this Territory for the purpose of the transport of the timber by the Zambezi Transport and Trading Company.

3. If however the channel referred to is part of the Chobe river and not a branch off from it then it seems probable that the actual boundary is formed by the deep water channel in the river, which would mean that they would not be entering your Territory." (emphasis supplied)

52. The letter by Redman was the consequence of the letter received from Ker. Ker's use of the river had been continuous (see Trollope to Dickinson, Namibian *Memorial*, Annex 71). Ker was now proposing "to recommence" the transport of timber. Moreover, Ker's assessment of the value of the river for navigation has not been challenged by Namibia. His views have always been relied upon and Ker's letter to the Central Africa Council, dated 25 November 1947, appears as Annex 5 in the Namibian *Memorandum Submitted to the Joint Team of Technical Experts* (this letter relates to problems on the Zambezi).

53. In the context of the question of navigability the Namibian *Counter-Memorial* invokes the pattern of movement of tourist boats in the following passage:

"The primary basis of the regional economy, apart from subsistence agriculture, is and is likely to remain tourism, and it is tourism that generates the commercial activity on the Chobe River in the vicinity of Kasikili Island. (Supp. Rep., sec. 11) Nearly all boat traffic is used to transport tourists to view the game on Kasikili Island or further west on the south bank of the river within the Chobe National Park. (Supp. Rep., para. 11.5) The boat rides are a well-advertised attraction for visitors to the area. (Supp. Rep., Sheet 17s, Photo P25s; Sheet 18s, Photo P26s). The tourist boats use the southern channel almost exclusively, although a few boats returning from Kasane use the northern channel. (Supp. Rep., para. 11.12)..." (*Counter-Memorial*, page 19, para. 45)

54. The legal relevance of such data is nullified by a series of factors. First of all, the boats are of very shallow draught and can navigate in both the northern and southern channels. It must follow that the traffic can provide no criterion for distinguishing the main channel. Assuming that it is true that the game can be more readily viewed from the southern channel, this factor obviously has no connection with navigability. None of this data, such as it is, has any relation with the boundary-making purposes of the negotiations of 1890.

(D) The Language of the Anglo-German Agreement and the Concept of the Thalweg

55. In its *Memorial* the Government of Botswana examined the issues of interpretation relating to the Anglo-German Agreement in Chapter V, and emphasis was placed upon interpretation in accordance with the object and purpose of the Anglo-German Agreement, and the presumption that the parties to an agreement intended a result which was in conformity with general international law. On these bases two linked propositions were developed, backed by substantial documentation:

First: that a major purpose of the Agreement was the protection of access to the principal lakes and rivers of the African continent, and to establish and promote the relationship between boundary-making and navigation.

Secondly: that the Zambezi and its major affluents were considered to be navigable and that the general international law contemporaneous with the negotiation of the Agreement recognised that in the case of navigable rivers the middle of the navigable channel was the boundary between the riparian States. In other words, the doctrine of contemporary international law linked the role of navigation and the concept of the *thalweg*.

56. In its *Counter-Memorial* the Government of Botswana explained that the concept of the *thalweg* applies without difficulty to cases of bifurcation: see the *Counter-Memorial*, p. 73, paras. 195-196. In addition, the problems arising from the German translation of the phrase "the main channel of" in the German text of the Agreement were examined: *ibid.*, pp. 73-74, paras. 197-199. The conclusion of the Government of Botswana in the *Counter-Memorial* was as follows:

"In its *Memorial*, Namibia argues (p. 44) that 'the "main channel" must be found first; the "centre" can necessarily only be found afterward' and 'the "hauptlauf" cannot be identified by first seeking to find the "*thalweg*". This is not correct. Rather, the main channel is the one in which the *thalweg* is situated. If Namibia's argument that 'in the same way as with the English text, the search must first be for the "hauptlauf" and for the "*thalweg*" only after the "hauptlauf" has been found' was correct there could be two or more *thalwege*, one in the main channel and others in the various branches of the river as Namibia's argument, by implication, is based on the assumption that a *thalweg* may be found in each channel. A river, however, has only one *thalweg*, i.e. one deepest channel in which vessels of largest tonnage descend the river. Thus, where the *thalweg* may be found, the main channel may be found too. Namibia makes the mistake of dividing the English expression 'the centre of the main channel' in two parts, i.e., 'the centre of' and 'the main channel of', thereby overlooking that only the expression as a whole has the meaning of *thalweg*. The term 'the centre' on its own does not equate with '*thalweg*' and is more reminiscent of the median line principle than of the *thalweg* principle." (Botswana *Counter-Memorial* p. 74, para. 199)

57. The Botswana *Counter-Memorial* also establishes that the subsequent conduct of the German Government confirmed that the boundary in the Chobe was the *thalweg*: see *ibid.*, pp. 73-74, para. 197.

58. In its *Counter-Memorial* Namibia addresses the issues concerning the *thalweg* in two ways:

First: Namibia contends that the phrase in the English text "centre of the main channel" does not refer to the centre of the deepest channel and, further, that the reference is not linked to navigability (Namibian *Counter-Memorial*, p. 23, para. 53).

Secondly: Namibia contends that the principles of international law contemporaneous with the 1890 Agreement did not embody the thalweg doctrine, and, even if they did, not in the form employed by Botswana.

59. The second issue will be considered in the following section of the present chapter. In relation to the first question raised by Namibia the Government of Botswana retains full confidence in the exposition of the linguistic issues contained in its *Counter-Memorial* at pp. 69 to 74 (paras. 194-199). However, it is necessary to remove certain obfuscations offered by Namibia in the second pleading.

60. In its *Counter-Memorial*, Vol. I, p. 22, n. 55, Namibia gives the wrong impression that the English text of the Agreement was translated into German in two stages. It says:

"This alteration of the previous German text ¹ shows two changes. The first is that in view of the full English phrase 'centre of the main channel of that river', the German text had to insert a word to refer to the notion of 'centre' which the German text of 17 June 1890 did not do. This reference to the centre was expressed by the term Thalweg, which is quite in line with general use of the term in other boundary treaties. A second change was introduced into the German text by adding the words des Hauptlaufes to the term Thalweg...."

The German diplomatic documents clearly show that the full English-language text of the treaty ("centre of the main channel of that river") was translated as a whole on or after 28 June 1890 first into "Thal-Linie des Hauptlaufes dieses Flusses" and then into "Thalweg des Hauptlaufes dieses Flusses". It is thus impossible to equate "Thalweg" with "centre" and "the main channel of" with "des Hauptlaufes".

[1 "längs dem Tschobefluß"]

(E) The Principles of International Law contemporaneous with the Anglo-German Agreement of 1890

61. The Botswana Memorial cites 17 authorities for the proposition that at the time of the conclusion of the Anglo-German Agreement "it was generally recognised that in the case of navigable rivers the middle of the main channel (thalweg) was the boundary between the riparian States": Botswana Memorial, pp. 60-62, para. 138. The time span involved is from 1864 to 1928. The various editions of the standard authorities were included because this is clearly relevant to the issue of consistency and continuity of opinion in the relevant period.

62. The Namibian Government seeks to challenge this evidence in its Counter-Memorial (pp. 23-24, para. 54). The challenge is less than effective and, by relying upon minority opinions, only serves to emphasise the general coherence of the picture presented by Botswana.

63. Namibia presents 47 authorities, which are collected in Annex 9 of the Counter-Memorial. The impressive total includes 18 authorities who support Botswana's position (Namibian Counter-Memorial, Vol. II, pp. 82-88), and are recognised as doing so by Namibia. It also includes a further 12 authorities who employ less precise formulations but certainly do not oppose the thalweg (ibid., pp. 88-100). The most remarkable aspect of the Namibian mobilisation of authorities is that the group which is said to be "critical of the suitability of the thalweg-concept" numbers only five. Thus, out of 47 authorities cited by Namibia, only five are said to support the Namibian position, whilst 30 authorities provide some level of support

for the view of Botswana. Moreover, the language employed by the five authorities alleged to be "critical" is very tentative.

64. Botswana had not sought to be exhaustive in its listing in its Memorial, but in any case two more authorities can be added:

- Josef Kohler (ed.), *Encyklopädie der Rechtswissenschaft* [Encyclopedia of Jurisprudence] (1904), p. 1010 (Annex 3): "Bei schiffbarn Flüssen ist seit dem Frieden von Luneville (1801) meist die Mittellinie des tiefsten Stromlaufes, der Talweg, die Grenze;" ["Since the Peace of Luneville (1801), in navigable rivers the boundary as a rule is the centre of the deepest channel, the Talweg"]

- Karl, Freiherr von Stengel (ed.), *Wörterbuch des Deutschen Verwaltungsrechts* [Encyclopedia of German Administrative Law] (1890), p. 2 (Annex 2): "Das durch völkerrechtliche Übung befestigte Grenzprincip des 'Thalwegs' (chemin d'aval)..." ["The boundary concept of the 'Thalweg' (chemin d'aval) which has been strengthened by international legal practice..."]

65. The position of Botswana is confirmed by modern authorities which refer back to the earlier periods. Thus the latest edition of Oppenheim's *International Law* states the following:

"Boundary rivers are those which separate different states from each other. If such a river is not navigable, the boundary line as a rule follows the mid-line of the river; or of its principal arm if it has more than one. If navigable, the boundary line as a rule follows the mid-line of the so-called thalweg, of the principal channel of the river, and this general rule for the two kinds of rivers was adopted by the Treaties of Peace 1919, except in special cases." (9th ed., 1992, pp. 664-665)

In this passage footnote 2 reads as follows (in relation to the thalweg):

"See definition in *Annuaire* (1887), Art. 3: 'La frontière des Etats séparés par le fleuve est marqué [sic] par le thalweg, c'est-à-dire par la ligne médiane du chenal.' "

66. It is clear that the present editors of Oppenheim regard the principle as being long-established. In his great work on British practice, Lord McNair observes: "In the case of a boundary river, it is mid-channel, the thalweg which forms the boundary": *International Law Opinions*, 1956, Vol. 1, p. 307. The work as a whole focuses upon sources prior to 1902 and the proposition heads a dispatch dated 19 March 1847.

67. The Government of Botswana invoked the resolution of the Heidelberg Session of the *Institut de Droit International* in 1887 which confirms the thalweg principle for navigable rivers. This is quoted in full in the Memorial of Botswana (page 62). This resolution is cited (without reservation) in the ninth edition of Oppenheim's *International Law* (see para. 65 above). Namibia attempts to discount the value of the resolution by asserting that, because the Rapporteur did not accept that the principle was generally recognised, the text of the resolution in this respect was *de lege ferenda*. This is difficult to understand. The resolutions of the Institut are adopted collectively by the members and associate members. Rapporteurs cannot enter 'reservations' and the language of the resolution itself contains no element of *lex ferenda*.

68. In para. 56 of its Counter-Memorial, Vol. I, Namibia states that:

"The treaty practice of European colonial powers in Africa in the period of the 1890 Treaty reveals, if anything, even less uniformity than the general practice or the scholarly writings. One of the most striking features of these treaties is the variety of language used to describe river boundaries ..." This statement may be contrasted with the passage from K. Schulthess, *Das internationale Wasserrecht* [International Water Law] (1915), p. 12 (Annex 5):

"Der Talweg. Terminologie: Talweg, Stromrinne, tiefste Tiefe, Axe ... englisch: Chenal, Ship-Channel, the deepest channel, middle of the channel, centre of the chenal, mid-channel, middle of the stream, middle of the river ... Das Wort "Talweg" selbst ist international geworden und wird in den meisten bezügl. Verträgen etc. gebraucht, abwechselnd mit z.T. ungenauen, ja direkt unzutreffenden national-sprachlichen Bezeichnungen... (p. 15). Nach der herrschenden Lehre ist bei schiffbaren Flüssen im Zweifel der Talweg als Grenzlinie anzusehen ... So ist namentlich in den etwa zwei Dutzend uns bekannten Verträgen, die sich mit der Feststellung der Grenze bei den afrikanischen Strömen und (p. 16) Flüssen befassen, stets der Talweg als Grenzlinie festgesetzt). (n.26: Einzig in einem deutsch-engl. Übereinkommen von 1906 (Nr. 150) wird als Grenze die "median line" genannt.) Daraus müssen wir den Schluß ziehen, dass demzufolge für die internationalen Flüsse Afrikas im Zweifel der Talweg als Grenze zu vermuten ist ..."

["The Talweg. Terminology: Talweg, Stromrinne, tiefste Rinne ... English: Chenal, Ship Channel, the deepest channel, middle of the channel, centre of the chenal, mid-channel, middle of the stream, middle of the river ... The term "Talweg" itself has become international property and is used in most relevant treaties etc., interchangeably with partly imprecise and sometimes even incorrect national terms ...(p. 15). According to the predominant view in the literature, in case of doubt the talweg is to be regarded as the boundary in navigable rivers ... In about two dozen treaties known to the author which deal with the delimitation of river (p. 16) and stream boundaries in Africa [the treaties are listed in an Annex] in all cases but one the Talweg has been fixed as the boundary (n.26: The only exception is the Anglo-German Treaty of 1906 (No. 150) which provides for the "median line" as boundary). From this we must conclude that, in case of doubt, the Talweg is presumed to be the boundary in the international rivers of Africa."]

69. The Namibian Counter-Memorial contends that the diversity of terminology in treaties relating to Africa (used to describe river boundaries) demonstrates the absence of any rule of general international law: see Counter-Memorial, pp. 25-28, paras. 56-58. This argument has several significant flaws. In the first place, it puts the cart before the horse. The position of Botswana is that there is a presumption, well-recognised in the authorities and in the jurisprudence of the Court, that a treaty provision, in this case Article III, is compatible with the principles of contemporary international law. In this respect it appears to be irrelevant to point out that other treaties do not make express reference to the thalweg. In the second place, the fact that other treaties, and other provisions of the Anglo-German Agreement, use terms such as 'course' or 'centre of the channel', is far from being conclusive on the issue. Indeed, such terms are perfectly compatible with the concepts of thalweg and navigability.

70. In the third place, the less precise usage in other provisions can only reinforce the view that the language of Article III of the Anglo-German Agreement should be given its ordinary meaning. The more precise terminology, it may be presumed, reflects the particular significance of navigability to be seen in the records of the negotiation.

71. In its Counter-Memorial, Vol. I, p. 27, n. 70 Namibia states that "It is interesting that in these colonial African treaties, admittedly a random sample, the word *thalweg* was first used in the treaty between the United Kingdom and France of 1899. The term did not begin to be used with any frequency in Africa until after 1910". In this connection it may be of interest to note that Great Britain and Germany had already on 11 November 1898 concluded a "Protocol containing the Decisions of the Commissioners appointed to delimit the Nyasa-Tanganyika Boundary", which provided in Art. 4: "In all cases when a river or stream forms the boundary it is said to be understood that the boundary-line is the "*talweg*" of the stream; but in cases where the "*talweg*" is indeterminate, the centre line of the bed is to be taken as the boundary." (N.R.G., 2nd series, XXXII, 399; British and Foreign State Papers, Vol. 92, 797)

72. It is clear that Namibia does not have much confidence in its assertion that there was no rule of law according to which "the middle of the navigable channel (*thalweg*) was the boundary between the riparian States, because there is an alternative argument" offered: Counter-Memorial, pp. 28-38, paras. 59-76. According to this alternative argument, the *thalweg* concept "has to do fundamentally with the flow or current of the river and is only secondarily related to depth": *ibid.*, p. 28, para. 59.

73. This argument meets three major obstacles. In the first place, even if this assertion were correct, it would provide no assistance to Namibia because the criterion of flow does not favour the southern channel in any event: see Chapter 6 (C).

74. The second obstacle consists of the fact that the authorities simply do not support the Namibian position. The drafters of the Namibian Counter-Memorial appear to be aware of the true position because the relevant section is introduced by the following concession: "Doubtless most of the discussions of the *thalweg* of a river channel refer to its relation to the deepest part of the channel": Counter-Memorial, p. 28, para. 60. Indeed, Professor Alexander, Namibia's expert, adopts the following definition in his Expert Report:

"A *thalweg* in its scientific signification, is a single continuous trace that identifies the line of deepest water along the length of a river channel. This definition is internationally recognised in the hydrological and geomorphological literature but has somewhat different legal interpretations when applied to boundaries along rivers. These historical and legal definitions are not considered in this report." (Expert Report, pp. 5-6, para. 2.11)

75. It is not surprising to find that the authorities invoked by Namibia do not support the new Namibian definition. This is true of the definitions in the *Deutsches Wörterbuch* (Counter-Memorial, para. 61) and the *Brockhaus Konversationslexikon* (*ibid.*). Like other sources cited by Namibia, these authorities tend to associate the line of deepest soundings and the strongest flow or current. Thus the Joint Survey established that the northern channel is the deeper channel: "its mean depth of 5.7m exceeds the depth of the south channel by 2.13m" (Botswana Memorial, Chapter VII, Professor Sefe's First Opinion, p. 4). This finding is clearly inimical to Professor Alexander's contention that the greater flow is through the southern channel, since depth is an essential factor, along with width and velocity, to discharge.

76. The third obstacle to the Namibian contention is that it is very unlikely that the sources quoted would envisage any polarity (of the kind now argued for) between depth and flow. This is evident in the legal sources quoted by Namibia: Counter-Memorial, p. 30, para. 63. It

thus follows that there is no substance in the view that the six authorities cited in paragraph 63 would regard depth as an unacceptable criterion.

77. The optimism of the Namibian mode of citation can only be demonstrated by a quotation of paragraphs 64 and 65 of the Namibian Counter-Memorial:

"64. Edouard Engelhardt, the chief sponsor of Article 3 of the Heidelberg Resolution, speaks of the thalweg formula, 'suivant laquelle la limite respective est placée au milieu du chenal ou du grand courant qui dénote d'ordinaire l'endroit le plus profond.' (emphasis added) In a note he adds, 'Le thalweg est la partie la plus basse du lit sur laquelle le courant se meut avec la plus grande vitesse.' (emphasis added)

65. Other scholars of the period not cited by Botswana are in agreement:

· J. Westlake: 'the thalweg, a German word meaning literally the 'downway', is the course taken by boats going down stream, which again is that of the strongest current....' (emphasis added)

· P. Fiore: '[L]a ligne médiane du fleuve [est la] ... ligne de thalweg ... Il ne faut pas oublier, toutefois, que sous le nom de ligne médiane de fleuve on n'entend pas celle qui se trouve à égale distance des deux rives, mais celle idéalement tracée au milieu de la partie du lit où les eaux sont les plus profondes et les plus rapides'. (emphasis added)

· L.F. von Neumann: 'the line that is taken by ships going downstream, more precisely the center of the downward current.' (emphasis added)

· P. Orban: 'la partie la plus basse du lit sur laquelle le courant se meut avec la plus grande vitesse.' (emphasis added)

· H. Bonfils: 'Un fleuve coule-t-il entre deux Etats, c'est le thalweg, le milieux [sic] du courant principal qui sert de limite.' (emphasis added)

· A. Chrétien: 'On n'entend pas par là [la ligne dit le thalweg] la ligne se trouvant à égale distance deux rives, mais "celle idéalement tracée au milieu de la partie" du lit où les eaux sont les plus profondes et les plus "rapides", en d'autres termes, au milieu du chenal navigable.' " (Namibian Counter-Memorial, pp. 31-32; emphasis added, footnotes omitted)

78. Of these seven authorities, four expressly refer to depth and obviously regard depth and greatest flow as complementary. There is no evidence to suggest that the other three would regard the criterion of depth with disfavour. Edouard Engelhardt regards the depth criterion as a restatement of the factor of strongest current. Moreover, Panzera, the Resident Commissioner, in his instructions to Captain Eason, adopts the criterion "the deepest channel in which there is the strongest current" (emphasis in original: Botswana Memorial, Annex 17).

79. The complementary relation of greatest depth and the downstream current is emphasised by two sources relied on by Namibia. Thus Charles Cheney Hyde observes:

"The thalweg, as the derivation of the term indicates, is the downway, or the course followed by vessels of largest tonnage in descending the river. That course frequently, if not

commonly, corresponds with the deepest channel. It may, however, for special reasons take a different path. Wheresoever that may be, such a course necessarily indicates the principal artery of commerce, and for that reason is decisive of the thalweg." (American Journal of Int. Law, Vol. 6 (1912), pp. 902-903). (Botswana Counter-Memorial, Vol. III, Annex 8).

80. Again, Brownlie expresses the following view (in 1979):

"A great many boundary descriptions affecting alignments in Africa refer to rivers and streams. If reference is made to a river without further definition, the question then arises whether the division is according to the median line or on some other basis. The doctrine of international law supports the view that, in the case of non-navigable rivers, the median line is applicable, whilst in the case of a navigable river, the principle of the thalweg is to be applied. These principles are presumptions. In any case, the concept of the thalweg may be employed in treaty descriptions. Its normal meaning is the median line of the principal channel of navigation. This will usually be sufficiently ascertainable. A more refined reference would be the continuous line of deepest soundings. There may turn out to be several equally significant channels of navigation." (emphasis added) (African Boundaries: A Legal and Diplomatic Encyclopaedia, 1979, p. 17)

81. In the standard treatise written by Professor O'Connell and published in 1984 the same conjunction of depth and navigation also appears:

"Although the expression 'thalweg' has its origins in river law, it is sometimes employed in maritime law relating to coastal waters in order to designate the access routes to the coast in complex fairways. In river law the word is used in two senses: the line of greatest depth, which coincides with that of the strongest current, and the access to the channel most appropriate for navigation; but in maritime law it is used to designate the principal channel towards a given point.

The idea behind applying this solution to the problem of demarcation of the territorial seas of opposite States is that it is necessary in delimiting sovereignty to take account of the depth and therefore the navigability of waters." (emphasis supplied) (O'Connell, The International Law of the Sea, edited by I.A. Shearer, 1984, pp. 659-660)

82. It is difficult to see how this type of debate, or more truly, non-debate, can assist the Court in interpreting and applying Article III of the Anglo-German Agreement.

(F) The Conduct of the Parties

83. The subsequent conduct of the parties to the Anglo-German Agreement (and their successors) confirms the interpretation according to which the correct identification of the "main channel" involves the northern channel. The evidence is reviewed in the Memorial of Botswana, pages 64 to 74, in the Counter-Memorial, pages 83 to 86, and in Chapter 3 below.

84. One document may be repeated to illustrate the lack of reality in the factual inferences proposed on behalf of Namibia by way of scientific evidence and otherwise.

85. In 1948 the two local administrators, respectively on behalf of South Africa and the United Kingdom, produced a Joint Report, in which the key paragraphs are as follows:

"2. We attach hereto a sketch map (not drawn to scale) of the Kasikili Island in the Chobe River and the waterways relative thereto.

3. We find after separate examination of the terrain and the examination of an aerial photograph that the "main channel" does not follow the waterway which is usually shown on maps as the boundary between the two Territories.

4. We express the opinion that the "main channel" lies in the waterway which would include the island in question in the Bechuanaland Protectorate." (Botswana Memorial, Annex 22)

86. It is reasonable to assume that the preparation of the Joint Report resulted from a mandate from the two Governments, but no document to this effect has been seen. At any rate, when the Report was sent to Pretoria, the South African Government did not seek to repudiate it. The Joint Report is of particular significance because it resulted from a practical question concerning the commercial importance of navigability. As Mr. Redman reported (letter dated 26 January 1948):

"I have the honour to attach a joint report by the Native Commissioner, Eastern Caprivi Strip and myself concerning a dispute which has arisen over the ownership of the island shown on the enclosed sketch map.

2. The question has arisen as a result of an application by Mr. Ker to transport timber by barge from Serondela to Katombora, which necessitates the use of the channel running to the North of Kasikili Island since the Southern Channel is not navigable by his Barges when the river is not in flood, and it is even difficult for small craft to navigate it." (Botswana Memorial, Annex 22)

87. It is unfortunate that the Government of Namibia has not afforded the Court an opportunity to have its views on these highly relevant documents.

(G) Conclusions

88. In the first paragraph of its conclusions to the chapter of the Counter-Memorial theoretically devoted to the interpretation of Article III of the Anglo-German Agreement, the Government of Namibia encapsulates its defensive policy and desire to move away from the Agreement and the interests of the negotiators:

"Namibia continues to maintain that the identification of the main channel within the meaning of the 1890 Treaty is a question of scientific fact to be resolved on the basis of scientific evidence and criteria. The main distinguishing factor, as the experts of both parties agree, is the volume of the flow of the river that passes through the channel. Since substantially all of the flow of the Chobe River passes through the southern channel, it follows that the southern channel is the main channel." (Namibian Counter-Memorial, p. 38, para. 77)

89. It is, of course, the case that when Namibia declares that the identification of the main channel is "a question of scientific fact" the consequence, in reality, is that criteria are introduced (by Namibia) which are unrelated either to the text of the Agreement or its object and purpose. The text of the Agreement and the negotiators had in mind a river with normal characteristics. The Namibian Government substitutes an artificial concept, in which the main feature is a flood zone or, on occasions, a neighbouring escarpment.

90. The consequence of the Namibian thesis is that 'flow' or 'current' is substituted for navigability. This involves the erroneous assertion that there is more flow in the southern channel and this issue of fact is addressed in Chapter 6 (C). For present purposes it is necessary to point out that it is a strange procedure to suggest an opposition between flow and navigability. The authorities usually see the two elements as complementary or equivalent. The artificiality of the Namibian pleading reflects the difficulty presented by the evidence that the navigable channel in the relevant sector of the river is the northern channel.

91. The entire chapter confirms the multiple forms of reluctance on the part of Namibia:

(i) to focus upon the actual text of the Anglo-German Agreement;

(ii) to focus upon the ample documentation of the negotiation of the Agreement;

(iii) to focus upon the object and purpose of the Agreement as revealed in the negotiations;
and

(iv) to accept the relevance of the contemporaneous principles of general international law.

92. To these forms of reluctance it is necessary to add the clearly stated opinion of the two administrators, Trollope and Redman, in their Joint Report of 1948, and the fact that Mr. Ker intended to use the northern channel for his barges because, as Redman says (above), "the Southern Channel is not navigable by his Barges when the river is not in flood, and it is even difficult for small craft to navigate it". Trollope and Redman would have been bemused by the contents of Chapter II of the Namibian Counter-Memorial.

CHAPTER 3

The Subsequent Conduct of the Parties and Their Successors

(A) Introduction

93. The purpose of this chapter is to reply to the content of Chapter III of the Counter-Memorial of Namibia. However, as the Government of Botswana has indicated in the introduction to the present pleading, the definitive position of Botswana has already been expounded in the Memorial and Counter-Memorial. Thus the subsequent conduct of the parties and their successors has been dealt with in detail as follows:

(i) Memorial of the Republic of Botswana, pages 64 to 74, paragraphs 145 to 163; pages 75 to 85, paragraphs 166 to 199.

(ii) Counter-Memorial of the Republic of Botswana, pages 83 to 87, paragraphs 234 to 249.

(B) The Namibian Reliance upon Prescription

94. The Government of Botswana would reaffirm, at the outset, that the Namibian argument based upon "the subsequent conduct of the parties ... and their successors in title" represents a major legal solecism, because it is not in reality related to a process of treaty interpretation. As the following quotations reveal, the thesis of Namibia's chapter on "subsequent conduct" is substantially related to the distinct theme of prescription:

"Namibia demonstrated in its Memorial that the Masubia of Caprivi had occupied and cultivated Kasikili Island from before the conclusion of the 1890 Treaty until well into the second half of the present century and that Namibia's predecessors in title had continuously exercised jurisdiction over the area with the full knowledge of Botswana and its predecessors and without any official objection or protest from them until 1984. In Namibia's view, this record not only confirms the interpretation of the Treaty as locating the boundary in the southern channel of the Chobe River at Kasikili Island, but also constitutes an independent title to sovereignty over the Island by operation of the doctrines of acquiescence, recognition and prescription." (emphasis supplied) (Namibian Counter-Memorial, p. 40, para. 83; footnote omitted)

"The foregoing review of the materials relating to the subsequent conduct of the parties in Botswana's Memorial serves only to confirm the position that Namibia and its predecessors in title were in possession of Kasikili Island from 1890 to 1991. During all that time it exercised jurisdiction over Kasikili Island. All this occurred with the knowledge and acceptance of the Botswana authorities and without protest from them until 1984. This record on the one hand confirms the interpretation of the Treaty placing the boundary in the southern channel and, on the other, establishes Namibia's right to the Island by operation of the doctrines of acquiescence, recognition and prescription." (emphasis supplied) (Namibian Counter-Memorial, p. 60, para. 137)

95. The significance accorded to the theme of prescriptive title is indicated by the fact that the first paragraph quoted forms a key part of the introduction to the chapter, and the second paragraph is headed: "Conclusion as to the Subsequent Conduct of the Parties".

96. As Botswana has pointed out already, in the Counter-Memorial, the concept of the subsequent practice of the parties as an instrument of treaty interpretation is based upon the agreement of the parties in relation to the interpretation of the treaty text, whereas prescription is based upon the displacement of the lawful status quo by adverse possession. Adverse possession is the very antithesis of an alignment established by treaty.

97. The Namibian argument based upon prescription, acquiescence and recognition, has been addressed in Chapter 9 of Botswana's Counter-Memorial and the Court is respectfully referred to the arguments developed therein.

98. It is proposed to examine the specific assertions of Namibia presented in Chapter III of the Counter-Memorial.

(C) The Alleged "Exercise of Jurisdiction by South Africa" in the 1970s

99. Whilst Chapter III of the Namibian Counter-Memorial is entitled "The Subsequent Conduct of the Parties to the Anglo-German Treaty of 1890 and their Successors in Title", the substantial part of the text is devoted to an attempt to deny the legal significance of various episodes advanced by Botswana as subsequent conduct of the parties.

100. In fact Namibia offers only one episode alleged to involve the "exercise of jurisdiction over Kasikili Island by South Africa in the 1970s". The incident concerned is presented thus by Namibia:

"88. In 1972, six years after Botswana's independence and five years after the establishment of the Chobe National Park, a Botswana magistrate recognised in a criminal proceeding that Kasikili Island was Namibian territory and that Botswana had no jurisdiction over it. On 28 September, three Caprivians were arrested on Kasikili Island by game wardens from the Chobe National Park and were detained in Kasane for five days before being brought before the magistrate. According to contemporaneous affidavits made by two of the men, the magistrate dismissed the case because they were arrested outside Botswana's jurisdiction. According to one of the affidavits:

We were kept in custody at the Kasane police Station and appeared before the Magistrate of Kasane after five days. After the interrogation and after the defence closed its case the Magistrate found us not guilty and said that the island was part of the Caprivi and that we had been arrested illegally.

The other said the magistrate 'acquitted us when giving judgment and said that we had been arrested illegally and criticised the game warden for arresting us on Caprivi territory.'

89. Recognition of Namibian jurisdiction and disavowal of Botswana jurisdiction over Kasikili Island by a judicial officer of the newly independent Botswana Government, residing in the neighbourhood and having personal knowledge of the situation, is the strongest kind of evidence of the understanding of the parties as to the location of the boundary under the Treaty and in practice." (Namibian Counter-Memorial, pp. 42-43)

101. The real facts were very different. It is true that four Caprivians were arrested on Kasikili/Sedudu Island by officials of the Wildlife Department of Botswana on 28 September 1973. They had been hunting within the Chobe National Park and had been seen by a Senior Game Warden, Mr. Slogrove, hunting lechwe. They were handed over to the police in Kasane. After two days they were released.

102. No trial took place and therefore no "judicial officer ... having personal knowledge of the situation" was involved. However, the episode involved several Botswana officials who did have long experience and knowledge of the situation and who had no doubt whatsoever that the island formed part of Botswana. The relevant officials were as follows:

First: The arresting officer, Mr. Slogrove, who was the Senior Game Warden of the Chobe National Park (Annexes 10 and 21).

Second: The Officer Commanding No. 7 Police District, Kasane. His views appear in Savingram R.8(64) of 22 March 1973 (Annex 11).

Third: The District Commissioner (and Resident Magistrate) of the Chobe District, Mr. Sebele (Annex 20).

103. The contemporaneous Report on the arrest by Mr. Slogrove, dated 22 March 1973 (Annex 10), is very helpful in referring not only to the arrest of the illegal hunters but also the

landing of the Botswana police unit on the island during a visit to the District by the President of Botswana. The key passages of the Slogrove Report are as follows:

"With reference to the South African Department of Foreign Affairs letter 1/160/3/1 of the 22nd February, 1973. The arrest of four Caprivian males hunting lechwe on Sedudu Island (Kasikili) in September, 1972 was the result of separate discussions with yourself, the O.C. Police No. 7 District (Ass. Supt. W.B. Anderson) and the District Commissioner Chobe District (Mr. K. Sebele).

I gathered from these discussions that the general consensus of opinion was that the deep water channel around Sedudu Island is the northern one, and therefore, the International Boundary between Eastern Caprivi and Botswana, and therefore the boundary of The Chobe National Park. (The accompanying map of the Island indicates localities of sand bars spanning the southern channel, which do not exist on the northern channel).

The landing on this Island of a fully armed squad of the Botswana P.M.U.² in August, 1972, during the President's visit for the purpose of searching it as a security measure strengthened my conviction that this Island was regarded as Botswana Territory. Members of this same P.M.U. platoon also attempted to erect a floating boom spanning the southern channel from bank to bank as an additional security measure. Materials to construct such a boom were requested from me."

[2 The initials "P.M.U." stand for "Para-Military Unit", precursors of the Botswana Defence Force.]

104. Affidavits have been obtained from the officials involved in the arrest of the poachers and who are still alive. Mr. Slogrove's affidavit (Annex 21) confirms the account contained in his Report of 1973. He also confirms in his affidavit that there were no court proceedings.

105. Of particular assistance is the affidavit of Mr. B.K. Sebele (Annex 20) who was District Commissioner at Kasane from October 1971 to April 1975 and, by virtue of this office, was also the resident magistrate of the Kasane Magisterial District. Having read the relevant paragraphs of the Namibian Counter-Memorial and related Annexes, in response thereto Mr. Sebele denies "that the so-called case referred to in the counter-memorial ever came before the court in Kasane". Mr. Sebele also denies that he could have held the opinion that Sedudu Island formed part of the Caprivi.

106. The contemporary report by the Officer Commanding No. 7 Police District, Kasane, dated 22 March 1973 (Annex 11), also confirms the Report provided by Slogrove in 1973. Further confirmation is supplied by the affidavit of Mr. S.A. Hirschfield (Annex 22) who was Commissioner of Police at the material time and who forwarded the report of the police officer (above) to the Permanent Secretary to the President.

107. It is clear that none of the officials of the Republic of Botswana who were involved in the aftermath of the arrest of the poachers had any doubt that the Island formed part of Botswana.

(D) The Eason Report

108. Pages 44 to 60 of the chapter headed "Subsequent Conduct of the Parties..." in the Namibian Counter-Memorial are devoted to episodes which are characterised by Namibia not

as "subsequent conduct" but as "alleged interruptions in the unbroken record of recognition and acquiescence by Botswana" (at page 44, paragraphs 92-136). As Botswana has demonstrated in her Counter-Memorial, there is no evidence to support the alleged title of Namibia on the basis of prescription or acquiescence: see the Botswana Counter-Memorial, Chapter 9, and, in particular, pages 305 to 307 (paragraphs 787 to 794).

109. In this general context the Namibian Government seeks in its Counter-Memorial to counter the effect of three significant evidential episodes which, as subsequent conduct and in other ways, confirm that the boundary (in accordance with the Anglo-German Agreement) is the northern channel of the Chobe.

110. The first such episode is the Eason Report. The content and significance of this Report have been examined carefully in Botswana's previous pleadings, as follows:

Memorial, pages 64-65, paras. 146-148

Counter-Memorial, pages 15-20, paras. 26-35; page 279, paras. 687-688; page 290, paras. 730-733.

111. The Eason Report is significant in the following respects:

First: Captain Eason's survey and Report were commissioned at the highest level (see Botswana Memorial, Annex 16) and receipt of the Report was acknowledged by Lord Harcourt, the Secretary of State (Botswana *Counter-Memorial*, Annex 7). The Report was commended by his superiors (*ibid.*).

Secondly: The circumstances surrounding the reconnaissance by Captain Eason show that there was no dispute concerning the main channel at the time. Moreover, the Namibian Counter-Memorial emphasises that the Report was not made the basis of a claim (page 45, para. 97).

Thirdly: Captain Eason saw no evidence of German occupation and clearly did not regard the island as falling within German territory.

112. In this connection it will assist the Court if the relevant paragraph of Captain Eason's Report is quoted in full:

"Two miles above the rapids lies Kissikiri Island. Here I consider that undoubtedly the North should be claimed as the main channel. At the western end of the island the North channel at this period of the year is over one hundred feet wide and 8 feet deep, the South channel about forty feet wide & four feet deep. The south channel is merely a back water, what current there is goes round the North. The natives living at Kasika in German territory are at present growing crops on it." (emphasis supplied) (Botswana Memorial, Vol.III, pp. 234-235)

The last sentence (italicised) does not appear in the passage quoted in the Namibian Counter-Memorial.

113. It is easy to see why Namibia is so concerned to denigrate the work of Eason. Every word of this paragraph is damaging to the theses of Namibia. As a navigator, Captain Eason observes that "what current there is goes round the North". Thus, according to the 'flow' or

'current' criterion, much favoured by Namibia, the northern channel qualifies as the main channel.

114. The only criticism Namibia can mount in face of the Eason Report is to state that no claim was made as a consequence of the Report: Namibian Counter-Memorial, p. 45, para. 97. That fact confirms that no dispute was thought to exist and at the same time in no way derogates from the probative value of the Eason Report. The tendency of the Namibian pleading to marginalise clear evidence by academic and highly tendentious hypothesis is exemplified by the Namibian reason for disregarding Eason's conclusion that "the current goes round the North", which is expressed as follows:

"If Eason had known the facts revealed by the Alexander report that substantially all of the annual flow of the Chobe goes east to the Zambezi through the southern channel, he would surely have regarded it as the main channel." (Namibian Counter-Memorial, p. 46, para. 99)

115. Rather eccentrically, the Namibian pleading suggests that Eason disregarded Panzera's instruction by travelling in the dry season. But that is a complete supposition based on the Namibian assumption that in the dry season "there is no perceptible flow in either channel..." (Namibian Counter-Memorial p. 46, para. 99). Moreover, the contrast between the picture provided by the Namibian expert and the reality is very considerable. Eason travelled by boat and reports water in both channels. And yet, according to the Namibian Counter-Memorial, in the dry season "there is virtually no flow at all in the Chobe River, including the portions around the Island": Namibian Counter-Memorial, p. 13, para. 31. The Court can imagine how disadvantaged Eason must have been, moving through a northern channel eight feet deep, and not knowing of the Alexander Report and the absence of navigability.

(E) The Caprivi Chief Liswaninyana Applies for Permission to Plough on Kasikili/Sedudu in 1924

116. In the Namibian Counter-Memorial the following appears:

"Botswana states that in 1924 the authorities at Kasane were 'reported to have given verbal permission to Kasika residents to plough on Kasikili/Sedudu Island.' No supporting authority or references are given. Many of the witnesses at the JTTE hearings held in May 1994 were asked specifically whether the Masubia had sought or been required to seek permission to farm on the Island. They uniformly and vigorously denied that they had." (Counter-Memorial, p. 41)

117. The reference here is to a passage in the Botswana Memorial, p. 31, para. 75. The issue is dealt with in more detail in the Botswana Counter-Memorial, p. 21, para. 37. The source is a letter, dated 26 January 1948, from Redman, the District Commissioner at Kasane, to the Government Secretary in Mafeking (Botswana Memorial, Annex 22). The same letter refers to the fact that Government oxen were grazing on the island "at this time" (1924). The Government of Botswana considers the information obtained by Redman to be reliable.

(F) the so-called "trollope-dickinson arrangement"

118. The Namibian Counter-Memorial provides a rather condensed account of the official exchanges between the British and South African Governments in the period 1948 to 1951, leading to the "Trollope-Dickinson arrangement", in the terms employed by Namibia:

Counter-Memorial, pp. 47-48, paras. 102-4. The correspondence has been analysed carefully in the Botswana Counter-Memorial (pp. 291-301, paras. 736-769).

119. The relevant section of the Namibian Counter-Memorial adds nothing of substance to the diplomatic history and the Government of Botswana finds it appropriate simply to reiterate the conclusions set forth in the Counter-Memorial:

"768. From all this no evidence emerges of British acquiescence in a South African claim. This is in fact accepted in the Memorial of Namibia. There, in paragraph 278, in a passage full of artificial readings of the relevant documents, the reader is surprised to see the following. Referring to the attitudes of British officials, the Namibian Government observes:

"Of course, these officials spoke of a 'slight adjustment of the northern boundary of the Bechuanaland Protectorate'. They were not going to give away legal points, as the exchanges discussed previously make clear ..." (emphasis supplied).

769. The correspondence between British and South African officials at various levels in the period 1948 to 1951 exhibits certain consistent features:

First, the exchanges and their outcome were without prejudice to the legal position.

Secondly, the British Government maintained its position that the northern channel was the 'main channel' and that therefore Kasikili/Sedudu formed part of Bechuanaland Protectorate.

Thirdly, the South African Government held the opinion that any claim to the island must be based upon prescription and the premiss of this position was a recognition that the northern channel was the 'main channel'." (Botswana Counter-Memorial, p. 301, paras. 768-769)

(G) Kasikili/Sedudu was included in the Chobe Game Reserve constituted in 1960

120. In its Counter-Memorial the Government of Namibia contends that the Island did not form part of the Chobe Game Reserve (and subsequently the Chobe National Park) constituted in 1960: see the Namibian Counter-Memorial, p. 42, para. 85. In support of this contention, Namibia makes two points. First, it is pointed out, correctly, that the Notices proclaiming the Game Reserve and Game Park, respectively, did not refer to any map or plan. Secondly, a Bechuanaland Protectorate map on a scale of 1:500 000 is relied upon to prove that the Island was not included in the Crown Lands Reserves and therefore, by inference, in the Game Reserve created in 1960 (Namibia Memorial, Atlas Map IX, reduced to 1:850 000).

121. This whole question has been addressed in detail in the Counter-Memorial of Botswana (pp. 29-34, paras. 58-69). The evidential picture which emerges can be summarised as follows:

(i) No cultivation took place on the Island after 1960; and in fact cultivation from the Caprivi side of the Chobe had ceased long before then (see the evidence of Chief Moraliswani (Namibian Memorial, Vol. III, Annex 2, p. 209) and the aerial photographs (Attachment to Botswana's Counter-Memorial).

(ii) The various Game Wardens and other officials appointed to control poaching in the Game Reserve regarded the Island as part of the Game Reserve and subject to their jurisdiction: see the Botswana Counter-Memorial, pp. 33-34, paras. 64-68.

(iii) The fact that the Island formed part of the Chobe Game Reserve and, subsequently, of the Chobe National Park, is confirmed by official plans published in 1975, 1980 and 1983. These plans were prepared to accompany the legal description of the National Park in the relevant statutory instruments and this purpose is expressly indicated on the plan of 1980: see the Botswana Counter-Memorial, page 33, para. 63; and the Botswana Counter-Memorial, Supplementary Atlas, Maps 19-24.

122. Against this background, the two points offered by the Namibian Counter-Memorial (see para. 120 above) are insubstantial and inconclusive. The principal element in the evidence is, quite simply, that after 1960 (in fact, probably earlier) no cultivation or grazing took place on the Island and no Caprivi farmers attempted to use the Island. No local representation from the Caprivi side of any kind occurred until March 1992: see the Botswana Counter-Memorial, pp. 41-42, paras. 95-100. When this informal representation occurred, it had no connection with use of the Island for purposes of cultivation or grazing.

123. There is other compelling evidence of the state of affairs on the Island. The assertion by Namibia that Kasikili was a settlement on the Island and was the senior settlement in relation to Kasika is contradicted by two forms of evidence. The Reports of the Government of the Union of South Africa on South-West Africa for the years 1927 to 1929 are of considerable interest. The three Reports refer to the existence of a school at Kasika, and, therefore, not "at Kasikili": see the Report for 1927, at page 122 (Botswana Counter-Memorial, Vol. III, Annexe 11); Report for 1928, at page 127 (*ibid.*, Annex 12); Report for 1929, at page 67 (*ibid.*, Annex 13). All three Reports include the information that a grant had been made (in the given year) "from the Bechuanaland Protectorate Native Fund to the School at Kasika". Chief Liswaninyana himself sought the permission of the Resident Magistrate at Kasane to collect money from his people to augment the teacher's salary (Letter of 4 February 1928 from Acting Resident Magistrate to the Government Secretary, Mafeking, requesting authority to receive and dispense such collected monies, Annex No. 6).

124. The second form of evidence concerns the series of aerial photographs of the Island from 1925 to 1997. Of this collection only the 1943 photograph shows evidence of some small fields: Botswana Counter-Memorial, Attachment: Aerial Photographs, No.2. The small fields are on the south-eastern sector of the Island. They form a block and they are opposite the place where the Sedudu valley meets the southern arm of the Chobe River. In the 1940s two Barotse (Matoka) families lived in the Sedudu valley and it is reasonable to assume that the fields were theirs. The existence of the Barotse in the Sedudu valley is established by the Chobe District Annual Reports for 1942 and 1943 (Annexes 7 and 8). The first document, dated 23 January 1942, refers to two Barotse huts at "Sidudu", and the second, dated 12 January 1943, refers to seven "Barotse and Batoka" huts "at Sidudu".

125. During the hearings in Kasane of witnesses presented by the Government of Botswana, several witnesses reported the fact that some Batoka had lived for a while in the Sidudu valley and had used the island for cultivation in the early 1940s. The evidence appears in the Transcript as follows (Memorial of Namibia, Vol. II, Annex 1):

(i) Maseni Samunzala: Fourth Round Transcript p.27. He refers to Mothomotshwane, who was in fact his father. Mothomotshwane was a Matoka, that is, a migrant from Zambia.

(ii) Kopani Ketshegile: *ibid.*, p.32.

(iii) Daniel Sabuta: *ibid.*, p.35 (lines 18-26), p.37 (lines 8-13), p.40 (lines 19-22), p.41 (lines 15-19), p.42 (lines 1-7).

(iv) Mwampole Ndana: *ibid.*, p.75 (lines 18-23).

(v) Keorapetse Mokhiwa: *ibid.*, p.79 (lines 23-29), p.80 (lines 1-5), p.81 (lines 11-29), p.85 (lines 28-29), p.86 (lines 1-29). He remembered a Batoka called Mothomotshwane living in the area.

126. This evidence is in contrast to much of the evidence produced by the Namibian witnesses because it is confirmed by the aerial photograph of 1943 and by the District Commissioner's reports of 1942 and 1943.

(H) The Opinion of the Surveyor-General of the Bechuanaland Protectorate, 18 October 1965

127. This document (Botswana Memorial Annex 36) is criticised by the Namibian Counter-Memorial, apparently because it "adds nothing to the Trollope-Dickinson documentation": Namibian Counter-Memorial, pages 48-49, para. 105. The document formed part of the material available to the Joint Team of Technical Experts and forms a part of the historical record. The Surveyor-General had been consulted and had expressed his expert opinion, according to which the northern channel was the main channel. This is clear from the attached sketch map: see Appendix II to the Botswana Memorial, Map 18.

128. The Namibian Counter-Memorial (page 48, para. 105) chides Botswana for failing to quote what it calls "the conclusion" of the document, and then quotes paragraph 13. However, this is not "the conclusion", because it is followed by two further concluding paragraphs. The three paragraphs in proper sequence read as follows:

"13. It appears, therefore, that if we now wish to use the island we have no alternative but to re-open the matter with a view to either

(a) coming to a new administrative arrangement which would allow us the use of the island without necessarily settling the question of ownership, or

(b) once and for all settling the matter of ownership, as one feels, admittedly after the event, ought perhaps to have been done in 1947.

14. I think the South African case for possession of this island is very weak. The fact that we did not use it, and allowed the Caprivi tribesmen to use it, does not amount to prescription so much as tolerating its use by the Caprivi people while it was inconvenient for us to use it.

In the recent demarcation of the western Caprivi Strip boundary, many of our people were found to have been cultivating and grazing lands on the Caprivi side of the boundary for many years. We did not claim this land prescriptively, nor was it ever suggested by the South West

Africa authorities or ourselves that we might have such a claim. The position seems to be quite analogous with that obtaining on Kasikili island, and now, while the circumstances along the western Caprivi boundary are fresh in the minds of all concerned, might be the time to press for final settlement of the Kasikili Island problem.

15. In order to obviate any possibility of mistaken identity I attach a sketch which illustrates the position of Kasikili Island in relation to Kasane and the main channel of the Chobe river."

129. This thoughtful internal memorandum is worthy of careful consideration. Like all the previous officials concerned with the matter, Renew considered the northern channel to be the main channel.

(I) The Visit of the President of Botswana to the Island in 1972

130. In August 1972 His Excellency the President of Botswana visited the Chobe District as part of an official tour of inspection. Whilst there is no direct evidence that the President actually set foot on the Island, it is clear that he was expected by the local security services at some stage to be in its close vicinity.

131. A witness of the visit and its prelude was Mr. Slogrove, at that time Senior Game Warden of the Chobe National Park, which included Kasikili/Sedudu Island. In his Report dated 22 March 1973 (Annex 10) Slogrove observed:

"The landing on this Island of a fully armed squad of the Botswana P.M.U.³ in August 1972, during the President's visit for the purpose of searching it as a security measure strengthened my conviction that this Island was regarded as Botswana Territory. Members of this same P.M.U. platoon also attempted to erect a floating boom spanning the southern channel from bank to bank as an additional security measure. Materials to construct such a boom were requested from me."

[3 'Para-Military Unit' - the precursor of the Botswana Defence Force]

132. Such a visit, which elicited no protest or reservation from any quarter, constitutes strong evidence of a peaceful possession in accordance with a long established status quo based upon the Anglo-German Agreement. It would be unlikely, to say the least, that the P.M.U. would search the Island if it was considered to be part of Namibia.

(J) The Pretoria Agreement of 1984 and the Joint Survey Report of 1985

133. The Namibian Counter-Memorial devotes considerable effort to an attack on the legal significance of the significant transactions between Botswana and South Africa in the period 1984 to 1986: Counter-Memorial, pages 49 to 60, paragraphs 107-136. This attack takes three forms:

(i) Neither Botswana nor South Africa had legal power to enter into an agreement concerning the boundary;

(ii) The Pretoria Agreement did not constitute a legally binding agreement; and

(iii) The Joint Survey Report is entitled to no weight as an expert opinion.

134. The position of Botswana on these questions has been set forth in detail in the pleadings, as follows:

Memorial of the Republic of Botswana, Vol. I, pages 75-85, paragraphs 166-199.

Counter-Memorial, pages 59-61, paragraphs 153-160.

135. The Government of Botswana confirms the position delineated in the Memorial and Counter-Memorial and is now concerned merely to deal with the debating points made in the Namibian Counter-Memorial. Of these, the first is that neither Botswana nor South Africa had legal power to enter into an agreement concerning the boundary: Namibian Counter-Memorial, pages 49 to 55, paragraphs 109 to 125.

136. In the case of South Africa, Namibia invokes the illegality of the South African presence in Namibia subsequent to the termination of the Mandate in 1966. In the case of Botswana, Namibia invokes the Namibia Advisory Opinion of the Court and the resulting Security Council Resolution. The Government of Botswana was sensitive to the problems of dealing with South Africa and that is why a Botswana Delegation held three meetings in New York, respectively with the President of the UN Council for Namibia, the Secretary-General of SWAPO, and the UN Commissioner for Namibia.

137. The legal position is determined by two propositions:

First: the purpose and content of the transactions between Botswana and South Africa were neither illegal nor contrary to public order.

Secondly: the Government of Namibia has adopted the transactions of 1984 and 1985.

138. The evidence of the adoption by Namibia of the transactions of 1984 and 1985 is as follows:

(i) There is no evidence that any official of SWAPO, or of the UN Council for Namibia, or the UN Commissioner for Namibia, subsequently expressed any complaint or reservation concerning these transactions.

(ii) The Government of Namibia has expressly adopted the transactions of 1984 and 1985 in the following formal documents:

- Memorandum Submitted to the Joint Team of Technical Experts on the Boundary Dispute between Namibia and Botswana around Kasikili Island, 1994 pp. 34-35 (quoted in the Botswana Counter-Memorial, page 61, para. 159). (The Joint Survey Report is included as Annexure 11 to the Memorandum.)

- Supplementary Memorandum Submitted to the Joint Team of Technical Experts..., 1994, pp. 22-27, 31.

- Memorial of the Republic of Namibia, Vol. I, 28 February 1997, pages 116-117, paras. 284-286.

- Memorial of the Republic of Namibia, Vol. VI, Part 1, pages 30-32, paras. 11.1-11.8.

139. On this evidence the Government of Namibia has adopted the instruments concerned, without any assertion of invalidity, in the period from 31 January 1994 (the date for the first written submissions to the Joint Team of Technical Experts) until 28 February 1997, in the context of legal proceedings first before the Joint Team of Technical Experts and then before the Court. Only at the stage of the Counter-Memorial, submitted on 28 November 1997, did Namibia raise the issue (although it is hinted at in the Namibian Memorial at page 116, para. 285). Moreover, at page 115 (para. 282) of the Namibian Memorial, other South African official transactions of the period 1974 to 1984 are invoked without reservation.

140. The Government of Namibia is bound by its express acceptance of the validity and opposability of the transactions involving South Africa. The decision of the Court in the *Arbitral Award of the King of Spain* case is helpful in this context. Nicaragua's challenge to the validity of the Award failed. As the Court explained:

"In the judgment of the Court, Nicaragua, by express declaration and by conduct, recognised the Award as valid and it is no longer open to Nicaragua to go back upon that recognition and to challenge the validity of the Award. Nicaragua's failure to raise any question with regard to the validity of the Award for several years after the full terms of the Award had become known to it further confirms the conclusion at which the Court has arrived." (I.C.J. Reports, 1960, p. 192 at p. 213)

141. The principles involved are essentially those of consent (or recognition) and good faith (the requirement of consistency and the exclusion of approbation and reprobation). The general principle was elaborated by Sir Hersch Lauterpacht in his classic work, *The Development of International Law by the International Court*, published in 1958. In Lauterpacht's words:

"It does not much matter whether, in considering the parties to be bound by their own conduct, the Court resorts to the terminology of the doctrine of estoppel or not. This applies, for instance, to cases in which the Court accepted jurisdiction as the result of the conduct of the parties or when it interpreted a legal text by reference to the declarations of the Government in question. Thus in the *Advisory Opinion on the International Status of South-West Africa* the Court held that certain declarations made by the Government of the Union of South Africa constituted a recognition on its part of its obligation to submit to continued supervision in accordance with the Mandate and not merely an indication of its future conduct. The Court said: "Interpretations placed upon legal instruments by the parties to them, though not conclusive as to their meaning, have considerable probative value when they contain recognition by a party of its own obligations under an instrument". It is a question of emphasis whether reliance on the conduct of the parties to a treaty subsequent to its conclusion is treated from the point of view of the doctrine of estoppel preventing a party from asserting an interpretation inconsistent with its conduct or whether it is considered as a legitimate factor in the process of interpretation in the sense that subsequent conduct throws light upon the intentions of the parties at the time of the conclusion of the Treaty. Both represent, in substance, a general principle of law." (At page 170; footnotes omitted)

142. This reasoning provides a strong analogy in relation to the position of Namibia as the successor State of South Africa. More generally, the position of Namibia is the more contradictory in light of the fact that the acts of the South African Government (allegedly in

relation to Kasikili/Sedudu) have been relied upon heavily by the Namibian Government as a part of its argument based upon an alleged adverse possession.

143. The next Namibian assertion relating to the transactions of 1984 and 1985 is that the Pretoria Agreement of 19 December 1984 did not constitute a binding agreement: see the Namibian Counter-Memorial, pages 55 to 59, paragraphs 126 to 135.

144. The legal significance of the Pretoria Agreement of 1984 and the resulting Joint Survey Report have been examined in detail already in Botswana's pleadings as follows:

Memorial of the Republic of Botswana Vol. I, pages 75-85, paras. 166-199

Counter-Memorial, Vol. I, pages 35-41, paras. 72-92; pages 59-61, paras. 153-160.

145. The Government of Botswana reaffirms the account of the facts and law presented therein. The Court will no doubt make its own evaluation of the documentary record. For present purposes the points raised by Namibia in its Counter-Memorial can be considered with a certain economy.

146. The Namibian Government appears to believe that "the decision to conduct a survey of the main channel" was unimportant: Counter-Memorial, page 56, para. 127. This is an eccentric position. The identification of the main channel lies at the heart of the dispute as Namibia's own pleadings demonstrate, and it is odd indeed that Namibia is so antagonistic toward any exercise in the historical record involving actual reconnaissance of the Chobe, whether by Eason, or by Trollope and Redman, or by the intergovernmental survey of 1985.

147. The intergovernmental agreement of 1984 involved a serious effort to settle the dispute concerning the interpretation and application of the Anglo-German Agreement and the documents make this clear.

148. Namibia makes no serious attempt to contradict the proposition that form is not a requirement for the conclusion of a valid legal agreement: see the Counter-Memorial, page 56, footnote 56.

149. As to the legal capacity of the two delegations, Namibia invokes Article 7 of the Vienna Convention on the Law of Treaties, but does not explain why it should be applicable. Article 3 of the Convention provides that the Convention "does not apply to international agreements not in written form ...". In any event neither Botswana nor South Africa were bound by the Vienna Convention at the material time and, as Article 4 provides, the Convention is not retroactive.

150. The Namibian Government disparages "the content of the discussions" on 19 December 1984: Counter-Memorial, page 57, para. 129. The rather surprising point is made that:

"It is highly unlikely, moreover, that either side was prepared to entrust the location of the boundary in a dangerous and disputed area to the outcome of what all regarded as a 'technical' survey."

151. But that was exactly the purpose. In the wake of a dangerous incident, the parties were intent on seeking to remove a source of confusion and the danger of defence forces acting in

error. According to Namibia the whole exercise was a charade but the documents contradict this suggestion. The meeting of 19 December 1984 at which the agreement to conduct a Joint Survey was reached involved two high-level delegations: see Botswana Memorial, pp. 77-79, paras. 172-180. When the relevant Minutes are studied it will be seen that the armed forces of both countries were well represented at the discussions.

152. The third and final argument of Namibia is that "the subsequent conduct of the parties" shows that the Joint Survey Report was not self-executing, and that further action by the two governments was necessary: Counter-Memorial, pages 57-59, paras. 130-135. The Court will, of course, form its own view of the evidence. The position of Botswana on the facts is as follows:

First: there was a policy of ex post facto prevarication on the part of the South African officials, presumably explained by the fact that the Joint Survey Report had not produced a convenient outcome. But such prevarication is not conclusive evidence as to the original intention of the parties.

Secondly: Botswana did seek to initiate a diplomatic follow-up to the appearance of the Joint Survey Report, but the reason for this was the political sense of obtaining express acceptance from South Africa. In face of South African intransigence, Botswana acted on the legally justifiable view that the Joint Survey Report was self-executing.

153. As an additional argument the Government of Namibia contends that "the joint survey report is entitled to no weight as an expert opinion": Counter-Memorial, pages 59-60, para. 136. The burden of the Namibian criticism is, of course, that the Joint Survey Report contradicts the partisan assumptions of the Alexander Report. Professor Alexander's assertion of greater flow or current in the southern or hypothesised Alexandrine channel is wholly disproved by the scientific evidence of the Survey: the 27 depth soundings taken established the northern channel as the main channel by reference to depth and the thalweg; two cross-sections in the southern channel were impossible to complete, one (section 14) by reason of reeds growing in the right half of the channel, and the other (section 20) by reason of shallow water.

154. Thus the Namibian points of criticism are simply the outwork of the strongly partisan construct of the scientific evidence produced by Professor Alexander. The Joint Survey was carried out by experts selected and appointed by the two Governments. The Namibian Government fails to explain why the two teams were not sufficiently expert either individually or collectively.

155. The Namibian Government also fails to explain why it had not, prior to the delivery of the Counter-Memorial on 30 November 1997, alleged that the personnel of the joint survey lacked expertise. Thus the Joint Survey Report is invoked, without criticism of the technical expertise of the personnel, in the following formal submissions:

- Memorandum Submitted to the Joint Team of Technical Experts on the Boundary Dispute between Namibia and Botswana around Kasikili Island, 1994 pp. 34-35 (quoted in the Botswana Counter-Memorial, page 61, para. 159). (The Joint Survey Report is included as Annexure 11 to the Memorandum.)

- Supplementary Memorandum Submitted to the Joint Team of Technical Experts..., 1994, pp. 22-27, 31.

156. It is worth recalling that, in the Supplementary Memorandum, the personnel of the Joint Survey are criticised as "a team of civil servants" (at page 31, para. 7.8), but their technical expertise is not questioned. Nor is their technical expertise questioned in the Namibian Memorial, pages 116-117, paras. 284-286.

(K) Conclusion

157. The Namibian argument based upon subsequent conduct of the parties rests upon extraordinarily weak foundations, both in conceptual and in factual terms. The conceptual foundations are weak because in truth, the 'subsequent conduct' argument of Namibia is an argument grounded in acquisitive prescription. Thus, subsequent conduct, which relates to an existing legal instrument, is opposed to prescription, the purpose of which is to destroy and to supplant a pre-existing title.

158. On the one occasion when subsequent practice appears, with the particularly strong profile of a subsequent agreement of the parties, in the form of the Pretoria Agreement of 1984, the Namibian Government is forced to seek to minimise the legal consequences.

159. The Namibian pleading has also faced very substantial difficulties in dealing with issues of fact. The central difficulty has been the Namibian contention that Germany or South Africa or Namibia have always administered the Island. All the evidence is to the contrary. The Eason Report of 1912, the request of Chief Liswaninyana in 1924, the diplomatic transactions of 1948 to 1951, and the absence of any adverse reaction to the prohibition of cultivation and grazing on the Island by the British authorities in 1960, all these diverse pieces of evidence establish conclusively that in administrative terms the Island always formed part of Botswana and its predecessor, the Bechuanaland Protectorate.

160. All the relevant officials involved in the various episodes affecting the Island were aware that the northern channel was the main channel in accordance with the Agreement of 1890. Moreover, during the diplomatic exchanges of 1948 to 1951 between the United Kingdom and South Africa, the South African officials were aware that their position involved a proposal to change the legal status quo: see the Botswana Counter-Memorial, pp. 63-64, paras. 167-171; pp. 291-301, paras. 736-769. The documents show that the South African Government was of the opinion that any claim to the Island must be based upon prescription (see Botswana Counter-Memorial, pp. 295 and 297, at paras. 748 and 754).

CHAPTER 4

The Map Evidence as Subsequent Conduct of the Parties

(A) The Law

161. Namibia asserts that maps subsequent to the 1890 Agreement constitute "evidence of subsequent conduct". Legally, to have effect this conduct must constitute, either:

"Subsequent practice of the parties which establishes the agreement of the parties"; that agreement being that Article III of the 1890 Anglo-German Agreement refers to the southern channel (Vienna Convention on Treaties 1969, Article 31.3.(b));

or

evidence of prescription.

Therefore, it is not sufficient to plead the maps on their own, but it is necessary to show that they evidence an agreement between the parties, or that they were brought to the notice of the British or Botswana authorities, and that they acquiesced in them.

162. In this connection Botswana submits that:

(i) No map was agreed by the parties as showing the international boundary in the vicinity of Kasikili/Sedudu Island, other than the Plan accompanying the 1985 Joint Survey which showed the northern channel to be the main channel.

(ii) None of the maps relied upon by Namibia were acquiesced in by Botswana.

(iii) British and Botswana official maps showed the boundary to be in the northern channel of the Chobe River.

(iv) Official maps prepared by the South African defence forces in 1978 and 1984 showed the boundary to be in the northern channel of the Chobe River.

(v) No protest, official or otherwise, was received from either South Africa or Namibia in respect of the British or Botswana maps.

(vi) Accordingly, Namibia, by subsequent conduct, both agreed and acquiesced that the international boundary was located in the middle of the northern channel of the Chobe River in the vicinity of Kasikili/Sedudu Island.

(B) the principal assertion of Namibia

163. Namibia asserts:

"there is a remarkable general consistency among the official maps of Namibia produced by Germany, Great Britain, South Africa and the United Nations, the four entities that exercised political power in the area from 1890 to 1894, showing the boundary as being in the southern channel and Kasikili Island as being in Namibia." (Namibian Counter-Memorial, p. 4, para. 11)

and this is repeated in the conclusion to Chapter IV:

"The most relevant maps - official maps produced and used by Germany, Great Britain, South Africa and the United Nations during the period that they were respectively responsible

political authorities in the area - all are large enough in scale to show Kasikili Island and the boundary around it, and there is both internal and external evidence that professional care was exercised in the depiction of the boundary. They constitute evidence of an unbroken sequence of maps emanating from all the political authorities in the area (with the exception of Botswana after 1974) showing the boundary in the southern channel of the Chobe River and placing Kasikili Island in Namibia." (Namibian Counter-Memorial, p. 81, para. 175, footnote omitted)

164. Namibia does not identify "the most relevant maps", but from its survey of maps at paragraphs 145 to 170 one can conclude that it is relying on:

(i) Seiner's Map of 1909

In this map no boundary line is shown anywhere in the Chobe River, or in either channel around Kasikili/Sedudu Island, and no boundary symbol is indicated in the accompanying legend.

(ii) The 1933 Bechuanaland Protectorate Map

This map shows a boundary symbol placed along the south bank throughout the whole length of the River Chobe, from the western point of the commencement of the riverine boundary at 18° S Latitude, to the junction of the Chobe with the Zambezi at Kazungula.

(iii) The 1949 South Africa Map

Only this map, published after the correspondence between the British and South African Governments in consequence of the Trollope/Redman Report of January 1948 (the critical date: see Botswana Counter-Memorial pp. 218-219, paragraphs 538 to 542), places a boundary line in the channel south of Kasikili/Sedudu Island.

Of these three maps, only the last, which was published after 1948, the critical date by which the dispute had crystallised, shows the boundary in the southern channel.

165. Of the maps published after the critical date of 1948:

(i) Other South African maps are copies of the 1949 map (nos. 17, 20, 22 in Rushworth's List of Relevant Maps, Annex 1 to the Namibian Counter-Memorial, Vol. II).

(ii) The British and Botswana maps show the boundary in the northern channel around the Island (the 1965 map shows only part of the southern channel).

(iii) The 1982 Namibia Map follows the South African maps.

(iv) The maps of Third States are dealt with in Chapter 5, which shows that their extraordinary diversity of representation of the location of the boundary between Botswana and Namibia totally disproves Namibia's assertion of uniformity and general consistency.

(v) The 1984 United Nations Map, which is also discussed in detail in Chapter 5, shows no boundary, misrepresents the shape of the Island and contains half a waiver clause (suggesting that the other half has been inadvertently omitted).

At paragraphs 200 to 255 below a more detailed review of the German, British, South African and Botswana maps is provided.

166. In the light of these clear and readily perceivable divergences in the depiction of geographical features and the placement of the boundary, it is impossible for Namibia, with any aspiration to credence, to assert that the maps show "a remarkable general consistency" and "unbroken sequence".

167. A clear historical rebuttal of this extraordinary assertion is to be found in the statement by the 1985 Joint Survey Team that "the disparity in the depiction of the boundary between the South African maps and those of Botswana has probably been a contributory factor" in the 1984 border dispute (Botswana Memorial Vol. III, Annex 48). The recognition of the inconsistency of the maps of the area is confirmed in the Minutes of the meeting in Pretoria of 19 December 1984 between Botswana and South African officials and the Minutes of the two meetings held at the United Nations, New York, in 1984.

168. The Namibian Counter-Memorial accuses Botswana in its Memorial of seeking "to obfuscate this substantial unanimity by a mélange of inaccuracies, irrelevancies and innuendoes". A detailed refutation of Mr. Rushworth's allegation of map-related errors in the Botswana Memorial (Namibian Counter-Memorial, Vol. II, Annex 1, Observations Concerning Maps Arising from the Memorials of Botswana and Namibia, paragraphs 2 and 22) will be found in Appendix 1. Botswana strongly rejects the charge that its presentation of the materials for the consideration of the Court has been designed to obfuscate. On the contrary, it is precisely its case that many of the maps relied on by Namibia are, by reason of their scale and the manner of depiction of the geographical features and the boundary, subject to inaccuracies and ambiguities of interpretation, and consequently are unreliable.

(C) Mr. Rushworth's list of Relevant Maps

169. An attempt to buttress the Namibian assertion of consistency is advanced by Namibia's expert, Mr. W.D. Rushworth, who supplies in Annex 1 (Namibian Counter-Memorial, Vol. II) at p. 34 a "List of Relevant Maps in the Pleadings".

170. Mr. Rushworth states that "none of the maps" in his list "indicate that the boundary is in the northern channel".

171. This is hardly a surprising conclusion since Mr. Rushworth omits from his list all the maps which show the boundary in the northern channel, i.e. the 1960 and 1965 Bechuanaland maps, the 1969 British Joint Operations maps, the Botswana maps subsequent to independence in 1960, and the official South African Ministry of Defence 1978 and 1982 (JARIC) maps, together with the 1984 Military Intelligence map.

172. At the conclusion of his list Mr. Rushworth purports to reduce the portrayal of the international boundary in the vicinity of Kasikili/Sedudu Island to three categories of maps:

Category 1

Maps that "indicate that the boundary is in the southern channel";

Category 2

Maps that "do not show the boundary but imply that Kasikili Island is in Namibia";

Category 3

Maps which "do not indicate in which channel the boundary is located".

173. One could hardly imagine a more unconvincing attempt at categorisation of the variety of ways in which the available maps depict the configuration of the River Chobe and signify the whereabouts of the international boundary.

(I) Depiction of Kasikili/Sedudu Island

174. Prior to the 1933 British map Kasikili/Sedudu Island was portrayed in a variety of shapes and positions in the Chobe River:

(i) Bradshaw's map of 1880 accurately portrayed the sinuosities of the Chobe River and correctly drew the straighter channel to the north of the Island though, as he did not personally survey this section, he missed the distinctive 'otter's head' shape of the Island which is so clearly and continuously portrayed in the sequence of aerial photographs from 1925 to the present day.

(ii) Seiner's map of 1909 copied Bradshaw's shape for the Island.

(iii) The British published maps up to 1933 portrayed an island at approximately the correct location in conjunction to Kasane, but it lacked the correct shape, and the scale was too small to distinguish the configuration of the channels around it.

175. Eason in 1912 was the first to portray the shape of the Island (which he named "Kissikiri" Island) correctly and his accompanying Report makes it plain that the northern channel was the main channel:

"At the western end of the island the North channel at this period of the year is over one hundred feet wide and 8 feet deep, the South channel about forty feet wide & four feet deep. The south channel is merely a back water, what current there is goes around the North."
(Botswana Memorial, Vol. III, pp. 234-5)

176. The accurate depiction of the shape of the Island dates from 1933, with the British map of Bechuanaland of 1933, but, as the second (1933), third (1940), fourth (1942) and fifth (1958) editions of Africa 1:2 000 000 GSGS 2871 demonstrate, no consistency was observed in its portrayal. Even as recent a map as the UN map of 1985 portrays a hunchbacked island divided in two parts.

(ii) Delineation of the Channels around the Island

177. Cartographers showed a lack of uniformity in the treatment of the channels even where reasonable accuracy in the shape of the Island was achieved. Streitwolf's unpublished map omitted the southern channel; the 1965 Bechuanaland map and the 1978 official South African Ministry of Defence (JARIC) map both only showed it as a backwater 'lagoon', clearly indicating its lesser significance. The 1912 von Frankenberg map contained the words

'Fluss arm' written along the southern channel, indicating (whether or not the term means branch or tributary) that the River Chobe flowed through the other (northern) channel.

(iii) Representation of the Boundary

178. The insertion or superimposition of a line to indicate a boundary over geographical features produces inaccuracy and distortion, as already explained in the Botswana Memorial, paragraphs 294 to 296, and the Botswana Counter-Memorial, paragraphs 561 to 563. Further discussion of the symbolic, as opposed to accurate, manner of representation of boundaries on the available official maps, is to be found at paragraphs 194 to 199 below.

(D) Namibia's treatment of the map evidence in its counter-memorial

179. The relevant Chapter in Namibia's Counter-Memorial is divided into two parts. Under Section A - "General Considerations as to the Map Evidence in this Case" - it asserts the relevance of maps as evidence, challenges Botswana's statement that the majority of available maps are at too small a scale to be useful, and assures the Court that the "depiction of international boundaries on official maps is a matter of painstaking care". Under Section B - "Analysis of the Maps Relied on by Botswana" - it examines the maps under the headings German, British, South African and Third Country maps. The Botswana Reply will follow the same order, dealing first with general considerations and responding to the Namibian assertions as to individual maps by reference to the country of origin of the map, this being broadly in chronological order.

(E) General Considerations Relating to Map Evidence Advanced by Namibia in its Counter-Memorial

(i) Maps as Evidence

180. Namibia accuses Botswana of disparaging map evidence, and asserts that map evidence is subject to no special vulnerability (Counter-Memorial pp. 61-62, para. 140).

181. In its Memorial Botswana accepted the general proposition, as stated in the Namibian Counter-Memorial, that maps may provide evidence of boundaries, but stressed that their "relevance is entirely dependent on the circumstances" (para. 254). It stated that the small scale of most of the available maps and the impressionistic mode of indication of the political boundary in the circumstances of the present case renders the map evidence "contradictory and confused" (para. 297).

182. In its Counter-Memorial Botswana reached the same conclusion, after a detailed examination of the available official maps, including those surveyed by Namibia's map expert, Mr. W.D. Rushworth, and some additional maps, including the British Joint Operations maps of 1968. In the conclusions, set out at paragraphs 636 to 646, the Counter-Memorial stated that:

(i) "Map evidence is of little assistance in the present case because it is inaccurate and inconsistent";

(ii) there was a direct conflict between the map evidence and the scientific evidence, in that no map showed a channel located across Kasikili/Sedudu Island, as hypothesised by Professor Alexander; and

(iii) as no version of the 1889 map was annexed to the Anglo-German Agreement of 1890, the Court, in determining the main channel of the River Chobe, has to construe Article III of that Agreement on its own.

(ii) Scale of Maps

183. With few exceptions, the majority of Namibian maps are at scales of 1:500 000 or smaller; at these scales the plotted size of the Island ranges from 1mm to 3mm, and the channel width is under 1mm⁴. This minuteness of size removes the possibility of any accurate indication of a boundary, which, as required by Article III of the Anglo-German Agreement, is to be drawn along the centre of the main channel. Instead, it results in either the superimposition of a boundary line covering the whole of the river, and in some cases the adjacent banks, as in War Office Map ID 846b of 1891, or necessitates the positioning of the boundary symbol along one or other bank of the Chobe River, as in the British Map of Bechuanaland of 1933.

[4 Kasikili/Sedudu Island is approximately 2.5kms long and 1.5kms wide, whilst the widest part of the northern channel is 250 metres wide. The table below shows the plotted size in millimetres of maps at scales of 1:500 000, 1:1 000 000 and 1:1 584 000:

Map Scale	1:500 000	1:1 000 000	1:1 584 000
Island length	5.0	2.5	1.5
Island width	3.0	1.5	1.0
Channel width	0.5	0.25	0.16

Only at 1:100 000 are details clearly observable:

Island length	25.0
Island width	15.0
Channel width	2.5]

184. Namibia accepts that "the usefulness of a map is related to the ground distances involved in the dispute", but then, drawing on Mr. Rushworth, seeks to justify its reliance on small-scale maps by reference to the manner in which cartographic evidence has previously been used by the International Court of Justice in land frontier disputes, and, in particular, by reference to the use of a 1:200 000 map in the Temple case (Namibian Counter-Memorial, p. 80, para. 173; Rushworth's Observations, Counter-Memorial Vol. II, Annex 1, pp. 7-8).

185. Botswana submits that generalisations cannot usefully be made about the Court's use of large or small scale maps in its determination of issues. The nature of the issues to be determined, the availability, provenance, and technical reliability of the maps are all factors to be taken into account, as demonstrated by the Court's own practice. Where controversy relates to a general feature or the general line of an inter-state frontier, small-scale maps may well be adequate, whereas the ascertainment of a boundary by reference to a particular landmark or individually owned plot of land may necessitate resort to maps of a scale of 1:200 000 or larger.

186. The Temple case is an example of the first type.⁵ The issue for determination was whether the boundary followed the watershed as stipulated by the Treaty of 1904, or a line on a map, which Thailand had accepted and used for 50 years (ICJ Reports, 1962, p. 6, at p. 26). Both lines were readily discernible on a small-scale map.⁶

[5 Similarly, Judge de Castro was prepared to refer to small-scale maps as evidence of inter-State territorial boundaries in the Advisory Opinion on Western Sahara, where the Court was required to advise whether the territory was *res nullius* or subject to legal ties with Morocco and the Mauritanian entity (Advisory Opinion on Western Sahara, Judgment of 22 May 1975, separate opinion of Judge de Castro, ICJ Reports 1975, p.6 at pp. 152-153).]

[6 The geographical siting of the Temple of Preah Vihear was not in dispute. Its dimensions, and the distance of 500 metres to which the dissenting Judge Wellington Koo and Mr. Rushworth refer, were irrelevant to the determination of the issue before the Court.]

187. As to the second type, where the issue before the Court concerns the location of administrative boundaries and registration of plots of land under municipal law, large scale maps have been employed. Thus, in the *Sovereignty over Certain Frontier Land* case, the relevant protocol required detailed survey maps to be drawn to a scale of 1:10 000 and the Court in reaching its decision relied on a map of that scale (ICJ Reports, 1959, p. 209 at p. 220; see also the dissenting opinion of Judge Armand-Ugon at p. 246). Similarly, in the *Case Concerning Land, Islands and Maritime Frontier Dispute* the Court had to determine the land boundary by reference to local surveys, grants of land and 'effectivités'; its sketch maps were drawn to a scale of 1:100 000, and the maps accompanying the judgment, "for the purposes of illustration", were to a scale of 1:50 000 (ICJ Reports 1992, n. 322 at p. 553).

188. In the *Case concerning the Frontier Dispute (Burkina-Faso/Republic of Mali)* the maps referred to in the relevant treaties were missing. The contemporary Blondel la Rougerie map was to a scale of 1:500 000, and for lack of larger scale maps a Chamber of the Court, in reaching its detailed determination of the frontier line, worked with the IGN 1:200 000 scale map: (ICJ Reports 1986, p. 554 at p. 586, para. 62).

189. Thus it will be seen that the distance on the ground relevant to the resolution of the issue before the Court is an important factor in assessing the evidential weight of a map. In the present case, as stated in the *Botswana Memorial* (para. 290), the comparative width of the two channels is to be kept in mind when assessing the relevance of the available maps. Captain Eason noted in his 1912 Report that the width of the northern channel was 100 feet (30 metres) and the southern channel 40 feet (13 metres). As shown above, the plotted size, on maps to a scale of 1:500 000 and 1:1 000 000, of a channel-width of 250 metres is 0.5 and 0.25 millimetres. Only at a scale of 1:100 000 or larger are the details clearly observable, with 1.00 millimetres as the plotted size of a 100 metre wide channel. Botswana repeats its submission made in the *Memorial* and the *Counter-Memorial*, that maps in excess of 1:500 000 are too small to assist the Court in determining which of the channels is the main channel.

190. Namibia in its *Counter-Memorial* deprecates Botswana's criticism of the small scale of the maps:

"...of the 16 maps included in Namibia's Atlas, 12 are of large enough scale to show Kasikili Island, and all ten of those produced after the Treaty clearly show the boundary in the southern channel." (Namibia *Counter-Memorial*, p. 63, para. 141).

191. The second part of this assertion is patently untrue, as demonstrated in paragraphs 162 to 165 above and in paragraphs 200 to 255 below. Namibia does not identify the 12 maps in its Atlas "of a large enough scale". But, prior to 1948, only three of the relevant maps listed by Namibia (Annex 1 to Namibia Counter-Memorial, Vol. II, pp. 34-35), those of Seiner, Streitwolf and von Frankenberg, are at scales of 1:500 000 or larger, and none of these show a boundary in either the northern or the southern channel. The unpublished map of Streitwolf in fact depicted only one channel, the northern, in the vicinity of Kassikiri (Botswana Counter-Memorial, p. 231, paras. 580 to 584), and the von Frankenberg map, by designating the southern channel as "Flussarm", clearly indicated that the Chobe River took its course through the northern channel.

192. Of the maps in the Namibian Atlas published after 1948, the South West Africa 1967 and 1982, at 1:250 000, are versions of the 1949 South Africa 1:250 000. The Court is respectfully reminded that this map was made after the critical date (see Botswana Counter-Memorial, p. 219, paras. 540-542), whilst the correspondence between the British and South African Governments concerning the Trollope-Redman Joint Report of January 1948 was continuing, and after the Government Secretary, on the instructions of the High Commissioner for the Bechuanaland Protectorate, had informed the Director of Surveys, that "there is no official map showing the boundary" (Botswana Counter-Memorial, p. 242, para. 606).

(iii) Official as Opposed to 'Private' or Non-Official Maps

193. The Namibian Counter-Memorial quotes from Professor Brownlie's "justly renowned book" (Vol. I, p. 61) in which he refers to "the publication of official maps" and "evidence of maps with an official provenance". Seiner was not an 'official' map, whereas von Frankenberg was published on the authority of the German Imperial District Chief and Resident in the East Caprivi.

(iv) Depiction of International Boundaries on Official Maps

194. Whilst challenging Botswana's use of the word "impressionistic" for the placement of international boundaries on many of the relevant maps, Namibia in its Counter-Memorial accepts that the depiction of boundaries is a symbolic, rather than accurate, representation of their position on the ground. As the Counter-Memorial states:

"Moreover, the side of the river on which the boundary appears on these maps is a matter of the cartographer's convenience and discretion and has no significance as to the location of the boundary within the river." (Namibia Counter-Memorial, p. 70, paragraph 157)

195. The parties are in agreement in respect of this cartographer's convention. The Court is respectfully referred to paragraph 563 of Botswana's Counter-Memorial (p. 226) where the methods of cartographers in depicting boundaries are further discussed.

196. On this count, Namibia invites the Court to disregard, as of no evidentiary significance, the Sketch Maps of the Bechuanaland Protectorate published in a series of annual reports on the Protectorate issued by the British Colonial Office from 1912 to 1915. It sees no significance in the shift of the boundary to the north bank in the 1914-1915 Report, after following the south bank of the river in the maps accompanying the 1912, 1913, and 1913-1914 Reports, and notes that, of maps in Reports published subsequent to 1915 up to 1965, 15 show the boundary on the south side and four on the north side of the Chobe. It continues:

"The variation in treatment results because on small-scale monochrome maps with riverine boundaries, like those in the Colonial Report series, the cartographic practice is to put the boundary symbol alongside the symbol for the river to indicate that the boundary follows the centre of the river. The side of the river on which the boundary symbol appears, however, is entirely at the draughtsman's convenience, usually in regard to clearer presentation of features of interest near the frontier. For example, the legend of GSGS 2681 of 1913 states 'where [boundaries] follow a road or the main channel of a river, they have been shown to one side, to prevent confusion.' " (Namibia Counter-Memorial p. 64, paragraph 142, footnotes omitted)

197. Botswana accepts that the use of this "draughtsman's convenience" deprives the maps in the Colonial Reports of evidentiary significance as to the position of the boundary on the ground, and is prepared to extend this concession to the British War Office maps of 1903 and 1906, which also depict the boundary along the north bank of the Chobe River.

198. However, Botswana also contends that the use of the same cartographic technique in the British Bechuanaland Protectorate Map of 1933 equally deprives the location of the boundary in that map of any evidentiary significance. A full discussion of the significance of the placement of the boundary line on that map is set out below at paragraphs 224-237. The conclusion of that discussion is that its position, as well as the whole boundary line, is but one more example of "the draughtsman's convenience", a purely arbitrary device to indicate the direction of the boundary.

199. The conclusion in this section is that the cartographic representation of boundaries in the 1933 British map or the other maps discussed does not indicate with accuracy the precise location of the boundary.

(F) Review of Maps

(i) Maps Relating to the Anglo-German Agreement

200. It is an uncontested fact, which Namibia accepts, that no map was annexed to the Anglo-German Agreement of 1890 (Botswana Counter-Memorial, p. 221, para. 548, footnote 3).

201. It is also acknowledged by both parties that the maps prepared by the British War Office, or used by Edward Hertslet to illustrate his Map of Africa, were of too small a scale to depict any

relevant information concerning Kasikili/Sedudu Island or its surrounding channels, or to locate the boundary midstream of the Chobe River. The Court, therefore, need not be troubled with the "complex inter-relationship of the early British maps of the area", which Mr. Rushworth unravels in his original report (Annex 102 to the Namibian Memorial) and in his Observations Concerning Maps arising from the Memorials of Botswana and Namibia (Annex 1 to the Namibian Counter-Memorial, at pp. 11-14)⁷.

[7 The preparatory cartographic work does, however, serve to dispose of the suggestion contained in the Namibian Memorial (para. 116) that the treaty-makers had regard to the sandy ridge when determining the location of the southern boundary of the Caprivi Strip. Lt.-Col. Dalton, of the Intelligence Division of the War Office, who was responsible for providing the maps required by the Foreign Office for treaty or boundary negotiations, in forwarding the 1889 Map of Matabililand and Adjoining Territories ID 776 (Botswana Dossier of Maps Map 2) recommended:

"Considering how difficult it is to fix positions in such parts and from the absence of reliable astronomical observations, there would seem to be no doubt that, as Sir H. Loch recommends, natural well-defined geographical features should be selected, instead of meridians of longitude and parallels of latitude." (Report on the Geographical Aspect of the Question between Great Britain and Germany regarding the limits of their respective Interests in and about Bechuanaland, 27 May 1890, Annex 2 to the Namibian Counter-Memorial, p. 38)

It is apparent that Col. Dalton considered the Chobe River to be such a "natural well-defined geographical feature". For, in the second part of his Report, relating to the "extent of the boundaries of Khama's country" as shown in contemporary maps, he states:

"(8) Selous, 1889, gives Khama's country as extending from the Tchobe river to Soshong...I should be inclined to accept Selous as the best of all, as he is the most recent traveller and has certainly the most experience of those parts" (pp. 33-34)

Clearly the advice of Col. Dalton to the 1890 treaty-makers was that, where possible, and where there was any doubt, "the boundaries between British and German interests" should be based on the Chobe River, as a "natural well-defined geographical feature".]

202. However, for the assistance of the Court, the position relating to the British maps prepared in connection with the Anglo-German Agreement of 1890 may be summarised as follows:

(i) No map was annexed to the 1890 Agreement.

(ii) The 1889 War Office Map ID 776 was used in the negotiations, but no boundary was drawn on it⁸.

(iii) The 1891 War Office Map ID 846b was prepared subsequently to "illustrate the location of the boundary". In view of its scale, 1:3 928 320, and the representation of the boundary by a broad red/brown line superimposed over the entire Chobe River, the precise position of the boundary cannot be discerned.

(iv) The War Office maps were used as the basis for the illustrations of the boundary set out in the three editions of Hertslet's Map of Africa. Again, the small scale and width of the line indicating the boundary prevents any indication of any practical value as to its precise location in the vicinity of Kasikili/Sedudu Island.

[8 A copy was obtained for the use of Botswana from the Bodleian Library, Oxford.]

(ii) The British Maps 1890 to 1914

203. The Court is respectfully referred to paragraphs 566 to 567 of the Botswana Counter-Memorial.

The Eason Map of 1912, No 2. 1:100 000 (Annex 15 to the Botswana Memorial)

204. Coupled with his Report which concluded that the northern channel qualified as the main channel in accordance with the terms of the Anglo-German Agreement⁹, this map provided the most accurate depiction of the island and the sinuosities of the southern channel (Botswana Counter-Memorial, pp. 227-228, para. 567). Rushworth confirms it to be "much superior" to that appearing on British maps before 1933.

[9 Further, he was clearly of the opinion that the island was not within German territory.]

(iii) The German Maps up to 1914

The 1904 Kriegskarte von Deutsch-Südwestafrika, 1:800 000 (Botswana Dossier of Maps, Map 5)

205. Namibia assesses this map as unreliable, yet it was "part of the first systematic mapping in the area and was commissioned by the German colonial authorities":

"When the Herero war broke out in January 1904 ... the General Staff in Berlin commissioned the urgent compilation of a map that would provide the most comprehensive information as accessible as possible. They ensured that all possible data were made available to the Berlin publisher Dietrich Reimer: the previously published maps, as well as all the unpublished cartographic material of the colonial office, of the concession companies, and of well-known cartographers such as Dr. Hartmann and Dr. Passarge." (Von Schumann and Rusch, Index of names appearing on the 'Kriegskarte von Deutsch-Südwestafrika 1904' (2nd edn.) 1994, Annex 111 to the Namibian Memorial, p. 80.)

206. The map depicts some features which are now not in conformity with the known geographical features; it is accepted that the black line drawn within the blue area on the map does not represent the banks of the river. A similar black line appears throughout the depicted length of the Zambezi. It is suggested that it indicates the thalweg of the river, the navigable channel; in the shallows above Ngoma this representation of the thalweg peters out except for limited stretches.

207. It is to be noted that the 1919 first edition of the British Africa map (1:2 000 000) depicts similar features (paragraphs 222-223 below).

The Seiner Map of 1909, 1:500 000 (Botswana Supplementary Atlas, Map 2).

208. Namibia asserts that this was the principal large-scale map used by the German government up to 1914 and that it "shows the boundary along the Chobe River by a fine red hatching on the Namibian side" (Namibian Counter-Memorial, pp. 69-70, para. 155). A full assessment of this map is given at paragraphs 571-579 of Botswana's Counter-Memorial (pages 229-231). It is sufficient here to repeat that Seiner was not a German official; he did not himself visit the area and relied on Bradshaw's map. The British authorities made little use of the map. In correspondence in 1909 they referred in preference to the 1909 version of the Military Map of 1906. The British and South African authorities placed greater reliance on the Streitwolf and Eason maps. As to the red hatching, the colouring is impressionistic, and is confined to the Island and not the channels. The key to the map gives no guidance as to the use of hatching as a boundary symbol. Seiner accepted that the boundary along the Chobe followed "the deepest channel" and used the technical term "the Stromstrich line" to explain its location (footnote to paragraph 576 of the Botswana Counter-Memorial)¹⁰.

[10 "... Stromstrich is defined as 'the line connecting the points of all sectional views of the river with the highest speed of the water at the surface. The Stromstrich usually is above the deepest channel of the river bed, the Thalweg.'" (Botswana Counter-Memorial, page 131, para. 343)]

The Streitwolf Maps

(a) Unpublished map of 1909, 1:200000 (Botswana Supplementary Atlas, Map 4)

(b) The map published by the German colonial authorities, Windhoek, 1910 (Namibian Atlas, Map VI)

209. As pointed out in the Botswana Counter-Memorial, these maps present contradictory features. Captain Streitwolf prepared his unpublished map ("a good map": Deutsches Kolonial-Lexikon, 1920, Vol. III, Annex 10 to the Botswana Counter-Memorial) after he completed his journey by boat down the Chobe in January 1909. This map shows no island or southern channel. The 1910 map, on the other hand, shows an island labelled "Kassikiri" and a southern channel. The contention, advanced by Namibia, that Streitwolf only entered names on the map of places which were within German South West Africa is demonstrably false, as shown by the entry of "Eng.Stat." and "Heisse Quelle" on the south bank of the Chobe.

The von Frankenberg map of 1912, 1:100 000, issued under the authority of von Frankenberg, the Imperial District Chief and Resident in the Caprivi (Botswana Supplemental Atlas, Map 5).

210. Namibia criticises the certified translation attached by Botswana to the von Frankenberg map and states that the word "Flussarm" (written as one word) means simply a branch of a river. It alleges that von Frankenberg employed "Kassikiri Flussarm" as a place-name to indicate that Kasikili/Sedudu Island was within his area of responsibility. (In general use "Flussarm" is written as one word, but it was divided on the map by reason of lack of space.¹¹)

[11 Von Frankenberg uses "Flussarm" as one word in his notes at the bottom left corner of the map and in the map itself (see para. 215 below) for the northern channel around "Mangonda Insel" in the Zamebezi.]

211. Botswana joins issue with Namibia on these contentions. The certificate (reproduced at Botswana Dossier of Maps, Map 7 and Supplemental Atlas p. 12A) was given and signed by a qualified translator, Mrs. R. S. Keeles. Botswana maintains that the proper meaning of "Flussarm" (or "Flußarm") is "side branch" and respectfully refers the Court to Annexes 1-5, 9, and 12-20 to this Reply, where relevant citations from British and German dictionaries are set out.

212. The position can be summarised as follows. Where a river branches off into two channels of which only one is expressly described as "Flussarm", there is a strong presumption that the word "Flussarm" is used in the sense of side branch. This is supported by the dictionary meaning of the term "Flussarm". It is accepted that the translation of "Flussarm" given by Namibia is in conformity with the translation given in standard works of reference¹², rather than the words "tributary of the main river" which are usually translated as "Nebenfluss"¹³. In German, "Flussarm" ["river branch"] describes a part of the river fed by the main stream, while "Nebenfluss" ["tributary"] describes a subsidiary of a stream or river flowing into (and thus feeding) a larger river.

[12 The standard English-German dictionaries translate "Flussarm" as "arm of a/the river" (See The Collins German Dictionary (London and Glasgow: Collins, 1980, Annex 12) or as "river branch (river arm)" (see Oxford-Duden, Bildwörterbuch: Deutsch und Englisch [German English Pictorial Dictionary] Mannheim, Wien, Zürich: Dudenverlag, 1980) Annex 14.]

[13 The Collins German Dictionary (London & Glasgow; Collins 1980) - Annex 13.]

213. However, these literal translations do not convey the exact connotation of the German word which approximates more closely to "side channel" of a river. "Flussarm" is a compound made up of the nouns "Fluss" ["river"] and "Arm" ["arm" or "branch"]. The latter is used in a figurative sense. Brockhaus Wahrig, Deutsches Wörterbuch, 1981, in six volumes (one of the standard works of reference of the German language), defines "Flussarm" as "Seitenlauf eines Flusses" (Annex 15). "Seitenlauf eines Flusses" may be translated as "side channel of a river" or, more literally, as "side/lateral course of a river", other standard works define "Flussarm" as a "branching off part of a river" ["abzweigender Teil eines Flusses"]¹⁴ and "Arm", used in connection with "Fluss" ["river"] as a "schmäler, seitlich abstehender, abzweigender Teil" (i.e. "a narrow part branching off, standing out laterally")¹⁵; or as a "schmäler, seitwärts abgehender Teil" (i.e. a "narrow part branching off laterally")¹⁶, or, used in Middle High German, as an "Abzweigung eines Wasserlaufs" (i.e. a "branch of a watercourse")¹⁷. Common to these three definitions of "Flussarm" is the German verb "abzweigen" or its noun "Abzweigung". Jacob and Wilhelm Grimm's standard reference work on the German language defines the verb to mean "to branch off....(used) mainly spatially, 'to depart from, leave a point, a (main) direction or line'". It defines the noun "Abzweigung"¹⁸ to mean "branch minor line or route branching off laterally, side-street etc." On the basis of these definitions, the word "Flussarm" may in abstract terms be translated as a "narrower strip of water forming part of a river and branching off laterally from the main line or course of the river".

[14 Handwörterbuch der deutschen Gegenwartssprache, in two volumes, 404 (Berlin, Akademie-Verlag 1984), Namibian Counter-Memorial, Vol. II, Annex 16.]

[15 Duden, Das große Wörterbuch der deutschen Sprache, in eight volumes, Vol. 1 (2nd ed., Mannheim, Leipzig, Wien, Zürich; Dudenverlag 1993), Annex 18.]

[16 R. Klappenbach and W. Steinitz (eds.), Wörterbuch der deutschen Gegenwartssprache, Vol. 1 (Berlin: Akademie-Verlag, 1964), p. 214, Annex 9.]

[17 Etymologisches Wörterbuch des Deutschen, Vol. A-L (2nd ed., Berlin: Akademie-Verlag 1993), Annex 19.]

[18 Deutsches Wörterbuch, Vol. 1 (new edition, Leipzig: S. Hirzel Verlag 1983), Annex 17, defines "Abzweigen...., überwiegend räuml., 'von einem punkt, einer (haupt)-richtung oder linie abgehen, abbiegen', häufig auch refl. (bis in die erste hälfte des 20.jhs.), oft von verkehrswegen u. dgl. gebraucht...." ["to branch off...(used) mainly spatially, 'to depart from, leave a point, a (main) direction or line', often also reflexive (until the first half of the 20th century), often used in connection with traffic routes and suchlike)]; and "Abzweigung...1 seitlich abgehende nebenlinie, nebenstrecke, seitenstraße u.ä." ["branch.....1 minor line or route branching off laterally, side street etc."]

214. Thus, having regard to the dictionary definitions, by expressly denoting the southern channel as "Kassikiri Flussarm"¹⁹ von Frankenberg implied that he regarded it as a side channel of the northern channel which he in turn regarded as the Linyanti (or Chobe) proper²⁰.

[19 Namibia claims that "Insel Kassikiri Flussarm" appears as a place-name in German on the von Frankenberg map designating the Island, and that by naming the Island in German, von Frankenberg indicated that it was his understanding that it was within his jurisdiction and responsibility, i.e. within German South West Africa (Namibian Counter-Memorial, para. 154). This is incorrect. In German, the proper name of an island as a rule precedes the term "Insel". Von Frankenberg depicts some 44 islands on his map. Without exception, the name of the island stands in front of the word "Insel". Had he wished the name "Kassikiri" to qualify both "Insel" and "Flussarm", he would have used the sign "&", "und" or the shortened version "u".]

[20 It is also incorrect to say that localities named in German fall within German territory. Several localities and numerous bodies of water south of the Linyanti river or east of the Zambezi are named in German although they

clearly lie within British territory. Similarly, "Magonda Insel" is written in German although it is clearly depicted on the map as within British territory.]

215. The meaning "side branch" is also supported by von Frankenberg's use of the term "Mabusso Flussarm", with which he designates the northern channel around Mangonda Island in the Zambezi River. From von Frankenberg's explanatory note, which he attached to the map, and from his depiction of the two channels around Mangonda Island, it is made clear that he regarded the boundary in the vicinity of Mangonda Island as located in the southern channel²¹. This is also evidenced by his express designation of the northern channel (although being the broader channel) as "Mabusso Flussarm", while giving no special name to the southern channel, thereby implying that he regarded it as the Zambezi proper. Because the southern channel was narrower than the northern channel, von Frankenberg had to explain his choice of terminology and thus his choice of boundary. Hence the explanatory note. No such explanation was necessary with respect to "Kassikiri Flussarm" (the only other time where the term "Flussarm" is used on the map), as in that case the southern channel was narrower than the northern channel and thus could without further explanation be described as "Kassikiri Flussarm".

[21 Von Frankenberg explained in a note at the bottom left hand corner of the map (Botswana Supplementary Atlas Map 5) why he used the term "Mabusso Flussarm" for the northern channel around Mangonda Island in the Zambezi. He wrote: "Mangonda Insel ist der nördliche Flussarm zwar brieter, jedoch flacher als der südliche, so dass er während der Trockenzeit grösstenteils austrocknet" (emphasis added). Neither the translation by Prof. Dr. Jost Delbruck nor that by the British War Office give adequate emphasis to the word "zwar". The passage should read: "It is true that the northern branch of the river (Zambezi) at Mangonda Island is broader, but it is shallower than the southern branch of the river so (that) it largely dries up during the dry season". It should be noticed that this sentence is immediately preceded by the sentence: "Die politischen Grenzen sind durch den Zambesi und den Linyanti gegeben." ["The political boundaries are formed by the Zambezi and the Linyanti."], and thus has an important bearing on the question of the political boundaries of the Caprivi Strip.]

216. Namibia cites certain definitions from German dictionaries to assert that the word "Flussarm" does not express any hierarchy (Namibian Counter-Memorial, Vol. I, p. 68, n. 29). Namibia fails to appreciate that "Flussarm" is a generic term. Thus, there are different kinds of "Flussarme". There is, for example, a "Seitenarm" ["sidebranch"], which is described as an "Arm eines flusses, wasserlauf der sich vom hauptbett abtrennt" ["branch of a river, channel which branches off from the main/trunk"²²]. There is also the "Hauptarm" ["main branch"²³], and the "toter Arm" ["dead branch"²⁴]. The fact that a "river divides into two or several branches" does not say anything about the quality of the individual branches. One may be the main branch of which others are only side branches. The quality of a "Flussarm" has to be determined, in each individual case, on the basis of the factual circumstances. Thus the extracts from German dictionaries quoted by Namibia do not exclude a hierarchy between different branches of a river.

[22 Deutsches Wörterbuch, X/1, (Leipzig: S. Hirzel Verlag 1905), Annex 4; Brockhaus Wahrig, Deutsches Wörterbuch, in six volumes, Vol. 5 (Wiesbaden: F A Brockhaus and Stuttgart: Deutsches Verlags-Anstalt 1983), Annex 16.]

[23 Used in the sense of "an der spaltung des flusses in zwei hauptarme" ["at the division of the river into two main branches"], Deutsches Wörterbuch by Jacob and Wilhelm Grimm, X/1 (Leipzig, S. Hirzel Verlag 1877, Annex 1.)

[24 I.e. a "nicht weiterführender Arm" ["non-continuing (backwater) channel"]: Duden: Das große Wörterbuch der deutschen Sprache, Annex 18.]

217. When a river branches off into two channels of which only one is described as a "Flussarm", there is a strong presumption that the word "Flussarm" implies that the other channel is regarded as the continuation of the river proper - i.e. that it is regarded as the trunk or main channel from which the "Flussarm" branches off laterally; see the definition from Brockhaus Wahrig. The Deutsches Wörterbuch (Annex 15) supports this implication by defining "Flussarm" as "Seitenlauf eines Flusses" ["side channel of a river"]. Von Frankenberg expressly labelled the southern channel as "Kassikiri Flussarm". He thereby implied that he regarded it as the side channel of the northern channel, which he in turn regarded as the Linyanti proper. As, according to von Frankenberg's explanatory note, the "Linyanti", and not one of its side channels, forms the political boundary, the boundary on his map is located in the northern channel.

218. The conclusion is plain, and precisely the opposite of that which Namibia seeks to establish in its Counter-Memorial (paragraph 154). Von Frankenberg used the words "Kassikiri Flussarm" in respect of the southern channel to indicate its status as a side stream. He gave no name to the northern channel because he considered it to be the river proper. In similar manner he gave no name to the southern channel around Mangonda Island. In both cases the main river, the Linyanti (or Chobe), or the Zambezi, was represented as flowing through these channels.

(iv) The British Maps 1914 to the Present Day

219. Further maps have now come to hand, namely a tracing by F. P. Cockerell (1917) and the earlier editions of Africa 1:2 000 000 (see below).

F. P. Cockerell Tracing 1917, 1:500 000: undated but stamped "Royal Geographical Society 5 Jan 1917 Map Room" (Figure 1 and Folder of Additional Maps accompanying this Reply)

220. This tracing, on which a considerable number of names are entered, shows the course of the Chobe river from Mamili (Mamele) in Ngamiland to its juncture with the Zambezi. The upper Zambezi in the region of Katima Mulilo is portrayed with great detail and numerous names of islands, Kraals, and rapids [Schnellen] are entered, as well as names of previous explorers, Reid, Seiner, Gibbons. The tracing (an extract is reproduced at Figure 1 at p. 79) shows in some respects the same profile of the Chobe as that shown in the 1904 Kriegskarte, but corrects the errors on that map to which Namibia refers in its Counter-Memorial at paragraphs 146 to 150. At Ngoma a line is drawn crossing directly to the south bank, and the road follows along the south bank. The quasi-island marked Kwando in the Kriegskarte is not shown, and the double line of the Chobe is clearly indicated to the north of this stretch of land. "Sulumbu's I." is placed immediately below an island located upstream of the "Falle Kasiga" with "Kabula" marked on the north bank. A double black line marks the channel to the north of the island whereas that to the south is indicated by one single thin line. No boundaries are shown.

221. This tracing provides independent confirmation that the northern channel was wider and more significant than the southern.

Africa 1st edn. 1919, 1:2 000 000: War Office GSGS 2871 Sheet Rhodesia, South Sheet D34-35, Sheet E34-35 (Figure 2); 2nd ed. 1933; 3rd ed. 1940; 4th ed. 1942; 5th ed. 1958

222. Namibia refers to the fourth and fifth editions of this map and places some reliance on the rather crude representation of the boundary along the south bank in these editions. (These editions, together with the second and third, are discussed below at paragraphs 239 to 243.) More significant is the first edition, which was compiled at the Royal Geographical Society under the direction of the Geographical Section, General Staff, and printed by the War Office in May 1919. An extract at scale size is reproduced at Figure 2, p. 81. The authorities at a scale of under 1:1 000 000, referred to in its compilation include South Rhodesia (B.S.A. Co.) 1914, 1:316 800; Seiner 1909 1:500 000; and Mittheilungen der Geographischen Gesellschaft von Hamburg (Hartmann 1897) 1:500 000. The map is printed in colour. The Linyanti (Chobe) is depicted between two black lines, and in its western section are shown blue areas of water and islands in a manner resembling the Kriegskarte. An intercolonial boundary is placed in the centre of the river, clearly following a median line. No island is observable in the vicinity of Kasane. One curious feature, with the appearance of a 'causeway' or 'bridge', is shown crossing the lower reaches of the Chobe shortly before its juncture with the Zambezi.

FIGURE 1: Extract from F.P. Cockerell Tracing 1917, 1:500 000

(The entire tracing is reproduced to scale in the Folder of Additional Maps)

FIGURE 2: Extract from Africa 1st edn. 1919, 1:2 000 000

War Office GSGS 2871 Sheet Rhodesia

Reference

223. This map is of interest because:

(i) It provides some corroboration of the features shown in the Kriegskarte of 1904 and Cockerell's Tracing of 1917. Eason refers to floods in 1899 and June/July 1909, and these maps may indicate the resulting flooded areas.

(ii) It is the earliest map to show a median line as the boundary.

(iii) It provides no support for Namibia's reliance on the later editions of the map as evidence of "general consistency" or "an unbroken sequence".

The 1933 Bechuanaland Protectorate Map 1:500 000 GSGS 3915 (Botswana Dossier of Maps, Map 13)

224. Botswana takes immediate issue with Namibia in relation to the assertion:

"As Botswana must and does acknowledge, it (the 1933 map) clearly shows Kasikili island in Namibia." (Namibia Counter-Memorial, p. 70, paragraph 158)

225. Namibia asserts:

"The Chobe River in the relevant area of this map is shown by a double line which separates into two double lines at Kasikili Island, one for each channel. The double lines are too close together to put the boundary marker in the middle of the river (or of either channel when the river separates). But there is plenty of room between the two channels to accommodate a boundary marker to the south of the north channel. Instead as shown in Namibia's Memorial, Fig. 13, following p. 125, the draughtsman deliberately chose to attach the indicator to the southern channel." (Namibia Counter-Memorial, p. 72, paragraph 158)

226. In the 1933 Map there can be observed a line consisting of alternate dash and cross (-+++) placed the whole length of the Chobe River from its junction with the Zambezi to the western point of commencement of the riverine boundary along the south bank. On the south bank immediately below Kasikili/Sedudu Island, a + is placed in automatic sequence in the -++ line which depicts the boundary throughout. To describe this as a "boundary marker" is fanciful; its location is incidental to the uniform superimposition of a continuous 'dash-cross' line to signify the boundary. A dash rather than a cross might have been placed in that position by the cartographer. Accordingly, no significance whatsoever can be drawn from the location of a particular + on the south bank underneath the Island. Its position, as well as the whole boundary line, is but one more example of "the draughtsman's convenience", a purely arbitrary device to indicate the direction of the boundary²⁵.

[25 In objecting to the Botswana Memorial's assertion in respect of the 1960 British map that the boundary followed the northern channel, Mr. Rushworth in his Observations writes: "the boundary is not shown....in any particular channel" (p.30). Applying this same construction of a cartographic symbol to the British map of 1933 clearly demonstrates the falsity of the inference which Namibia seeks to draw concerning the location of the boundary in the southern channel by reason of the placement of the boundary symbol on the southern bank of the river.]

227. Even more fanciful is the suggestion that the placement of a cross on the Island would have indicated the northern channel as the location of the boundary. It is correct, as Namibia suggests, that there is "plenty of room between the two channels to accommodate a boundary marker"; there being room for either a cross or a dash to be placed in the river both upstream and below the Island, as well as on the Island. But the cartographer chose not to do so. His decision not to adapt the boundary line to accommodate these accurately portrayed geographical features demonstrates conclusively that his placement of the boundary line throughout along the south bank served purely as a symbol, and not as an accurate indication of the location of the boundary.

228. Namibia places great emphasis on this 1933 map, responding at length to Botswana's comments that it was a compiled map prepared at a time when the United Kingdom was in functional terms the sovereign administrator of both sides of the Chobe, and showing the alignment of an inter-colonial boundary along the south bank of the river (see Botswana Memorial, pp. 119-120, paras. 274 to 275). Particular reference is made to an article by Jeffrey C. Stone, Senior Lecturer in Geography at the University of Aberdeen, entitled *The 1933 Maps of 'Bechuanaland Protectorate' at 1:500,000: A Milestone in the Mapping of Botswana*, published in *Botswana Notes and Records*, Vol. 27, p. 71.

229. This article does indeed give useful information concerning the background to the 1933 map. Of particular interest is the author's caveat at the beginning of the article:

"Coverage within the 1933 series is typically uneven, depending on availability and quality of source material. Furthermore, different parts of the country may be depicted at different dates. Hence, discretion is called for in consulting the map. The purpose of this article is, firstly, to provide a summary history of the cartography of Botswana, to set the 1933 compilation in context. Secondly, and more specifically, the article will examine the origins and compilation history of the series itself, as an aid to informed consultation of what may be a potentially useful historical source for Botswana more than sixty years ago." (Annex 8 to the Namibian Counter-Memorial, Vol. II p. 67)

230. The circumstances of the preparation of the 1933 map justify the caution here expressed. Preliminary work appears to have been done by S. L. Forster Towne, in the Resident Commissioner's Office. The Namibian Counter-Memorial notes:

"The sketch map by Forster Towne, who was on the staff of the Resident Commissioner for the Bechuanaland Protectorate, was a manuscript specifically prepared as an input to GSGS 3915 and was the most likely vehicle for depicting the Protectorate's view on the position of the boundary. It is recorded as destroyed by the War Office along with the other compilation material." (Namibian Counter-Memorial, p. 74, para. 158, footnote omitted)

231. Stone adds that there was a problem with:

"... the quality and legibility of the draft passed to the War Office. Forster Towne's original plus at least one of six copies taken in the office of the Surveyor General, Cape Town, were passed to London where the original was lost, so that the War Office was obliged to work from a less legible print. The War Office was probably not happy with other aspects of content since they asked for Forster Towne's sources. Maps alone amounted to a hundred or so, borrowed from a great many officials and they had been handed back to their authors all over the Protectorate. Also the quality of Forster Towne's draftsmanship seems not to have been acceptable to the War Office, perhaps not surprising in view of the admission that he had 'worked under difficulties in that he had no proper instruments and had to do the work after office hours and under bad conditions' (BNA.14)." (Stone, The 1933 Maps of 'Bechuanaland Protectorate' at 1:500,000: A Milestone in the Mapping of Botswana, Namibian Counter-Memorial, Vol. II, Annex 8, p. 74)

232. This account of the manner of preparation of the map confirms Mr. Stone's caution that "discretion is called for in consulting the map". The provenance of the map certainly does not justify the assumption by Namibia that the placement of the boundary marker indicated that the boundary passed through the southern channel.

233. The 1933 Bechuanaland Protectorate Map (GSGS 3915) was compiled by the Geographical Section, General Staff (GSGS) from the following source material:

- (i) Sketch Map of the Botswana Protectorate by S. L. Forster Towne 1:500 000
- (ii) Sketch Map of Ngamiland and Khanzi by Captain A. G. Stigand 1:500 000, 1922
- (iii) Walvis Bay Reconnaissance Geographical Data by Mr. Jeffares, 1931
- (iv) Kalahari Reconnaissance of the Zambezi/Ngami Region by A. L. du Toit 1:500 000, 1925

- (v) Survey Department Northern Rhodesia 1:250 000, 1928
- (vi) Survey Department Southern Rhodesia 1:250 000, 1929, and 1:1 000 000, 1930
- (vii) Caprivi-Zipfel: von Frankenberg 1:100 000, 1912
- (viii) Rhodesia GSGS 2871 1:2 000 000, 1930
- (ix) Gobabis/Livingstone Barometric Altitudes/Lt.-Col. Daniel, 1928.

234. This source material may be commented on as follows:

(i) The original material for Forster Towne's sketch map cannot be located and is presumed destroyed. As such, his contribution to the map cannot be evaluated.

(ii) Captain Stigand's excellent sketch maps made between 1910 and 1922 stop short of the Sedudu area by 100 kms, and therefore do not contribute to the case.

(iii) Jeffares' work on the proposed Livingstone to Walvis Bay Railway was concerned only with a narrow strip along the proposed route which passed 150km south and west of the Chobe.

(iv) The Kalahari Reconnaissance was an engineering study regarding the feasibility of building a dam at Katambora on the Zambezi. This study provided air-photography of the Kasikili/Sedudu area, but had no interest in the international boundary and in fact did not depict the boundary.

(v) & (vi) The Northern and Southern Rhodesia maps

These are third State maps which must of necessity have based their depiction of the Chobe area on existing mapping.

(vii) Von Frankenberg's map has been fully discussed at paragraphs 210 to 218 above.

(viii) The GSGS map of Rhodesia is at a scale of 1:2 000 000, rendering it impossible to recognise detail in the disputed area. It is common cartographic practice that, when a river is represented by a single line, the boundary symbol is placed alternately along each side. The fact that this map shows the boundary on the south bank in this area has no significance.

(ix) The Gobabis/Livingstone Barometric Altitudes are irrelevant.

235. None of the above sources can be considered as official mapping, and none of them had any interest in the boundary at Kasikili/Sedudu Island. Apart from the Third State maps, none of the sources indicated the position of the boundary. As none of their source material could be considered as an authority on the boundary, GSGS resorted to the accepted practice of generalising the boundary along one of the banks. The fact that GSGS 3915 was based on aerial photography has no significance as regards the position of the boundary. The photography vastly improves the topographic detail but contributes nothing to the accuracy of attribute data compiled from other sources.

236. This map, therefore contributes nothing to the earlier mapping.

237. The 1933 Bechuanaland Protectorate Map was copied for many purposes:

(i) District boundaries: the annotated 1957 1:1 250 000 (Rushworth: Observations, Annex 1 to the Namibian Counter-Memorial, Vol. II, p. 22).

(ii) Water development: the 1963 Water Development Scheme map of northern Bechuanaland, 1:500 000.

(iii) Veterinary information: the 1949 annotated 1:500 000.

(iv) Geological information: the undated map with red ink cross hatchings indicating "possible coal bearing karoo beds".

238. The makers of these maps had no authority or interest in the placement of boundaries, intercolonial or international, and nothing can be inferred from the fact that they restricted the specialist information conveyed in them to conform with the intercolonial boundary line, as shown in the 1933 map running the full length of the south bank of the Chobe.

FIGURE 3: Extract from Africa 1:2 000 000: War Office: GSGS 2871 Sheet Rhodesia, 2nd. ed. 1933

FIGURE 4: Extract from Africa 1:2 000 000: War Office: GSGS 2871 Sheet Rhodesia, 3rd. ed. 1940

Africa 1:2 000 000 War Office GSGS 2871 Sheet Rhodesia, South Sheet D34-35, Sheet E34-35, 2nd ed.1933, 3rd ed.1940; 4th ed. 1942; 5th ed. 1958

239. This map, which had been issued in a first edition in 1919 (see extract reproduced at Figure 2, p. 81, the full map being reproduced in the Folder of Additional Maps), was redrawn for the 1933 edition. Kasikili/Sedudu Island is shown as a pear-shaped island, a shape which is repeated in the third and fourth editions but changed in the fifth. (This shape is not at all similar to the configuration of the Island shown on the 1933 Bechuanaland Protectorate map 1:500 000, GSGS 3915.) In the 2nd (1933) edition, the boundary is placed along the south bank of the Chobe River. In the 3rd (1940) edition this boundary line is placed south of a line identified as a "road suitable for carts", which is shown running alongside the river up to Ngoma and beyond. (Extracts of the 2nd and 3rd editions are reproduced at Figures 3 and 4 on p. 89).

240. Namibia refers to this map in its Counter-Memorial and purports to rely upon the last three editions as "reaffirming that Kasikili Island is in Namibia" (see paragraph 161, p. 75).

241. The most casual glance at the extracts contained in Figure 4 in its own Counter-Memorial will show how misleading this statement is. In the fourth edition (1942), the purple stipple band is so crudely applied that it leaves uncoloured not only the pear-shaped island in the vicinity of Kasane, but two of the three meander loops above Ngoma bridge. On the Namibian thesis, the territory within these loops is also "reaffirmed" as within Namibia.

242. In the fifth (1958) edition, the "red stipple" band is in fact a broken line, with the result that, while the band covers the island in the vicinity of Kasane, and also a large section of Namibian territory on the north bank at the junction of the Chobe with the Zambezi, sections higher up the river, including two meander loops, are left uncoloured. Applying the same interpretation as Namibia suggests for the fourth edition, this would seem to indicate that Kasikili/Sedudu Island falls within Botswana, but two of the meander loops and sections of the south bank of the Chobe upstream are Namibian territory.

243. Botswana submits that the small scale, inaccurate depiction of Kasikili/Sedudu island and crude superimposition of the boundary symbol in the fourth and fifth editions of this Africa 1:2 000 000 map provide a classic example of the deficiencies of the available maps to which Botswana has called attention. The first and second editions of this map, to which Namibia is careful to make no reference in its Counter-Memorial, only serve to emphasise the unreliability of the fourth and fifth editions. When these latest editions are compared and taken into consideration with the three preceding editions, where the first and second appear not to show an island, and where the boundary is represented in each edition in a different position, only one conclusion can be drawn, namely that no reliance or inference as to the whereabouts of the boundary can be based on this map or on any of its five editions.

The 1960 Bechuanaland Protectorate Map 1:1 000 000

244. This sheet represents the boundary as following the northern bank of the Chobe River throughout its course (Botswana Memorial, p. 120, para. 276; Botswana Counter-Memorial, p. 236, para. 593).

The 1965 Bechuanaland Map 1:500 000

245. At Figure 5 on page 93 an extract of this map is reproduced, showing the blue line of the river under the superimposed line of the boundary and that it clearly follows the configuration of the northern channel around the Island. (A copy of the complete map, in two colours, will be found in the Folder of Additional Maps accompanying this Reply.) The southern channel is not depicted, although it is shown in the Print Laydown from which the map was compiled. No evidence is produced by Namibia that its omission was an "egregious" error. The Sketch Map of the Surveyor-General made in October 1965 (Botswana Dossier of Maps, Map 18) confirms that the Botswana authorities were of the view that the boundary followed the northern channel (Botswana Memorial, p. 120, para. 277; Botswana Counter-Memorial, p. 237, paras. 594-596).

The 1968 Joint Operations Graphic-Ground and Air Maps, 1:250 000 (Botswana Supplementary Atlas, Maps 7-10)

246. These British maps clearly depict the correct shape of Kasikili/Sedudu Island and show the boundary in the northern channel.

FIGURE 5: Extract from the 1965 Bechuanaland Map 1:500 000

247. Copies of both the Sesheke and Kavimba sheets of the Ground map show in red the limits of the Chobe National Park up to the Chobe River as annotated by the Wild Life Department. The northern limit follows the international boundary along the centre of the northern channel (Botswana Counter-Memorial, pp. 237-238, paras. 597-600).

248. None of the maps from 1960 to 1968 show the boundary in the southern channel. The 1965 Bechuanaland and the British 1968 Joint Operations maps, along with all the maps produced by the Botswana authorities after independence (from 1974 onwards), all show the boundary in the northern channel (Botswana Memorial, pp. 120, 123, paras. 276-277, 285; Botswana Counter-Memorial, pp. 237-238, 249-250, paras. 594-600, 620-625).

(v) South African Maps

South Africa 1949 Katima Mulilo, 1:250 000

249. Namibia challenges Botswana's contention that this map was published post litam motu, by referring to the circulation of sunprints for comments to officials of the Bechuanaland authorities in 1945, prior to the Trollope-Redman Report of January 1948 (Namibian Counter-Memorial, p. 76, para. 164). This circulation, however, did not relate to the representation of international boundaries on the proposed map. As the correspondence copied at Annex 17 to the Botswana Counter-Memorial, Vol. III, shows, enquiry as to the whereabouts of international boundaries was directed to the High Commissioner for the Protectorate of Bechuanaland and replied to in the letter of the Government Secretary to the Survey Directorate, Cape Town. That letter stated that "There is no official map showing the boundary".

250. The Court is respectfully referred to paragraphs 607 to 611 of the Botswana Counter-Memorial, which sets out the significance of this correspondence and concludes:

"No authorization or approval whatsoever had been given by the Bechuanaland High Commissioner to the representation of the boundary in the southern channel. At the time of its publication exchanges were taking place about the proper location of the boundary around Kasikili/Sedudu Island."

251. Those exchanges between the British and South African Government were not concluded until 10 May 1951, when the outcome "without an alteration of the legal position" was stated (Botswana Memorial paragraph 157 and Annex 30).

252. Mr. Rushworth, in enumerating the maps which "indicate that the boundary is in the southern channel", counts this 1949 map, including its reissue in 1967 (SW Africa 1:250 000 TSO 405/3100 1967) and 1982 (SW Africa 1:250 000 Sheet 1724).

The official South African Ministry of Defence Maps of 1978 and 1982 (JARIC (Joint Air Reconnaissance Intelligence Centre)) 1:100 000

253. The 1978 map is an official map prepared by the Intelligence Centre of the South African Ministry of Defence. Namibia somewhat misleadingly asserts that this map "shows not two channels in the relevant stretch of the river, but only one" (Namibia Counter-Memorial, p. 77, para. 166). This is not completely accurate, in that the eastern section of the southern channel is in fact depicted. Only omitted are the sinuosities at its western end, where, as measured by the 1985 Joint Survey, depths of water decrease to as little as 1.5 to 2 metres (Botswana Memorial, p. 93, para. 218). Thus, the map contained sufficient detail to indicate where the southern channel presented an obstacle to traversing the terrain. Clearly the map-makers had sufficient information to designate the boundary in the southern channel had they seen fit, but, contrary to the allegation in paragraph 166 of the Namibian Counter-Memorial, they chose to place it in the northern channel.

254. The Namibian Memorial refers to the minutes of the Pretoria meeting on 18 December 1984 and of the meetings at the United Nations in New York, noting that "maps that were carried by South African forces in the area showed the boundary in the southern channel" and drawing the inference that "the SADF could not have been using the JARIC map for patrolling". The official South African (JARIC) map, as well as the 1984 Military Intelligence map, was compiled by the South African defence authorities, namely the Joint Air Reconnaissance Intelligence Centre of the South African Ministry of Defence. Since the submission of the Botswana Counter-Memorial, a later edition of the JARIC map has come to hand, revised by 47 Survey Squadron in 1982. Although there are extensive revisions, the position of the boundary in the northern channel has not been changed - see the extract at Figure 6 on page 97. This indicates that the South African defence authorities had not changed their view on the position of the boundary in the northern and western channel over the five years since the compilation of Edition 1.

(vi) Botswana Maps Published after Independence in 1966

FIGURE 6: Extract from the 1982 Revision of the South African JARIC Map 1:100 000

255. For an account of the Botswana maps, see the Botswana Counter-Memorial pp. 249 to 250, paragraphs 620 to 625.

(G) Conclusions

256. Namibia relies strongly on the map evidence, but on examination rests its case on:

The 1909 Seiner Map,

The 1933 Bechuanaland Protectorate Map, and

The 1949 South Africa, Katima Mulilo Map.

257. As already stated, only the 1949 map, which was published after the critical date of January 1948, places the boundary in the southern channel. The other two maps serve to show the unreliability of the depiction of boundaries on maps. The red hatching of the Island, but omitting the channels, on Seiner's map, unexplained in any key, is equivocal and ambiguous. The 1933 map merely follows a well established cartographic convention, and places the boundary symbol along the whole length of the south bank of the river.

258. Botswana's case is not based on maps, by reason of their lack of accurate information and their inconsistency. Nonetheless, from the above review of available maps it is plain that the following maps support the Botswana case that the northern channel is the "main channel" in accordance with the terms of Article III of the Anglo-German Agreement:

The 1912 von Frankenberg Map,

The 1965 Bechuanaland Protectorate Map,

The 1968 British Joint Operations Graphic Ground and Air Maps,

The Official South African Ministry of Defence (JARIC) Map in its 1978 and 1982 editions, and

The 1984 Military Intelligence Map.

These last two maps, prepared by the South African defence forces, provide evidence that South Africa, at the time when it was acting as de facto occupier of South West Africa, recognised the northern channel as the correct location for the international boundary.

Third State maps and United Nations maps will be considered in the next chapter.

CHAPTER 5

The Evidence of the Maps Produced by Third States and the United Nations

259. Namibia places great importance on the map evidence as supporting its claim that the southern channel is the main channel of the Chobe River. It argues that reliance may be placed on the map evidence by reason of:

"a remarkable general consistency among the official maps of Namibia produced by Germany, Great Britain, South Africa and the United Nations, the four entities that exercised political power in the area from 1890 to 1984, showing the boundary as being in the southern channel and Kasikili Island as being in Namibia". (emphasis added) (Namibian Counter-Memorial, p. 4, para. 11)

260. This emphasis on the uniformity of the map evidence is central to Namibia's case and is repeated in its Conclusions as to the Map Evidence:

"But there is no basis for the suggestion that in general the boundaries on the maps put forward by Namibia are unreliable. Again, the test of the reliability of the map and the weight the Court is entitled to put upon it must be derived from a careful examination of the map itself and the circumstances and history of its publication." (Namibian Counter-Memorial, p. 81, para. 174, footnote omitted)

"By this pragmatic test, examination of the maps put before the Court by the parties, far from demonstrating contradictions and confusion, leads to a remarkably confident conclusion. The most relevant maps - official maps produced and used by Germany, Great Britain, South Africa and the United Nations during the period that they were respectively responsible political authorities in the area - all are large enough in scale to show Kasikili Island and the boundary around it, and there is both internal and external evidence that professional care was exercised in the depiction of the boundary. They constitute evidence of an unbroken sequence of maps emanating from all the political authorities in the area (with the exception of Botswana after 1974) showing the boundary in the southern channel of the Chobe River and placing Kasikili Island in Namibia." (emphasis added) (Namibian Counter-Memorial, p. 81, para. 175, footnote omitted)

261. Botswana has already demonstrated in Chapter 4 of this Reply how extravagant and unsustainable Namibia's assertion of "general consistency" is in respect of the maps produced by Germany, Great Britain and South Africa. Contrary to Namibia's assertion, those maps show an enormous variety of shapes and positions of Kasikili/Sedudu Island and the channels surrounding it, and inaccuracy and lack of uniformity in their depiction, particularly in respect of the existence of the southern channel and its sinuosities. Further, in the majority of the available maps, depiction of the boundary is symbolic rather than accurate; representation of the boundary symbol is "a matter of the cartographer's convenience and discretion and has no significance as to the location of the boundary within the river" (Namibian Counter-Memorial, p. 70, para. 157).

262. A similar lack of uniformity is to be found in the maps produced by third countries and the United Nations, which are the subject of this chapter.

(A) Third State Maps

263. The most convincing rebuttal of Namibia's assertion of remarkable "general consistency" and "an unbroken sequence" in the maps of the area is to be found in the evidence relating to Third State maps. Far from showing any consistency or unbroken sequence as to the location of the boundary, these maps portray the boundary in a variety of ways and placements; some show the boundary on the northern bank, some on the southern, and some are superimposed on inaccurately drawn geographical features.

(i) Third State Maps Showing the Boundary in the Northern Channel

264. As Namibia rightly points out (Counter-Memorial, para. 169), Botswana in its Memorial and Counter-Memorial referred to Third State maps showing the boundary in the northern channel. These were:

The 1971 Zambia Map, 1:250 000 Sesheke (Botswana Dossier of Maps, Map 20)

The 1981 Zimbabwe Map, 1:250 000 Kazungula (Botswana Dossier of Maps, Map 21)

265. To these may now be added, as an example, described by Mr. Rushworth, of a map made by a super-power (major powers being "inclined to map well outside their boundaries, primarily for military purposes"):

The US Tactical Pilot Chart, 1:500 000, 1991, Sheet P4-B, Edition 2 - GSGS Military Survey, United Kingdom Ministry of Defence.

266. It is to be noted that this is a copy of the British 1968 Joint Operations Graphic Ground Map which was referred to in the Botswana *Counter-Memorial* at p. 238, para. 600. This British map, made shortly after Botswana became independent, provides clear British recognition that the location of the boundary is in the northern channel.

(ii) Third State Maps showing the Boundary in the Southern Channel

267. Namibia now supplies details of two Third State maps which show the boundary in the southern channel, viz.:

Rhodesia and Nyasaland, Livingstone 1:500 000, 1958 (Namibian Counter-Memorial, Vol. II, Rushworth, Annex 1, p. 8)

Zambia South West, 1:750 000, 1980 (Namibian Counter-Memorial, Vol. II, Rushworth, Annex 1, p. 8)

268. A further example of a super-power's mapping of Africa is:

USSR General'nyy Shtab Map 1:200 000 1982 Sheet E35 XIV (Yu.P.) Livingstone

This map also depicts the boundary in the southern channel. Maps of the Soviet period are notoriously unreliable in the context of the indication of political boundaries of other States and the attribution of territory.

(iii) Third State Maps Depicting the Boundary in neither the Southern nor the Northern Channel

269. One additional map has been found:

Rhodesia Relief Layered, 1:1 000 000, 1973, 7th edn., compiled and drawn by the Department of the Surveyor-General, Salisbury, S. Rhodesia (A copy is reproduced in the *Folder of Additional Maps* accompanying this *Reply*.)

This map shows a boundary line, in the middle of the river which, at the point where Kasane is marked on the south bank, is shown traversing a small stretch of blue water.

(iv) Third State Maps: Conclusion

270. These three categories of map clearly demonstrate the dissimilarity and divergence of treatment of the location of international boundaries to be found in Third State maps.

271. Extraordinarily, in view of its claim relating to the consistency of the map evidence, Namibia itself draws attention to this lack of uniformity. In its treatment of Third State maps at page 78 of its Counter-Memorial it acknowledges that the practice is "not uniform". In this passage it first reminds the Court of its view, as expressed in its Memorial, that "...third country maps are of little value in cases of this kind because they are almost invariably adaptations or copies of maps published by the principal parties in interest." Namibia then

notes the two maps referred to by Botswana produced by Zambia and Zimbabwe, which place the boundary symbol in the northern channel, and counters these two maps with two further examples of Third State maps, a 1958 map produced by Rhodesia and a 1980 map produced by Zambia, which "place the boundary symbol in the southern channel, putting Kasikili Island in Namibia."

272. Namibia's conclusion in the face of this evidence is particularly significant:

"Namibia makes no claim on the basis of these maps, except that the practice of these neighbouring states is not uniform and therefore cannot be cited against it. Undoubtedly these countries followed normal cartographic practice and filled the blank space between the boundary of their own country and the edge of the sheet with detail taken from maps produced by the neighbouring country." (emphasis added) (Namibian Counter-Memorial, p. 78, para. 170)

273. Also highly pertinent in disproving the consistency of Third State maps is the comment of Namibia's map expert, Mr. Rushworth, whose researches are responsible for the production of these additional Third State maps:

"There have undoubtedly been other modern maps by third-party states that show the boundary at Kasikili in either the northern or the southern channel. It is not considered that these maps would be any more relevant than those mentioned above to the determination of the correct location of the boundary and no search has been made for them." (Namibian Counter-Memorial, Vol. II, Annex 1, page 10)

274. Confronted with this obviously discrepant treatment of the international boundary on Third State maps, the only reasonable conclusion to be drawn is that which Namibia itself draws, namely, that "the practice of these maps is not uniform". It must therefore follow that no reliance can be placed upon any Third State map as evidence in support of either party's claim. It is a striking fact that this random collection of Third State maps not only disproves Namibia's assertion of consistency in the depiction of international boundaries, but also reveals a massive diversity of treatment. Even Namibia itself clearly has some reservations about placing too great a reliance on Third State maps:

"The depiction of international boundaries on official maps published by well-endowed governments is a matter of painstaking care, performed according to well-established standard operating procedures and subject to careful vetting by political officials in cases of doubt. That does not mean, of course, that they are necessarily free from error, and indeed Namibia has shown that some of the official maps contain egregious mistakes. It does mean, however, that Botswana's characterisation of the boundary placement as 'impressionistic' is wholly inapposite." (Namibian Counter-Memorial, page 65, para. 144)

(B) United Nations Maps

275. The Namibian Counter-Memorial contains no discussion of any United Nations map, other than a general reference along with the maps of Germany, Great Britain and South Africa as to their general consistency. This is surprising in view of the admission contained in Mr. Rushworth's Observations concerning Maps arising from the Memorials of Botswana and Namibia, Annex I to the Namibian Counter-Memorial, relating to the 1985 UN Map upon which Namibia placed such reliance in its Memorial. At paragraphs 320 to 324 of that

Memorial, Namibia gave an expansive account of the "fairly extensive mapmaking program" in which the United Nations engaged in relation to Namibia. It noted that two maps at a scale of 1:4 000 000 were prepared by the United Nations in 1977 and 1984 depicting the territory of Namibia, and that these contained a standard boundary waiver clause. But Namibia then referred to the 1985 UN Map of Namibia at a scale of 1:1 000 000, and placed great significance on the fact that this map, reproduced in its Atlas as Map XV, unlike the earlier maps, omitted the standard clause:

"But this standard language of reservation does not appear on UN Map No. 3158 which, at a scale of 1:1,000,000, does show Kasikili Island distinctly in Namibia. The omission of this disclaimer, which is standard for most UN maps, might even be said to create a reverse inference as to the boundaries." (Namibian Memorial, pp. 132-133, para. 323)

276. The absence of any reference to this 1985 Map in the Namibian Counter-Memorial is made plain when one consults Namibia's own map expert. Mr. Rushworth, in his Observations (Annex 1 to the Namibian Counter-Memorial, p. 27), effectively discredits the use of the 1985 UN Map No. 3158. He notes that the Chief Cartographer of the United Nations has supplied him with a complete inventory of the eight maps of Namibia published by the United Nations; this inventory he sets out at page 27 of Annex 1.

277. Mr. Rushworth states that of eight maps prepared by the United Nations relating to Namibia, all contained a boundary waiver clause, except the 1985 UN Map upon which the Namibian Memorial relies, which is "unique among UN maps of Namibia in having no boundary disclaimer".

278. As pointed out in paragraph 627 of the Botswana Counter-Memorial, the standard boundary clause adopted by the United Nations had two parts. The first declared the map to be an "official United Nations map of Namibia and supersedes any other map of Namibia or South West Africa hitherto published by South Africa", and that it was published on the authority of General Assembly resolutions and a decision of the UN Council of Namibia. The second part stated that the boundaries and place names shown on the map "do not imply official endorsement or acceptance by the United Nations". (In the case of the 1984 1:4 000 000 version the words "as they are to be determined by the independent government of Namibia" were added.)

279. The UN 1985 Map included a marginal note setting out the first part of the boundary clause, but omitted the second part. The UN 1985 Map thus in fact omitted "some, but not all of the wording of the standard UN boundary waiver clause" (Botswana Counter-Memorial, page 251, para. 627 and footnote). Mr. Rushworth is therefore not entirely accurate in stating that this map had no boundary note, but accurate in saying it included no waiver.

280. Mr. Rushworth's comment is, however, significant in the light of the consistent practice of the United Nations of including such boundary waiver clauses, a practice clearly demonstrated by their inclusion in the seven other maps produced by the United Nations. When one remembers that the 1985 Map in fact contained the first half of the waiver, which appears in the other UN maps of Namibia, the supposition put forward in the Botswana Counter-Memorial seems very probable, namely that by an oversight the second part was omitted. The second part states that "the delineation of the boundaries between Namibia and neighbouring countries ... do not imply official endorsement or acceptance by the United

Nations". Its omission clearly does not justify the far-fetched "reverse inference" that the United Nations was officially endorsing or accepting any boundary shown on the map.

281. In any event, reliance on the 1985 UN Map is unjustified since, as pointed out in the Botswana Counter-Memorial (paragraph 560), it depicts no boundary along the Chobe River. The boundary symbol, a black dash-dot line, terminates at the intersection of the 18th parallel of south latitude with the western section of the Chobe.

282. In this context, Namibia's own admission in its Counter-Memorial as to the inaccuracy of the 1985 UN Map should not be overlooked. In a footnote to the somewhat tendentious general remark that "Questions of usefulness and accuracy must be resolved in the light of the functions that the particular map is intended to serve", Namibia with no little exaggeration states:

"In some of the maps discussed here, Kasikili Island is especially emphasised or made to appear somewhat larger than it is so as to portray it and the boundary in relation to it more clearly. See, e.g. Namibia 1:1,000,000 United Nations 1985 UN Map No.3158, NM, Atlas, Map XV/4; Africa 1:2,000,000 War Office GSGS 2871 Sheet Rhodesia, Fig.4, following p. 75." (Namibian Counter-Memorial, page 81, paragraph 174, footnote 77)

283. In this passage Namibia amply confirms the criticisms which Botswana levelled at the UN 1985 Map and its treatment in the Namibian Counter-Memorial. Botswana criticised the enhancement of the UN Map by an extract to a scale of 1:250 000 by which an exaggeration of contrast was achieved, implying that "the islands coloured pale brown are within the territory of Namibia." (Botswana Counter-Memorial, p. 225, paragraph 560). Botswana further stated that:

"Inexactitude and visual fallacy result from the implication that the two streams depicted represent Kasikili/Sedudu, though they in fact depict not one but two Kasikili/Sedudu islands, and are of dissimilar shape to Kasikili/Sedudu." (Botswana Counter-Memorial, p. 251, paragraph 626)

(C) Conclusion as to the Evidence Provided by Third State and United Nations Maps

284. Inconsistency in Third State maps is demonstrated by the fact that, out of the seven maps cited by the parties, three locate the boundary in the northern channel, three locate it in the southern channel, and one shows it as a median line omitting the Island as a geographical feature.

285. Third State maps establish with conclusive proof the invalidity of Namibia's indiscriminate and rash assertion that the official maps emanating from the political authorities in the area demonstrate a general consistency and unbroken sequence indicating the international boundary as located in the southern channel of the Chobe River.

286. It is noteworthy that Namibia's Counter-Memorial places less reliance upon the United Nations 1985 map than does Namibia's Memorial. The inventory supplied by the UN Chief Cartographer strongly suggests that the omission of the waiver clause in relation to the international boundary was an oversight. In any event, the absence of such a boundary waiver clause has no relevance, as no boundary between Botswana and Namibia is represented on the

UN 1985 Map in the vicinity of Kasikili/Sedudu Island, or indeed anywhere in the Chobe River.

CHAPTER 6

The Scientific Evidence

(A) The Legal Relevance of the Scientific Evidence

287. Botswana challenges the legal relevance of the scientific evidence to the issue before the Court. The issue for determination is the location of the boundary in a bifurcation of the Chobe River, and the application of the words in Article III of the 1890 Anglo-German Agreement to that situation. Scientific evidence, from whatever source, is irrelevant and supererogatory to the determination of that issue. It is not correct, as stated by Namibia, that Botswana accepted or agreed that the treaty interpretation of Article III of the 1890 Agreement is "a question of scientific fact to be resolved on the basis of expertise in hydrology, geology, and hydrogeomorphology" (Namibian Counter-Memorial, p. 9, para. 21). On the contrary, it is a question of treaty interpretation in the light of its object and purpose and the subsequent conduct of the parties. Botswana submits that reference to scientific evidence is only to be made when and "in so far as may be necessary" (Botswana Memorial, p. 129, Conclusions).

288. As set out at paragraphs 323 and 324 of the Botswana Counter-Memorial, a "unanimity of view" is demonstrated by all the relevant officials, and by the aerial photographs, taken over 80 years, that the northern channel is the main channel. In the light of that body of evidence in support of the northern channel, Botswana submits that the legal position is clear and that the Court may determine the northern channel to be the main channel in accordance with the terms of the 1890 Agreement, without reference to scientific evidence.

289. Confirmation for this approach is to be found in the Namibian Counter-Memorial. Namibia itself notes that:

"The rest of the year, from the end of June through November, ... the river in the vicinity of Kasikili Island assumes the characteristic shape that appears on maps and aerial photographs and that was observed by the inspection parties upon whose conclusions the Botswana Memorial relies." (Namibian Counter-Memorial, p. 13, para. 31)

Botswana submits that these maps, aerial photographs, and inspection parties do indeed tell the true story. They show that, below Serondela, in the last 20 kilometres before the Mambova Rapids, the water was, indeed, at the date of the conclusion of the 1890 Agreement, and still is today, "a continuous stream" (Namibian Counter-Memorial, para. 31); and that that "continuous stream" flows through the northern channel.

290. Even accepting Namibia's case on its own terms as based on "scientific fact", it is extraordinary that "no weight" is given to the Joint Survey Report of 1985. The Namibian Counter-Memorial dismisses this Report:

"the 1985 survey team's methodology was unreliable and its conclusion erroneous."
(Namibian Counter-Memorial, page 14, para. 32)

291. Yet that Survey was a scientific inquiry, expressly so agreed by the parties, Botswana and South Africa, Namibia's predecessor, to be undertaken for the purpose of settling the dispute over the riverine boundary. To that end, the teams of the two countries were selected for their expertise in hydrology, geology and geomorphology, comprising "three senior Hydrologists" and "highly qualified and experienced land-surveyors" equipped with self-recording depth gauges (supra, Chapter 3, paras. 153-156; Botswana Counter-Memorial, para. 384).

292. Professor Alexander criticises the Joint Survey on the ground that the two depth samples from the channels were not of the same size and that no depth measurement was made between sections 2 and 2A in the northern channel. These are spurious grounds. The cross-sections were placed randomly in the two channels by the 1985 Joint Survey, and the depth observations constitute independent random samples. The independent samples t-test statistical method is a test by which to compare the results obtained in the 1985 depth observations. By a mathematical computation based on two hypotheses, viz. the null hypothesis, that the mean depths of the two channels are the same; and the alternative hypothesis, that the mean depths of the two channels are not the same (i.e. that the computed difference between the means is statistically significant), the two detailed t-test was carried out at the 95% confidence level. The computation is summarised in Appendix 8. The computed t is -2.8422, which far exceeds the two tailed tabulated value of t at 23 degrees of freedom and at the 95% confidence level of acceptance (i.e. the computed difference between the mean depths in the two channels is shown to exceed the recognised statistical level of acceptance). Thus, the null hypothesis is rejected and the alternative hypothesis accepted. The conclusion is that the two channels differ in depth, and the mean depth of the northern channel is significantly greater than the mean depth of the southern channel.

293. It is astonishing that Namibia presents a case to the Court dependent on the fact of greater flow in the southern channel but at no time, up to the exchange of the Counter-Memorials, offers any scientific evidence of that flow. A remarkable fact about the Joint Survey is that the team commenced its work with a predisposition in favour of the southern channel, based on a cursory reading of the Seiner and 1933 maps. But, in the light of the scientific evidence provided by the depth soundings, the Team reached the clear conclusion that the northern channel was the main channel and in all probability had been from 1912 or earlier. The southern channel disqualified itself on the scientific evidence, on account of two of the cross-sections being impossible to complete, one (section 14) by reason of reeds growing in the right half of the channel, the other (section 20) by reason of shallow water. The attempt to discredit the depth observations of the 1985 Joint Survey indicates a strong fear on the part of Namibia regarding flow facts. That it should wish to set aside the one available example of a modern conjoint scientific investigation is eloquent of the scientific deficiencies of its own case.

294. By rejecting the 1985 Joint Survey Report, which concluded that the northern channel was the main channel, Namibia shows that its reliance on scientific evidence is of a highly selective nature. That selective reliance amounts to little more than the introduction, under the guise of "scientific evidence", of the "expert testimony" of Professor Alexander, with his highly idiosyncratic theory of an 'Alexandrine' channel passing over the highest part of the Island.

295. Further, if resort to scientific evidence is to be made, it ought to be backed up by detailed data based on field work conducted in accordance with approved scientific procedures. Professor Alexander's scenarios and assertions are noticeably lacking the support of any such scientific procedure and results. This omission is to be contrasted with the studies and fieldwork carried out by Botswana, in particular the Sedimentological Study of the Island conducted in December 1996 and the recent flow measurements taken over the years 1997 to 1998.

296. Professor Alexander's expert testimony is also, as pointed out in the Botswana Counter-Memorial at paragraphs 536 and 638, in direct conflict with, and contradicted by, the map evidence relied upon by Namibia, and as produced by its map expert, Mr. W. D. Rushworth.

297. However, lest it should be thought that there is any material of significance in the "scientific" case presented by Namibia in reliance on Professor Alexander's views, this chapter sets out Botswana's position as to the scientific evidence (Section (B)), together with the scientific data which establish that the greater proportion of flow is through the northern channel (Section (C)), and provides a detailed rebuttal of Professor Alexander's Supplementary Report (Section (D)).

(B) Botswana's Case based on the Scientific Evidence

298. Botswana's case, based on the scientific evidence, is that the northern channel, by reason of the greater depth, width and bed profile, is the navigable channel capable of carrying the greater flow, and hence is the main channel of the Chobe River in the vicinity of Kasikili/Sedudu Island. Botswana's case is supported by all the official surveys carried out on the spot, and by scientific evidence based on geomorphology, hydrology and fieldwork, as well as the 70-year series of aerial photographs taken between 1925 and 1997, and the satellite imageries of 1975, 1995 and 1996 (Botswana Counter-Memorial, pp. 196-201, paragraph 457 (i), (ii), (iii), (iv)). The Sedimentological Study of Kasikili/Sedudu Island also provides convincing scientific support for the evolution of the present topography and comparative flows around the Island. Finally, Botswana has now carried out flow measurements over the period 1997 to 1998.²⁶ These results are summarised in paragraphs 307 to 316 below.

[26 Tables 5 and 6, respectively showing the monthly mean flows of the Zambezi River at Katima Mulilo and at Victoria Falls (Big Tree), are set out at Appendices 3 and 4.]

(C) Water Flows in the Northern and Southern Channels

(i) Namibia's Lack of Evidence to Support its Case

299. In its Counter-Memorial Namibia summarises its case on the scientific evidence in the following way:

"The 'question of scientific fact' as to the main channel of the Chobe River around Kasikili Island must be resolved in favour of the southern channel. That channel carries substantially all of the annual flow of the river, and the northern channel carries almost none of it. Since the scientific criterion that defines the main channel is 'the velocity of flow, hence the discharge' (Dr. Sefer) or 'the channel that conveys the largest proportion of the annual flow of the river'

(Professor Alexander), it follows that on the basis of the scientific evidence the main channel is the southern channel." (Namibia Counter-Memorial, page 15, para. 36)

300. Namibia's case is thus based on the greater flow in the southern channel, yet nowhere in either its Memorial, Counter-Memorial or the two Reports supplied by Professor Alexander, does it provide any measurements, figures or data to support such an assertion.

301. Indeed, it is a striking omission of the Namibian case, which seeks to rely on scientific evidence of the "greater flow", that such flow is never quantified or demonstrated by actual measurement. Instead, in its Memorial, Namibia relies on Professor Alexander's misreadings of the topography of the region and of the hydrological and geomorphological characteristics of the Chobe River, and draws erroneous conclusions about sediments, bank erosion and sediment bars. These misconceptions and misrepresentations, misuse of terminology, lack of historical perspective, misinterpretation of scientific evidence and misinformation were fully addressed in the Botswana Counter-Memorial, Chapter 5 and Appendix 4 (Professor Sefe's analysis of Professor Alexander's Expert Report).

302. Namibia's Counter-Memorial adds nothing new to its scientific case. It repeats its previous assertion that the southern channel "carries substantially all of the annual flow of the river, and the northern channel carries almost none of it" (Namibian Counter-Memorial, page 15, para. 36), but produces no evidence to substantiate that alleged greater flow. As in his earlier Report, Professor Alexander, in his Supplementary Report, produces no hard scientific data but relies on personal observation, subjective description of the topography and selective presentation of annotated photographs.

(ii) Botswana's Flow Measurements

303. In contrast to Namibia, Botswana has arranged for the carrying out of flow measurements in the two channels around Kasikili/Sedudu Island.

1. Method of Measurement

304. The Botswana Department of Water Affairs started flow gauging on the northern and southern branches of the Chobe River in the vicinity of Kasikili/Sedudu Island in March 1997. (Observations of water levels go back to the 1972/73 hydrological year.) Gauging was carried out from a boat using the AOTT 121413 current meter. Velocity measurements were taken at 0.2 and 0.8 of the depth (the two-point method). Discharge was calculated using the mid-section method in which the mean velocity in each vertical is applied to a panel area of the cross-section centred on that vertical.

305. The location of the gauging site in each channel can be seen in Figure 7 at page 115. In all there were 32 gaugings in the southern channel (Site I) between March 1997 and June 1998, and 30 gaugings in the northern channel (Site II) in the same period. Most gaugings were done on corresponding days. A summary of the available data can be found in Table 1 (at page 117) while the complete data are listed in Appendix 2.

306. The consistency of the gaugings at the two sites can be assessed by plotting the discharges at one site against corresponding values from the other site. This was done as shown in Figure 9 in Appendix 5, yielding a high correlation coefficient ($r = 0.9948$). Thus the two data sets can be compared with a high degree of statistical confidence.

2. Analysis of the Gaugings

307. A statistical summary of the gaugings is provided in Table 1 (p. 117). The following observations can be made about the data in that Table:

FIGURE 7: Location of Gauging Sites I and II in relation to Cross-Sections 3 and 18A of the 1985 Joint Survey

TABLE 1: Statistical summary of gauging data obtained between March 1997 and June 1998

	SITE I - SOUTHERN CHANNEL					SITE II - NORTHERN CHANNEL				
	Surface width (m)	Mean depth (m)	Cross-sectional area (m ²)	Mean velocity (m per sec)	Discharge (m ³ per sec)	Surface width (m)	Mean depth (m)	Cross-sectional area (m ²)	Mean velocity (m per sec)	Discharge (m ³ per sec)
MEAN	77.71	2.90	220.58	0.155	41.823	111.74	3.96	424.74	0.164	78.865
STANDARD DEVIATION	2.93	0.70	52.61	0.155	46.632	4.69	0.75	68.47	0.163	86.396
MEDIAN	77	2.90	219.01	0.077	15.597	111	3.95	414.85	0.070	32.797
MAXIMUM	84	4.03	298.32	0.444	132.924	123	5.40	537.20	0.505	270.892
MINIMUM	73	1.47	120.54	0.014	1.871	101	2.79	313.28	0.021	6.693

(a) Surface width

The northern channel at all times has a greater water surface width than the southern channel. The average width of the northern channel is 111.74m compared to 77.71m for the southern channel. Both channels have very small standard deviations for surface width - 4.69m for the northern channel compared to 2.93 for the southern channel. This indicates that the variation in water surface width from one flow event to the other in both channels is very small.

(b) Mean depth

Each flow gauging produced a cross-section of depth soundings. The summary statistics in Table 1 show that mean depth at Site II in the northern channel is 3.96m compared to 2.90m at Site I in the southern channel. Both channels however have identically low standard deviations which indicates that the depth soundings at the two gauging sites have been consistent. The median depth is equal to the mean or nearly so at each site. However, the maximum depth at Site II in the northern channel is 5.40m compared to 4.03m in the southern channel.

(c) Cross-section area

The two channels differ markedly in the area of the cross-sections through which flow occurs. The cross-section area at Site II is 424.74 m² whereas at Site I it is 220.58 m². The rest of the statistics in Table 1 pertaining to the cross-section area clearly confirm that the northern channel is larger than the southern channel.

(d) Mean velocity

Although the velocity in the northern channel is greater, both channels exhibit very low velocities, 0.164 m/s and 0.155 m/s in the northern and southern channel respectively, attesting to the low energy status of the entire Chobe River.

(e) Discharge

It is clear from Table 1 (p. 117) and Figure 9 in Appendix 5 that the northern channel conveys about twice as much flow as the southern channel. The mean discharge at Site II in the northern channel is 78.865 m³/s compared to 41.823 m³/s at Site I in the southern channel. Both sites showed a high variability in flow with the standard deviation exceeding the mean, a phenomenon akin to rivers in semi-arid and arid areas. Notice that the ratio of roughly 1:2 between the mean discharges of the southern and northern channels also applies to the median and maximum discharges.

308. It is obvious from the data presented that at Site II the northern channel has larger capacity and conveys larger flows than the southern channel. Thus in terms of the volume of flow and hydraulic characteristics - depth, surface width and velocity - the northern channel qualifies to be classified as the main channel of the Chobe River in the vicinity of Kasikili/Sedudu Island.

3. Seasonal Pattern of Flow

309. Professor Alexander presented a table (Table 3) in his Volume VI which purports to show the seasonal pattern of flow in the Chobe River in the vicinity of Kasikili/Sedudu Island. That table is reproduced as Table 2 below:

TABLE 2: Namibian Memorial Volume VI, page 29, (Alexander's Table 3)

Average monthly flow in the Zambezi River at Victoria Falls and the corresponding flow conditions in the Chobe River at Kasikili Island

Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
				< - - island inundated - - >							
272	276	410	658	1073	1941	2749	2320	1448	765	472	343
<- -stagnant- - >			<-moving upstream->			<- -flowing downstream- - >			<-stagnant->		

310. No reason or justification was proffered for this conclusion by Professor Alexander. The flow measurements reported in Table 1 (p. 117) and the Table at Appendix 2 do not support this seasonal flow pattern. Table 3, set out below, shows a summary of the flow condition obtained from the gauging exercise. It is obvious from this table that the river is never really stagnant. On the contrary, as can be seen from the mean velocities and discharges, flow takes place in the Chobe River during the months when the condition is described as stagnant.

311. TABLE 3: Flow in the Chobe River during August to December 1997

				Comments on flow pattern according to:	
		Mean velocity (m/s)	Discharge (cumecs)	Alexander Vol.6	Results of flow gauging
01/08/97	SITE I	0.015	2.158	Table 3, page 29 shows that the river is stagnant.	As shown by the velocities and discharges, flow takes place in both channels of the Chobe River during these months
	<i>SITE II</i>	<i>0.037</i>	<i>12.054</i>		
14/08/97	SITE I	0.037	5.299		
	<i>SITE II</i>	<i>0.033</i>	<i>10.617</i>		
22/11/97	SITE I	0.014	1.871		
	<i>SITE II</i>	<i>0.027</i>	<i>8.952</i>		
07/12/97	SITE I	0.023	2.741		
	<i>SITE II</i>	<i>0.021</i>	<i>6.693</i>		

312. Clearly, whether flow is moving up or downstream in the Chobe River the fact, as shown by the results of the gauging exercise summarised in Table 1 and detailed in Table 4 at Appendix 2, is that more of it takes place in the northern channel.

4. Cross-sections

313. The gauging exercise also produced data on the cross-sections of the gauging sites. These have been drawn from Figures 10 and 11 at Appendices 6 and 7. The depth soundings have been converted to topographic elevations in metres above sea level. The cross-section of Site I lies entirely above the gauge zero (922.081m asl) of the gauge at Kasane. At a water surface elevation of 924m, part of the channel at Site I would become dry. There are parts of the southern channel where the topographic elevation of the bed is even higher and these parts would become dry when other parts still contained water. This was the situation shown by the May 1972 aerial photograph (see Botswana Counter-Memorial, Volume II, Appendices, Figure 10, page 38).

314. By contrast, bed elevation of the northern channel is below the gauge zero. The difference in elevation is in excess of 2m in parts (Appendix 7). Interestingly, if the water surface elevation fell to the level of the gauge zero, the portion of the northern channel that would still contain water would be equal in area to the southern channel (about 80m²) when the water surface elevation was at 925m. These contrasts clearly illustrate the fact that the northern channel is far larger than the southern channel.

315. In order to compare the size of the respective channels, the depths obtained during the gauging exercises were averaged and plotted (Figure 8 p. 123). The plots illustrate graphically the fact that the northern channel is larger than the southern channel.

316. Gauging Site I was located in the vicinity of point 18A in the southern channel, whereas gauging Site II was located in the vicinity of point 3 in the northern channel of the 1985 hydrographic survey. Note that in the 1985 hydrographic survey, cross-sections were sounded from the left bank to the Island in the northern channel and from the right bank to the Island in the southern channel. The profiles shown in Figures 10 and 11 at Appendices 6 and 7 are quite identical to the respective 1985 hydrographic profiles.

317. In the light of the above data and scientific analysis, Botswana once again reiterates its case, set out in its Memorial and the Counter-Memorial, that the northern channel is the main channel in the vicinity of Kasikili/Sedudu Island:

(i) on account of its size (as determined by width and depth and confirmed by the 1985 Joint Survey and recent cross-section profiles);

(ii) by the volume of flow it carries at all times (as illustrated by the flow measurements conducted and presented herein); and

(iii) by the relatively higher flow velocities (observed during the flow measurements).

318. The above results establish convincingly the falsity of Namibia's assertion, unbacked by any scientific evidence, that the greater flow occurs in the southern channel. Examined in detail, the results refute the contentions of Namibia and establish the following:

(i) At all seasons of the year there is flow in the northern channel.

This refutes the assertion in the Namibian Counter-Memorial that "in reality during the dry season, there is no flow in the Chobe River at all above the Mambova Rapids, including both of the channels around Kasikili Island" (page 4, para. 10; page 13, para. 31).

(ii) At all seasons of the year there is flow downstream in the northern channel.

This rebuts the Namibian assertion that, at the beginning of the floods from the Zambezi, "the movement of the water is upstream (from east to west) in the Chobe River" (Namibian Counter-Memorial, page 12, para. 30).

(iii) At all seasons of the year flow is greater in the northern than the southern channel

This contradicts the Namibian assertion that "when the Zambezi is in flood... Then, Kasikili Island, including the northern channel, is inundated and ... substantially all of the flow of the river passes through the southern channel" (Namibian Counter-Memorial, page 4, para. 10).

(iv) The proportion of flow in the northern channel increases in the months of March to May during the period of high flow.

This refutes the Namibian allegation that: "In the second phase, when the Zambezi overflows its banks...Substantially the entire flow of the river during this period thus goes through the southern channel" (Namibian Counter-Memorial, page 12, para. 30).

(v) There is no evidence, in the event of any overspill from the northern channel, to show it effects any increase in flow in the southern channel or any reduction in the downstream flow in the northern channel.

This result shows how erroneous is Professor Alexander's supposition that the "water from the western anabranching channel... at Kasika...prevents the flow from the Chobe River from passing through the northern channel" (Supplementary Report, page 11, para. 5.9 b).

(iii) The Volume of Flow

319. Although in its Counter-Memorial Namibia accepts Professor Sefe's definition of the main channel as the one with the capacity to carry the largest flow, it rejects the idea that size or largeness of a channel to carry such flow is to be measured by depth (Namibian Counter-Memorial, page 11, para. 28). Namibia develops an argument by which it rejects width and depth of channel in preference for "the volume of flow". Thus, Namibia seeks to equate Professor Alexander's test of "the channel that carries the largest proportion of the annual flow in the river" with the criterion submitted by Botswana of "the capacity to carry the largest flow".

320. This is misleading, because Namibia interprets flow as wide-front flow across the whole flood plain. Namibia also restricts "annual" to the months of the period of flood. This enables Alexander to construe the extended area of flood as the "main channel" (see his superimposed lines on the dry flood plain areas in Photographs 11a and 11b), rather than the "identifiable channel system" of the northern channel, which the maps and aerial photographs reveal.

321. Even more fundamentally, Namibia objects to the inclusion of "depth" and "size" as factors to be taken into account in measuring the largest flow, although it is significant that Professor Alexander accepts their relevance to channel systems:

"While it is generally correct in relation to tributaries of a river that a larger tributary will transport more water and sediment than a smaller tributary, this is certainly not the case in floodplain channels. There are several examples of large channels on the Zambezi River floodplain that are no longer capable of transporting either water or sediment. The northern channel at Kasikili Island is one such example. This is a fundamental difference in our conclusions." (Supplementary Report, p. 7, para. 4.13²⁷)

[27 Professor Alexander's use of the term "tributary" is a misnomer. Where a single channel divides and then unites again as a single channel, creating an island, as in the case of the Chobe River in the vicinity of Kasikili/Sedudu Island, neither channel is a tributary.]

322. In making it plain that the criterion adopted by Namibia of "the volume of flow" excludes any element of size or depth, Professor Alexander shows a major misunderstanding of hydrological principles. Professor Sefe has exposed this error in Professor Alexander's approach:

"Channel width and depth are not alternatives for determining the main channel of a river. Flow in the channel is a product of cross-section area and mean velocity through the cross-section. Cross-section area is a function of width and depth of the channel. Width, depth and velocity are all related to discharge so that at a constant discharge a change in one of the three variables will produce a compensatory change in either of the remaining two variables or in both (Morisawa, 1968)." (Botswana Counter-Memorial, Vol. II, Appendix 4, para. 50)

"The main channel will have its width, depth, and velocity compensatorily adjusted to conveying its share of the bedload-flow and sediments. This compensatory adjustment arises out of the relationship that width, depth and velocity have to discharge. As stated in Leopold, Wolman and Miller (1964) p. 215, "with increasing discharge of a given cross-section, the width, mean depth, and mean velocity each increase as power functions" (see Professor Sefe's Second Opinion in Appendix 5)." (Botswana Counter-Memorial, p. 152, para. 386)

323. For the refutation of the repetition in the Namibian Counter-Memorial of the erroneous description of the Chobe River as an ephemeral river, see paragraph 333 below.

(iv) The Unsubstantiated Assertion of Overflow of the Northern into the Southern Channel

324. Professor Alexander asserts that one cause of the greater flow in the southern channel is due to "hydraulic factors" which "inhibit the flow of water from the Chobe River through the northern channel" (Supplementary Report, para. 2.2). He states:

"..as the flow from the Zambezi continues to rise, the anabranching channels overflow their banks and water from the western anabranching channel flows directly into the northern reach of the northern channel at Kasika. This causes the water level in the northern channel at this point to rise and thereby prevents the flow from the Chobe River from passing through the northern channel." (emphasis added) (Namibian Counter-Memorial, Vol. III, Supplementary Report, p. 11, para. 5.9b)

325. The italicised passage is hydrological nonsense. Any water flowing into the northern channel will not cause the level in this channel to rise in isolation. By the laws of fluid dynamics, the water will automatically find its own level, and water levels in all channels will be the same. The entry of water from the anabranching channel at Kasika will not, therefore, prevent the water from flowing downstream through the northern channel.

326. Botswana totally repudiates the notion of a side stream which feeds a river as raising the level solely upstream and not downstream. The presence of the northern channel with its deeper profile in closer vicinity to these channels ensures that the greater flow of water from this source will be through the northern channel, not the southern (Botswana Counter-Memorial, para. 292). In whichever direction flow is taking place, it should be obvious that, as both channels lead from and rejoin one trunk stream, the larger of the two channels, which in the case of the northern channel is also the most hydraulically efficient, will carry more of the flow. The flow measurements carried out over the period 1997 to 1998 showing the greater flow in the northern channel provide scientific evidence in support of these propositions.

(v) The Straight Configuration of the Northern Channel

327. It is worth noting that Alexander has himself pointed out an indirect indicator which contradicts Namibia's case that the greater movement of water is in the southern channel. This is the broad straight configuration of the northern channel. Following his recent inspection of the Chobe, Alexander describes the northern channel:

"The northern channel has smooth curves when viewed from above, and has high sandy banks when viewed from boats in the channel. In contrast, the width of the southern reach of the southern channel is highly variable and it seems to follow an irregular course when viewed from above." (Supplementary Report, Vol. III, p. 9, para. 5.2)

The hesitations in this passage are highly revealing.

328. Elsewhere Alexander acknowledges that the northern channel, along with the Spur channel, has the "greater capacity to convey large volumes of water and sediment through them". "The larger size and the more efficient shape (smaller width/depth ratio)" accounts for this greater capacity. The mystery is that having identified this indicator he does not apply it. He refuses to recognise that the northern channel is the more hydraulically efficient channel. Instead he is weakly driven to say these characteristics "were formed at a time when the course of the Zambezi River was eastwards past the present position of Kasikili Island" (Supplementary Report, pages 23-24, paras. 8.14 - 8.16).

(vi) The Deposition of Sediment

329. Namibia claims that "size is to be measured by 'the ability of the river to transport debris' and 'the maximum [sediment] load it can carry' " (Namibian Counter-Memorial, p. 11, para. 28). In normal hydrological practice, size of the channel is measured by the flow volume. Size cannot be measured by the competence of the river, because as flow passes from one regime to another, competence also varies. The relationship between flow volume and sediment results from the fact that the energy transporting the sediment load (which is specific to the size category of the sediments) comes from the volume and velocity of the flow.

330. Namibia maintains that "there are clear indications of the movement of sediment and therefore flow through the southern channel" (Supplementary Report, p. 2, para. 2.2a) but offers no proof. The Report on Sedimentological Study (Appendix 3 in Volume II of the Botswana Counter-Memorial) effectively disposes of this indirect indicator of flow. The Court is respectfully referred to paragraph 354 below, which sets out the findings of the Report on Sedimentological Study.

(vii) Conclusions

331. To sum up this Section (C):

(i) The capacity of a channel to carry flow is a product of a cross-section area and mean velocity through the cross-section. The cross-section area is a function of width and depth of the channel.

(ii) Flow measurements carried out by Botswana in the period 1997 to 1998 show that the northern channel at all seasons of the year carries a greater flow than the southern channel.

(iii) Namibia has provided no scientific evidence to support its assertion that the southern channel carries the greater flow. That assertion is based on the personal observations of Professor Alexander, who has himself admitted that "the path of the flow is not visually discernible" (Namibian Memorial, Vol. VI, Part 1; Report, p. 3, para. 1.7).

(iv) Namibia's contention that the strong easterly flow from Kasika "prevents the flow from the Chobe River from passing through the northern channel" (Namibian Counter-Memorial, Vol. III, p. 11, para. 5.9b) is hydrological nonsense and unsupported by the evidence.

(v) Evidence of greater flow through the northern channel is provided by the recent taking of gaugings in the two channels. Those gaugings, which confirm the findings of the 1985 Joint Survey Report, show the northern channel to be the wider and deeper, and, hence, to have the greater capacity to carry flow.

(vi) Further evidence of the greater flow in the northern channel is provided by its straight configuration and the evidence of the Sedimentological Study which shows no greater deposition of sediment in the northern channel than in the southern.

(d) Response to the Supplementary Report of Professor Alexander

332. Professor Alexander's Supplementary Report contains many scientific misconceptions and misrepresentations and these will now be addressed.

(i) The Misrepresentation that the Chobe is an Ephemeral River

333. Namibia rejects the criterion of width and depth of channel, on the ground that they exhibit variations, particularly in the case of ephemeral rivers, and in time of flood when "the Island as well as the two channels around it are submerged by waters emanating from the Zambezi" (Namibian Memorial, p. 50, para. 131)²⁹. As demonstrated in the Botswana Counter-Memorial (p. 123, paras. 330-334), the Chobe River is a perennial river with visible and stable banks, with continuous flow through all seasons of the year.

(ii) The Wrong Interpretation of the Geomorphology of the Chobe River

334. In presenting its case, Namibia has up to the present time invoked three separate and conflicting "scientific" scenarios relating to the geomorphology of the Chobe River and the southern channel.

Scenario I

335. According to this scenario, the silting up of the southern channel by major floods and frequent movements of the tributaries of the Chobe River, caused the main channel to shift, since the conclusion of the 1890 Agreement, from the southern to the northern channel. This Scenario was put forward by Namibia in its second submission to the Joint Team of Technical Experts:

29 Two further reasons are given: that the criterion as adopted must be applicable to the whole river, even the stretches where it is dry, and that it must be one by which the centre of the main channel, when identified, can be measured. As to the first, the bifurcation around the Island is the factual basis for the present dispute referred to the Court for its determination; no issue arises as to the main channel where there is only one channel. As to the second, even when in flood, the banks of the northern channel remain fully visible and provide markers from which the centre of the main channel may be measured. The visibility of the northern channel's banks is clearly demonstrated in the photographs taken by Professor Alexander from a helicopter when the river was in flood in April 1997.

"Major floods which occurred and frequent movement of sand by the tributaries of the Chobe River have caused the southern channel to silt up. Aerial photographs and maps give credence to this contention." (Kasikili Island: the Government of the Republic of Namibia's Position: Memorandum submitted to the Joint Team of Technical Experts, p. 37)

336. Scenario I was effectively rebutted by the First Opinion of Professor Sefe (Botswana Memorial, Appendix to Chapter VII, at p. 109). Namibia now frankly accepts that there was no evidence, scientific or otherwise, in support of Scenario I:

"Six of the 12 pages of his³⁰ Report are devoted to showing that the position of the two channels has not changed since 1890, a fact that Namibia does not contest." (footnote omitted) (Namibian Counter-Memorial, p. 13, paragraph 32)

"We agree that there have been no significant changes in the present shape and alignment of the Chobe River and Kasikili Island since the conclusion of the 1890 Treaty." (Namibian Counter-Memorial, Vol. III; Supplementary Report of Professor Alexander, p. 6, para. 4.9)

[30 Dr Sefe's]

Scenario II

337. Scenario II, elaborated by Namibia's scientific expert, Professor Alexander, and adopted by Namibia, relates to the 'Alexandrine channel'. According to this scenario, a novel course for the southern channel is identified as "a broader overlying channel", superimposed over the western third of the present Kasikili/Sedudu Island: "The right bank of the overlying channel is the foot of the Chobe Ridge, and the opposite edge of the channel is indicated on Diagram 4

on Sheet 17" (see Namibian Memorial, Vol. VI, Part 1; Expert Report, pp. 34-35, paras. 12.6-12.7).

338. Scenario II is contradicted by the core sampling carried out in the Report on Sedimentological Study of Kasikili/Sedudu Island by Professor Sefe as set out in Appendix 3, Volume II of the Botswana Counter-Memorial. Contrary to Professor Alexander's supposition (Namibian Memorial, Vol. VI, Part 1, para. 8.11), the deposits of Zone (d) on Diagram 4 on Sheet 17 show no significant difference in "the deposition of fresh sediment" or their "visual characteristics" from the sediment deposition pattern of the other zones on the Island. Scenario II is further disproved by the altitude of 927m of Zone (d), which is some one to two metres higher than the rest of the Island.

Scenario III

339. In its Counter-Memorial, Namibia abandons all mention of the foregoing scenarios and an entirely new one is advanced. According to this third scenario the predominant "downstream flow in the Chobe River at Kasikili Island (is) along the course of the southern channel", with hydraulic factors which "inhibit the flow of water from the Chobe through the northern channel" due to "the strong easterly flow into the northern channel at Kasika from the overflow in the unbranched channels of the Zambezi River" (Namibian Counter-Memorial, Vol. III, Supplementary Report, pp. 2,16 and 41, paras. 2.2, 6.2 and 14.12).

340. Professor Alexander further elaborates this third Scenario:

"The northern channel is a relict channel of a previous phase in the passage of the Zambezi River through its floodplain, and is in the process of being abandoned. The southern channel is the present course of the Chobe River at Kasikili Island." (Supplementary Report, p. 2, para. 2.2c)

341. He puts forward Photograph P8s (Supplementary Report, Sheet 7s) - "a view looking down the southern channel with Kasikili Island on the left and the Mambova Rapids in the distance" - as providing evidence:

"b. It is also obvious that the northern channel is a tributary of the southern channel and not vice versa." (Supplementary Report, p. 15, para. 5.18)

"I concluded that on a geological time scale the flood plain in the vicinity of Kasikili Island is in the process of being gradually eroded vertically downwards." (*ibid.*, p. 5, para. 4.5)

342. This new hypothesis contradicts Scenario I. Instead of its surmised shift in time from the southern to the northern channel, Namibia's new scenario reverses events, and a shift from the northern to the southern channel is now postulated, with "the northern channel in process of being gradually abandoned".

343. Botswana, in responding to Namibia has, consequently, encountered a changing range of scenarios. Professor Sefe's First Opinion effectively disposed of the first scenario. His Second Opinion exposed the absence of scientific support for Scenario II. Scenario III is refuted by the flow measurements. All three scenarios are effectively disposed of by the scientific evidence produced by Botswana in its Counter-Memorial and this Reply and in the Opinions of Professor Sefe, which establish the greater capacity and flow of the northern channel.

Namibia is therefore wholly in error to assert that Botswana has produced no scientific evidence - see Namibian Counter-Memorial, page 1, para. 3.

344. Further, many of the features to be found on the Island and the surrounding channels provide additional evidence to contradict Scenario III, as well the previous scenarios advanced by Namibia.

345. The meander loops in the southern channel have maintained their shapes in all the aerial photographs taken since 1925. If they were undergoing a process of active erosion, as Professor Alexander asserts, by reason of the southern channel being the main conveyance channel, the high banks of the outside bends would have experienced considerable undercutting and slumping. The evidence of bank collapse should be overwhelming, even to the untrained eye, yet no such slumping in the southern channel is to be observed. By contrast, one sees evidence of limited bank collapse on the northern bank of the Island where the high bank there forms part of the left bank of the northern channel. Even here, the occurrence of bank collapse is not on a large scale, indicating the low energy status of the entire Chobe River system.

346. Additionally, Professor Alexander ignores the angle of exit of the southern channel from the trunk stream. On all the aerial photographs taken since 1925, the configuration of this exit point has not changed. It is almost at a right angle to the trunk stream, unlike the northern channel which is a continuous extension of the trunk stream. The continuity of the northern channel with the direction of the Chobe upstream indicates strongly that that channel carries the bulk of flow and continues the thalweg of the upstream river.

347. Again, Professor Alexander ignores the existence of three small islands at the western exit of the southern channel, which can be seen in the photograph on page 153 of the Botswana Counter-Memorial. The existence of these islands, the crenellated nature of the southern channel and its angle of exit, all suggest a hydraulically inefficient channel. Thus, the evolution of the drainage system has clearly made one branch hydraulically more efficient than the other. The channel that is more hydraulically efficient is the northern channel.

348. Professor Alexander uses a term 'floodplain channels' which has received no recognition in the published literature (Supplementary Report, paragraph 4.13). He then purports to name the oxbows and rump channels as 'floodplain channels' and classifies the northern channel, which has a clear line of inflow and outflow, as one such rump channel. This is completely wrong and is in no way supported by the evolution of the history of the Chobe River.

(iii) Misuse of the Report on the Sedimentological Study

349. The Report on the Sedimentological Study supports Professor Sefe's evolution of the Island. This is accepted by Professor Alexander so far as dating is concerned:

"The dating analyses showed that this sudden change in composition took place several thousand years ago." (Supplementary Report, p. 21, para. 8.6)

350. Professor Alexander however rejects the findings of the Report on the Sedimentological Study in relation to deposition of sediment. Professor Alexander's treatment of the results of the Sedimentological Study carried out by Botswana provides a good illustration of the

deficiencies of his methodology. Thus, in explaining his theory about "levees" adjacent to the northern channel, Professor Alexander criticises the Study:

"Nor were samples taken of the material in the natural levee along the right bank of the northern channel. Based on visual observations this material is fine, readily erodable sand and not the black clay found in the upper layer of the core samples on the rest of the island. I also noted isolated exposures of this sandy material in the channel banks near the Chobe Park Headquarters as well as close upstream of the bifurcation of the river west of Kasikili Island." (Supplementary Report, para. 8.5)

351. Here, personal impressions of Professor Alexander are preferred to the scientific data of the coring samples, which was analysed by independent laboratories in South Africa. The Sedimentological Study gave the coordinates of the sample sites and these, and the accompanying Figure 1 showing their location, indicate that Bore Holes 4, 5 and 11 were close to the right bank of the north channel. Professor Alexander gives no coordinates and no explanation why coring should have taken place on his so-called 'levees'.

352. From the quotation above it will be seen that Professor Alexander disregards the carefully sorted and annotated results of the samples and substitutes his own impressions:

"... based on information gained during an inspection of the area on 29 and 30 April 1997 in the company of hydrologists of the Namibian Department of Water Affairs. The inspection by boat included the two channels at Kasikili Island and continued upstream as far as the end of the reach of the Chobe River accessible by boat which was just beyond Serondela." (Supplementary Report, p. 3, para. 3.1)

353. Professor Alexander's contentions are contradicted by the *Report on the Sedimentological Study*. As stated in that Report, 13 sample holes were drilled in matrix on the Island to a depth of 5m.

354. The Report on the *Sedimentological Study* establishes that:

(i) A black top layer consisting of clay, silt, and mud mixture extending to about 1.50m depth is distributed evenly across all parts of the Island. Its presence cannot be used to identify the path of the Chobe through the southern channel (Supplementary Report, para. 8.11).

(ii) The sand which underlies the Island is not of fluvial origin as it is predominantly angular. If the sand had come from far, it would have been rounded out in transit, more so as the most angular sands are in the rolling population; moreover, the many swamps through which the Linyanti-Chobe river system passes would have filtered out such sand fraction. The only obvious source of the sand is thus the nearby Chobe Ridge, and as Professor Sefe explained in his *First Opinion*, the input of sediment from the ridge into an ancient version of the Chobe River was the cause of the channel realignment which eventually produced the Island. This occurred between 10,000 and 26,000 years ago (*First Opinion*, p. 3 in Chapter VII of the Botswana Memorial).

(iii) The right bank of the northern channel is not composed of readily erodable material but by the same top peaty layer of material. Consequently in a low energy river such as the Chobe there will be limited evidence of erosion or bank collapse of the right bank (see paragraph 345 above).

(iv) "All the samples along the northern channel are relatively younger, ranging in age 1,400 years to 1,890 years, while the older materials are to be found along the centre of the island and the southern channel."

(Report on the Sedimentological Study, Botswana Counter-Memorial, Volume II, Appendix 3, p. 7, para. 28)

Consequently the black soil does not "continue to appear in the southern channel but not in the northern channel" as alleged in the Namibian Memorial, p. 54, para. 150. Deposits in the vicinity of the northern channel are more recent than those in the southern channel, except for one, Bore Hole 9, immediately south of the lagoon in the southern channel where the sample was also of relatively younger age.

(iv) Wrong Positioning of the Sediment Bars

355. The allegation of deposition of sediment within the upstream end of the northern channel (Supplementary Report, para. 5.14) is not supported by the facts. The sediment bars are located at the mouth of the entrance to the southern channel. As the photographs at pages 153 and 158 of the Botswana Counter-Memorial indicate, sand banks block the entrance to the southern channel, not the northern channel; at the time of the Joint Survey in 1985, the shallowest depths of 1.50 to 2.00 metres were recorded at the mouth of the southern channel, which was also noted as obstructed by reeds.

(v) Confusion of Aeolian (Wind-formed) Bars with Sediment Bars

356. Sediment bars are channel features formed by fluvial deposition. The four loaf-like sand deposits on the meander loop of the southern channel are not such channel features and do not have the shape or orientation of channel bars. Sediment bars do not lie transverse to the direction of flow as these "deposits" do. Their peculiar shape suggests wind-blown origin. They have similar grain distribution and shape as similar dune features in the area, including the Caprivi. They are permanent features having a height of 1.5m to 2m above the surrounding floodplain. They have appeared consistently as having the same shape on all aerial photographs taken since 1925.

(vi) The Scientific Definition of Thalweg

357. On the issue of the main channel following the thalweg, Namibia asserts that:

"...even if the thalweg concept is thought to be relevant, Namibia shows that the core element of this concept was the connection of the thalweg with the flow or current of the river. The factor of depth was derivative and secondary." (Namibian Counter-Memorial, page 2, para. 7)

358. The accepted scientific definition of the thalweg is "the line of maximum depth along a river channel": Botswana Counter-Memorial paragraph 337, and authorities there cited.

"The line of maximum depth along a river channel. It may also refer to the line of maximum depth along a river valley or in a lake." (Goudie ed.: The Encyclopaedic Dictionary of Physical Geography 1990, p. 429)

"Even where the channel is straight it is usual for the thalweg, or the line of maximum depth to wander back and forth..." (Leopold, Wolman and Miller: Fluvial Processes in Geomorphology, 1964, p. 281)

(vii) Water Level Elevations

359. Professor Alexander commits a serious mathematical error in using water levels to support his assertion that the southern channel was never dry. In his Supplementary Report, p. 36, paragraphs 12.5 to 12.6, he compares the water elevations in the 1985 Joint Survey Report with that obtained from a reading showing a minimum water depth of 2.55 metres at Kasane gauging station in September 1995. The 1985 Joint Survey Report stated that the water level on 2 July 1985, when the survey was undertaken, was 3.24 metres and that this represented an elevation of 925.32. Alexander subtracts the water level to arrive at the elevation of the zero mark on the gauge plate as 922.08. Botswana accepts this stage in Alexander's argument, including the correction to 922.081 of the figure given as 922.05 in the Botswana Memorial (paragraph 28).

360. In the second stage of his calculation, Professor Alexander makes use of the figures obtained for the minimum water depths given for the northern and southern channels by the 1985 Joint Survey Report, and adds them to the gauge zero elevation to produce levels which he submits clearly demonstrate that neither channel could have been dry even during a period of recorded minimum water levels.

361. It appears, however, that in making this calculation Professor Alexander has committed a fundamental error in that he calculates his differences in elevation upwards from the base gauge zero elevation, rather than downwards from the common water surface elevation. By so doing he assumes that the bottom of the two channels are at the same elevation, which totally ignores the observed difference in depths between the two channels: see paragraphs 308, 313 and 314 above and the figures in Appendices 6 and 7: (Gauging Cross-sections at Site I and Site II). Consequently Alexander's figures prove nothing about the state of the channels, and certainly cannot be used to demonstrate that they contained water at the relevant date.

362. In any event, Alexander's method is of doubtful scientific acceptability, even with the correction of this error. It cannot be assumed that the zero mark on the gauge plate coincides with a dry bed or zero flow condition. Further, the river bed downstream from the point of gauging at Kasane is at a lower elevation than that at either the southern or northern channel. Added to this must be taken into account the fact that a drop in water elevation to 922.081m (asl) (the gauge zero) would create dry spots in the southern channel, especially in its shallower parts near the 'lagoon' (see Appendices 6 and 7: Gauging Cross-Sections of Site I and Site II).

363. In any event, Botswana submits that there is independent evidence which makes the estimate of the condition of the beds of the channels based on such shaky mathematical calculations unnecessary. There is independent evidence that part of the southern channel from the point of bifurcation downstream to the meander loop and the upstream portion of the Spur channel dried up in May 1972, as shown on the May 1972 aerial photograph (Figure 10 in Professor Sefe's Second Opinion, Botswana Counter-Memorial, Vol. II, Appendix II, p. 38).

(viii) Misdescription of the Anabranched Channels

364. Botswana welcomes the recognition of the operation of anabranch channels between the Zambezi and Chobe Rivers (Supplementary Report, p. 11, para. 5.9b). They were described in the Botswana Counter-Memorial as "cross-channels" (paras. 284 and 295), which link the Chobe with the Zambezi, and allow water to flow in either direction, depending on the hydraulic gradient between the two rivers. Thus, Professor Alexander here seems to accept that the water no longer advances on a broad front as stated in his first Report, para. 10.1.

365. The western anabranch channel, referred to in the passage quoted at paragraph 324 above, is not one of the perennially flowing anabranches identified by Professor Alexander on Map 2 Vol. VI, Part 2 of the Namibian Counter-Memorial, such as the Nakabungo River. Unlike the Nakabungo, which is located well upstream of the point of bifurcation, the capacity of this anabranch channel near Kasika is very small compared to the northern channel. Flow from this particular anabranch comes into the northern channel in a relatively small stream of water, and is immediately deflected in a downstream direction. At no time does it block the downstream flow in the northern channel.

(ix) Errors in Professor Alexander's Interpretation of Evidence from Photographs

366. As with his previous Report and comments on the photographs and satellite imageries, Professor Alexander commits many photographic distortions and misinterpretations in his Supplementary Report. Thus, he wrongly interprets Photograph P2s; it shows a complex network of interacting streams of water rather than a "wide front" of water (Supplementary Report, p. 11, para. 5.8 and Sheet 1s).

367. Photograph P6s in fact shows the northern channel to be larger than the southern. The picture shows the southern channel in flood; the four "sediment bars" lie on higher ground outside that channel on the small floodplain between the channel and the Chobe Ridge and, lying transverse to the direction of flow, retard the flow. Thus, the only way in which the water can be conveyed, even in flood conditions, is by means of the big meander loop.

368. Photograph P6s omits the point of bifurcation, but shows that the highest part of the Island is to the South and West, which runs counter to the earlier theory of an 'Alexandrine channel' passing over this part of the Island. Given the comparative size, as shown in this photograph, of the two channels lying across the Island compared to the northern channel, it is apparent that they have no hydrological significance in the reversal of the hydraulic gradient.

369. Diagram 2s on Supplementary Report, Sheet 8s supports Botswana's case. Despite deliberate placement of oversize arrow heads, which obscure the southern channel, its tenuous nature compared to the northern channel is readily observable.

(E) Conclusions Relating to the Scientific Evidence

370. This Chapter demonstrates that:

(i) Recourse to scientific evidence is not necessary in the Court's task of determining in which channel of the Chobe River the boundary lies.

(ii) If reference is to be made, Namibia has provided no scientific evidence to establish the greater flow in the southern channel, whereas Botswana has produced flow measurements

which prove that the northern channel carries, and has the capacity to carry, the greater volume of flow.

(iii) Those flow measurements are supported by the geomorphology and hydrology of the region as presented by Professor Sefe and the authorities which he cites, as well as by the Report on the Sedimentological Study of the soils composing Kasikili/Sedudu Island.

(iv) Recent gaugings confirm the scientific evidence provided by the 1985 Joint Survey that the northern channel has the greater mean depth of the two channels.

(v) Namibia's suppositions of upstream flow in the northern channel, overspill into the southern channel with consequent increase of flow in the southern channel are wholly unsupported by the available scientific evidence.

(vi) All the scientific evidence supports the northern channel as the more hydraulically efficient channel. Namibia's assertions to the contrary, in favour of the southern channel, are contradicted by the existence of the high banks of its meander loops, its crenellated nature, and by the presence of three small islands and the angle of exit at the western end of the southern channel.

(vii) The methodology of Professor Alexander, Namibia's scientific expert, is faulty. He rejects the results of scientific investigation, the Report on the Sedimentological Study, the Joint Survey Report, gaugings and water flow measurements, for unsubstantiated hypotheses and personal impressions.

SUBMISSIONS

Having regard to the considerations set forth in the Memorial, Counter-Memorial, and Reply, presented on behalf of the Republic of Botswana and maintaining without change the submissions presented in the Memorial,

May it please the Court to adjudge and declare that:

(1) The northern and western channel of the Chobe River in the vicinity of Kasikili/Sedudu Island constitutes the 'main channel' of the Chobe River in accordance with the provisions of Article III (2) of the Anglo-German Agreement of 1890; *and that:*

(2) Consequently, sovereignty in respect of Kasikili/Sedudu Island vests exclusively in the Republic of Botswana.

(signed) Abednego Batshani Tafa

Deputy Attorney-General

Agent of the Republic of Botswana

APPENDIX 1

THE REPLY TO MR RUSHWORTH'S CRITICISMS OF "MAP-RELATED ERRORS" IN CHAPTER VIII OF THE BOTSWANA MEMORIAL

At paragraph 22 of Annex 1, Vol. II of the Namibian Counter-Memorial, Mr. Rushworth makes specific criticisms concerning "map-related errors" of various paragraphs in the Botswana Memorial. The following is the Botswana reply to these criticisms.

Para. 233

"Bradshaw shows the northern and western channel clearly broader than the eastern' "

Reply

It is agreed that this statement is misleading as it is common knowledge that Bradshaw did not visit the western channel. The statement however, is taken out of context, as the main thrust of this paragraph is to stress that the western channel is a straight line continuation of the upstream Chobe River, whereas the southern channel is at a right angle to the general course of the river.

Para. 257

"Maps available relating to the Caprivi StripFirst, the scale of the maps is usually so small as to present no indication of the riverine topography. Secondly, when maps indicate the political boundary, the mode is very impressionistic' "

"No evidence or analysis is made to support these totally incorrect statements."

Reply

Rushworth states that a surprising number of the maps show the topographical features in great detail, although he omits to state which maps! As practically all of the maps presented prior to the crystallisation of the dispute in 1948 are at exceedingly small scales, ranging from 1:500 000 to less than 1:1 000 000, evidence or analysis is totally unnecessary. At these scales, topographical depiction of details as small as Kasikili/Sedudu Island will plot as sub-millimetre objects, and therefore cannot possibly be shown accurately in size or shape. They will of necessity be impressionistic. (See further Botswana Reply, Chapter 4, Part (E) (ii) Scale of Maps, paras. 183 to 192.)

Para. 258

" 'There can be no dispute that at the present timethe location of the main channel in the vicinity of Kasikili/Sedudu island is in the northern and western channel of the River Chobe' "

Reply

Rushworth contends that the Botswana 1:50 000 scale map does not indicate the main channel. This is contradicted by the fact that the boundary symbol has been placed in the northern and western channel, which is a clear indication that Botswana considers this channel as the main channel.

Para. 259

" 'The maps referred to above in para. 6' "

Reply

As Rushworth points out, there are no maps referred to in para. 6. This should have read "referred to in para. 258 above".

Para. 264 (first part)

" '*British War Office Map of 1889* (Map 3). This map was prepared by the Intelligence Division of the War Office and it is referred to expressly in the Anglo-German Agreement of 1890' "

and

Para. 265

" '*Map of Matabililand and Adjoining Territories of 1889* (Map 2) this map does not relate to the 1890 Agreement' "

" 'Source: Bodleian Library.' "

Reply to Para. 264 (first part) and Para. 265

Both the above maps were versions of a map prepared by the Intelligence Division of the War Office in 1889.

The Map of Matabililand and Adjoining Territories 1:1 584 000 Uncorrected Proof No. 776 is identified by a memo of Sir Edward Hertslet as the map "alluded to in Article III" of the Anglo-German Agreement as being "the map officially prepared for the British Government in 1889". The version of ID No. 776 shown as Map No.2 in the Botswana Dossier of Maps (and as Map 3 in the Namibian Atlas) is annotated by Lt.-Col. Dalton with lines to show proposals by Lord Knutsford, Count Leyden and Sir Henry Loch and is dated "27.5.90". It has no line or hatchings to show the 1890 agreed boundary and therefore, it can fairly be said, as in paragraph 265 of the Botswana Memorial, that it "does not relate to the 1890 Agreement as finally concluded".

The Map of Southern Zambesia 1:1 585 000 1891 ID No. 846, is an improved version of the 1889 War Office map. A version (No. 846b) of this map was used by Sir Edward Hertslet, reduced to 1:3 928 320 and with the boundary shown by a two coloured stipple, "to illustrate Article III" in his third edition of the Map of Africa by Treaty, Vol. I, p. 902. This version of the 1889 map (No. 846b) is reproduced as Map 3, and referred to as the British War Office Map of 1889 (Map 3 in the Botswana Dossier of Maps) in the Botswana Memorial. The heading clearly states "REDUCED FROM THE ORIGINAL INTELLIGENCE DIVISION OF THE WAR OFFICE MAP NO. 846b". Therefore, paragraph 264 of the Botswana Memorial is correct in saying "This map was prepared by the Intelligence Division of the War Office" and that the 1889 map "is referred to expressly in the provisions of Article III of the Anglo-German Agreement of 1890". The provenance of this map, whether Public Records Office or Bodleian Map Room, can in no way influence the location of the boundary.

Para. 264 (second part)

" 'The boundary along the Chobe is shown by a broad red band. The map [Map 3] thus provides no evidence whatsoever of the "precise position" of the main channel' "

Reply

Rushworth states that in the full colour original, the band is composed of two stipples, brown and red, and the location of the boundary is "precisely" indicated where the two bands abut. As this map (Map 3 in the Botswana Dossier of Maps) is at a scale of 1:3 928 320 (or 1 inch equals 62 miles), it is pointless to state that any feature is "precisely" located. As it states in the heading, the map was used solely to illustrate the text of the Anglo-German Agreement.

Para. 266 (first part)

" 'Kriegskarte von Deutsch-Sudwestafrika 1904 (Andara sheet) (Map 4)' "

Reply

It is accepted that this sheet is not the Andara sheet, but is part of the Linyanti sheet.

Para. 266 (second part)

" '..... it [Map 4] appears to show the northern channel by a thick black line and the southern channel is barely visible except as the edge to the shaded area which represents the island .' "

Reply

Rushworth maintains that this is a monochrome reproduction of an original in colour, and that the original shows no shaded area and no Island. Monochrome or not, under magnification, the Island can be seen clearly separated from the South bank by a thin black line, whereas the northern and western channels are shown by a substantial black line. This is confirmed by examination of Map 5 (Botswana Memorial App. II), which is a colour reproduction of the original.

Para. 267

" This sheet [Map 5]³¹ in the same series [as Map 4] and to the same scale [1:800,000] is reproduced in the original colouring . ' "

[31 Botswana Memorial Appendix II]

Reply

Rushworth is correct that Map 5 is a reduction of Map 4 at approximately 1:1 000 000. This error, however, does not affect the information given in para. 266 regarding the fact that "Sulumbu's Island" is shown separated from the south bank by a very small channel.

Para. 268

" '[Frankenberg's map] exists in at least two editions.' "

Reply

Rushworth comments that the map was probably never printed at all, but offers no corroboration for this statement. Rushworth challenges Botswana's translation of "Flussarm" even though it was supported by a signed certified translation certificate. This translation has been investigated at length elsewhere in this Reply (Chapter 4, paras. 210-218). The translation as "side branch" of the main river is confirmed by von Frankenberg's manuscript notation on the map, where he explains why the apparently larger channel at Mangonda Island in the Zambezi is also a "Flussarm", as it is very shallow and often dries up, leaving the apparently smaller southern channel as the main course of the Zambezi.

Para. 268

"Map 7³² The map shows a scale bar in the title box that has been separately reproduced and superimposed."

[32 Botswana Memorial Appendix II]

Reply

The scale bar was reproduced as evidence that it was taken from von Frankenberg's map. It has no meaning in the context of the information shown on the map regarding the Island and the "Flussarm".

Para. 268

"Footnote 8, Page 117. 'Franz Seiner's map published in 1909. The boundary is not shown

Reply

If, as Rushworth contends, the boundary is shown by the red hatching, then the whole of the Chobe River lies in the Bechuanaland Protectorate, as the hatching continues along the north bank, which is clearly in conflict with the Anglo-German Agreement (see Botswana Counter-Memorial, pp. 229-231, paras. 571-579; Botswana Reply Chapter 4, para. 208).

Paras. 270-273

"No scale is shown for Maps 8-11³³ which are described in these paragraphs"

[33 *ibid.*]

Reply

These maps have no relevance to this case. It is obvious to an observer, even without reference to the scale of 1:4 600 000, that these maps have no relevance.

Para. 275(a)

"The boundary is shown as an "intercolonial" not as an "international" boundary [on Map 13]³³ "

[33 *ibid.*]

Reply

It is accepted that the relevant part of the legend is not shown, but Rushworth accepts that the classification is correct.

Para. 276

"The sheet [Bechuanaland 1960 DOS (Misc.) 282]³⁴ indicates the boundary along the northern and western channel of the Chobe. In view of the small scale no detail is visible in the vicinity of Kasikili/Sedudu' "

[34 Map 16 (Botswana Memorial Appendix II)]

Reply

Rushworth comments that the Botswana Memorial does not quote the scale of this map. This is given as a scale bar on Map 16. It is true that the boundary is indicated along the northern bank of the river rather than the northern and western channels, and by cartographic convention, this would indicate the middle of the river. In other cases, where the boundary is shown along the southern bank, Rushworth uses this as an indication that the southern channel is the main channel. He cannot have it both ways.

Para. 277

"The boundary [on Bechuanaland 1965 DOS 847 (Z462)]³⁵ is marked actually along the Chobe' "

[35 Map 17 (Botswana Memorial Appendix II)]

Reply

Rushworth maintains that on the original version, detail was marked in black and water features in blue. He says that as the print at Map 17 is so poor, "it is not possible to see what

feature the boundary follows". This map very clearly shows the boundary symbol swinging northwards and westwards around the distinctive shape of Kasikili/Sedudu Island.

Para. 279

" 'The evidence available indicates that this map [South Africa 1:250,000 1949] reproduces without any further or independent verification, the boundary indicated on the War Office map of 1933.' "

and

Para. 280

" '.....the evidential significance of this sheet [South Africa 1:250,000 1949] is removed by the fact that by 1949 the South African Government was well aware of the dispute relating to the boundary.....between Trollope and Redman in 1948.' "

Reply to Paras. 279 and 280

The Court is respectfully referred to the Botswana Counter-Memorial pp. 291-301, paras. 736-769, which sets out the official exchanges between the British and South African Governments following the Trollope-Redman correspondence, and the Botswana Counter-Memorial pp. 241-243, paras. 604-613 relating to the correspondence as to the location of the boundary. The British and Bechuanaland Governments made it clear that there was no official map showing the boundary.

Para. 282

" 'The 1949 map is a compiled map' "

Reply

Rushworth claims that virtually all the detail and names on this map were obtained from surveys specifically undertaken for this map. Whilst it is true that the base of the map was compiled from aerial photography and ground-control surveys, this would only improve positional accuracy of the topographical detail, without having any effect on the location of the main channel and the position of the boundary. The map lists no less than 12 different source authorities, including Bechuanaland, N. Rhodesia and S. Rhodesia, which would not leave very much new detail to be added on from surveys.

Map 23³²

"This map shows a scale bar that has been separately reduced and superimposed".

[32 Botswana Memorial Appendix II]

Reply

The scale bar has no relevance whatsoever in this context, as the map copy was produced to correct scale and clearly shows a scale of 1:50 000.

Para. 288

"This para. is based on erroneous assumptions ..."

Reply

Rushworth's comments on para. 288 have no relevance to the point that Botswana is making, namely that "... no map was in any way ... an integral part of the [Anglo-German] agreement".

Para. 290

" '.....it will be readily appreciated that a map of smaller scale than 1:100,000 or 1cm to 1km (1 inch to 1 mile) is likely to be of little use in representing accurately the configuration and size of the channels and island'."

Reply

Rushworth's comments have been answered at length in Section (E) of Chapter 4 of the Botswana Reply.

Para. 292

" 'It is to be noted that these maps [listed in para. 291] clearly show the northern and western channel as the main channel of the Chobe'"

Reply

Rushworth maintains that this statement is completely erroneous. The listed maps include the following:

(i) Bradshaw's map of 1880 - Rushworth is correct - this is an error.

(ii) The von Frankenberg map does indicate the main channel by labelling the southern channel as "Flussarm" or minor branch as explained in detail in the comments on para. 268 above.

(iii) As in all his comments throughout the Namibian pleadings, Rushworth labels any map, that does not show the southern channel as a through channel, as "erroneous"! As has already been explained, it is highly unlikely that the official South African Military Survey, with all the resources at its command, would go to the great expense and trouble of flying new air photography and deploying large survey teams, to produce erroneous maps. The South African Ministry of Defence (JARIC) map shows the southern and eastern channel as a backwater because that is precisely what it is in times of low water. This has been explained in the Botswana Reply, paras. 253-254.

(iv) The 1974 1:50 000 Botswana map does show the main channel in the northern and western channel as it has placed the International Boundary symbol in these channels.

Para. 295

"This para is a continuation of the confusion in the Botswana Memorial between the IDWO maps of 1889 and 1891 and the maps in Hertslet's book, see paras 264 and 265 above ... No relevant map is at the scale of 1:584,000 quoted by Botswana."

Reply

There is an error in this paragraph of the Botswana Memorial. The scale of the map in question should read "1:1 584 000 or 1 inch to 25 miles", not "1:584 000 or 1 inch to 25 miles". Regardless of this typographical error, the point being made in this paragraph is that at this very small scale, the line depicting the boundary extends several miles on either side of the river and cannot therefore be said to accurately depict the true position of the boundary. As to ID No. 776 and ID No. 846b, see the comments in this Appendix above in relation to paras. 264 and 265.

Para. 296

"This para quotes a number of very small scale British maps ..."

Reply

These various maps used to illustrate the Bechuanaland Protectorate Reports are at such small scale as to be of no assistance in this case. They were included in the Botswana Memorial solely to show the inconsistencies in the placing of the boundary on small scale mapping (Botswana Reply, Chapter 4, paras. 196-197).

Para. 297

" 'The map evidence is contradictory and confused the different series of official maps are internally inconsistent' "

"With a couple of exceptions the maps consistently show the boundary in the southern channel."

Reply

Support for the proposition thus criticised by Rushworth is provided in the Botswana Counter-Memorial pp. 259-261, paras. 636 to 646 and the Botswana Reply, paras. 164-165, 174-177, and 284-286, which set out the differences and inconsistencies in the maps relied upon by Namibia.

Of the maps contained in the Namibian Memorial, two show the boundary along the north bank, one shows the boundary alternating between both banks, one shows the boundary along the south bank and the rest show no boundary at all! This fact removes any validity from Rushworth's comment. Rushworth has been very selective in his choice of maps. He does not comment on the obvious contradiction between the South African maps of 1949 and 1967 and the South African Military Intelligence Map of 1984 and the JARIC Maps of 1978 and 1982.

Para. 298

" 'The four British maps of 1912 to 1915 contradict each other.' "

Reply

See Reply (above) to comments on Para. 296.

APPENDIX 2

TABLE 4: Results of flow measurement in the northern and southern channels of the Chobe River in the vicinity of Kasikili/ Sedudu Island obtained between March 1997 and June 1998

APPENDIX 3

TABLE 5: Monthly mean flows of the Zambezi at Katima Mulilo (Cubic Metres per Second)

APPENDIX 4

TABLE 6: The Zambezi River at Victoria Falls, Big Tree Station (ZGPS): Sadc Rating Curve - Monthly Flows in Cubic Metres per Second

APPENDIX 5

FIGURE 9: Comparison of discharge at Site I and Site II

APPENDIX 6

FIGURE 10: Gauging Cross-Sections at Site I -

Southern Channel

APPENDIX 7

FIGURE 11: Gauging Cross-Sections at Site II -

Northern Channel

APPENDIX 8

The Independent Samples t-Test as applied to the depth observations of the 1985 Joint Survey

1. The 1985 hydrographic survey was carried out to characterise the two channels with a view to determining their relative size. The siting of the survey points was done randomly. In that case, therefore, the depth observations constitute independent random samples and so the independent samples t-test statistical method can be used to compare the depths measured in

the two channels. In doing so, only the cross-sections which fell properly within either channel are considered.

2. The formula for the independent samples t-test for unequal sample sizes as given in statistics books (e.g. Scheffler, 1988) is:

$$S_p^2 = \frac{SSE_1 + SSE_2}{n_1 + n_2 - 2} \quad [1]$$

$$n_1 + n_2 - 2$$

where SSE1 and SSE2 are the sum of squares of error (or deviations of the observed depths from the mean) for each sample; n1 and n2 are the respective sample sizes and Sp 2 is known as the weighted mean of the pooled variances of the two samples. The result from equation [1] is used to compute the standard error as:

$$SE = \frac{S_p}{\sqrt{n}} \quad [2]$$

where is the standard error of the means of the two samples.

Finally, we compute the Student's t as:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{SE} \quad [3]$$

3. To use equations [1] to [3] to compare the means of two samples we first write the hypotheses. In this case we write the following hypotheses:

The null hypothesis: the mean depths of the two channels are the same; i.e. the computed difference between the means is not statistically significant.

The alternate hypothesis: the mean depths of the two channels are not the same; i.e. the computed difference between the means is statistically significant.

4. The test is a two detailed t-test carried out at the 95% confidence level. That is, we can accept or reject the null hypothesis with 95% confidence that our decision is not due purely to chance.

5. The above formulae were applied to the depth measurements made in the respective channels. The computation is summarised in the Table on the next page. The computed t is -2.8422 which far exceeds the two-tailed tabulated value of t at 23 degrees of freedom and at the 95% confidence level of acceptance. Thus we reject the null hypothesis and accept the alternative hypothesis. The conclusion is that the two channels differ in depth and the mean depth of the northern channel is significantly greater than the mean depth in the southern channel.

Table 7: Summary of statistical testing of measured depths in the two channels

NORTH CHANNEL SOUTH CHANNEL

Observed Deviations Squared Observed Deviations Squared

Depths from mean Deviations Depths from mean Deviations

Sections Sections

S2 -2.2 3.57 12.7449 S20A -2.1 1.12 1.2544

S2A -5.6 0.17 0.0289 S20 -1.5 1.72 2.9584

S3 -3.6 2.17 4.7089 S19A -2.7 0.52 0.2704

S3A -3.3 2.47 6.1009 S19 -2.7 0.52 0.2704

S4 -5.8 -0.03 0.0009 S18B -3.2 0.02 0.0004

S5 -9.4 -3.63 13.1769 S18A -3.4 -0.18 0.0324

S6 -7.6 -1.83 3.3489 S18 -2.95 0.27 0.0729

S7 -6 -0.23 0.0529 S17 3 6.22 38.6884

S7A -6 -0.23 0.0529 S16 -5.7 -2.48 6.1504

S8 -8.2 -2.43 5.9049 S15 -4.3 -1.08 1.1664

S14 -3.5 -0.28 0.0784

S13 -3.6 -0.38 0.1444

S12 -4.7 -1.48 2.1904

S11 -4.7 -1.48 2.1904

S10 -6.3 -3.08 9.4864

Mean Sum of Mean Sum of

Depth Squared Depth Squared

Deviations Deviations

N=10 -5.77 46.121 N=15 -3.22333 64.9545

weighted mean of variances = 4.8291

standard error = 0.8972

t computed = -2.8422

t from table of t distributions = -2.064

degrees of freedom = 23

significance level = 95%

REFERENCE

Scheffler, W.C. (1988): *Statistics: Concepts and Applications*. The Benjamin/Cummings Publishing Company, Inc., Menlo Park, California