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HISTORICAL NOTES ON CONDITIONS AT THE ST. LUCIA LAKE AND ENVIRONS.

by
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Edited, revised and with summary and comments by P.G. STEWART
for the St. Lucia Lake Commission of Inquiry.
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1.00 INTRODUCTION:

1.01 The investigations and findings reported are concerned with two main aspects

1. The nature of the Estuary and Umfolozi River mouth and the changes that have taken place and conditions affecting this,
2. The mammalian fauna of the Lake and adjacent areas.

The time period covered starts from the 16th century when the first white men (survivors of early Portuguese shipwrecks) visited the area, and ends in the 1950's.

1.02 It would be impossible here to list and thank all the kind people who have helped me in one way or another to obtain information for this paper. However, I would in particular like to thank Dr. Killie Campbell and her secretaries for their advice and assistance, and for permission to work in Dr. Killie Campbell's magnificent library. Again I would like to thank the Staff of the Durban Reference Library, Johannesburg Africana Library, the Reference Library of the University of the Witwatersrand, The Natal Society Library, The Archives Pietermaritzburg, also the Town Clerk .of Eshowe Mr. H.L. Scheffer, Mr. & Mrs. Walls, Mrs. McKenzie, Mrs. Jock Morrison, Mr. H.B. Potter of the Natal Park's Board and the many other people whose help has been invaluable.

2.00 ST. LUCIA ESTUARY AND NARROWS.

2.01 When King and Farewell set out in 1823 to establish trade with the Zulus they had intended to make St. Lucia Estuary their port. The only problem they did not take into account, which continued to confound their successors, was the periodic closing of the mouth. However, as the lagoon was closed by a sand bar and heavy weather

overturned their boats when trying to land they decided against St. Lucia and explored Port Natal (27)*.

- 2.02 Captain Owen, on a survey voyage in 1833, recorded that he did not land at the Lake as the mouth was closed (40). The War Office publications of 1885 and 1895 described how, usually from September to November, the mouth was completely blocked by a sand bar, which was annually swept away by the floods. Other instances are recorded of the impracticability of the bar to crossing by ships, and that the average depth of water to be expected over the bar was in the neighbourhood of 3 to 4 feet (55 & 56).
- 2.03 Perestrelo, about 1576, described the St. Lucia River as “containing much water” and also described its connection with the Lake and swamps “which continue for several leagues”. He described the bar “which is not deep” and the shoals to the south of the mouth “which extend into the sea a cannon shot”(41).
- 2.04 The survivors of the “San Bento” (50) described the “River” as being in full spate and flowing swiftly. They also mentioned a strong tide. The floods of 1957 and 1963 have demonstrated the considerable flow that can be expected after heavy rains.
- 2.05 In October 1903 the crew of “H.M.S. Baracouta” found the mouth to be closed by a bar of sand (46).
- 2.06 The tidal rise and fall within the estuary lagoon was quite considerable, being a maximum of 6 feet and an average of 3 to 4 feet in 1903(35). Though the bottom of the lagoon was mud, reports of early residents (34&45) indicate that the receding tide exposed sandy beaches along the shores. See comparative photographs numbers 1 and 2, taken between 1922 and 1927.
- 2.07 The periodic closing of the mouth is recorded in an article, which appeared on the St. Lucia Estuary in the Zululand Times in 1957, with particular reference to the closing from late 1922 until the rains and floods of early 1923 when it opened itself (58). see Photograph number 3 of dead and dying fish in the mouth resulting from lack of sea water in the Estuary before the mouth reopened (58).
- 2.08 If the mouth was closed for approximately three months in the year it would be expected that the continued flow of the Umfolozi River would have changed direction, and instead of going out to sea, prevented by the sand bar, would have flowed up the Narrows into the Lake, together with the waters of the Mpate and the Dukuduku (now nonexistent streams. During the worst part of the bad drought of the 1930's the Mkuze River was still flowing in the Mkuze Game Reserve (18). It now dries up completely during the dry months of the year. However, Mr. Roden Symons recorded the Mkuze as drying up on the surface in 1928, after which it flowed normally again (49). Others such as H.P. Braadvedt and Cundill confirm this. Thus during a very dry season when the bar was closed, the Lake was receiving fresh

* The numbers in brackets refer to the list of references at the end of the body of the report.

water from both the Umfolozi and the Mkuze Rivers. The result would have been to stabilize the Lake level and prevent the level of salinity from rising too high (38).

- 2.09 Methven, in 1903 gave the depth of “Hells Gates” (Brodies Crossing) as being estimated at 3 to 4 feet. He reported that the local natives and the missionary said the depth did not increase by more than 1 foot in the rainy season (35). This last statement is contradicted by this missionary (24) in his notes written in the late 1940's (when he was a very old man, which in itself might account for the inaccuracy) in that the drift in the winter months was only 12 to 18 inches deep. He may have meant to imply that the level dropped by the said amount in the winter. Photograph number 4 taken, by the same missionary prior to 1920, of his waggon crossing the drift, (time of year unknown), would indicate that the depth there was in the vicinity of 2'6" or 3'. He states, at the same time, that in 1925 the depth of the crossing rose to about 25 feet during the floods. A 25' rise in Lake level would have been extremely unlikely and this figure is to be regarded with considerable suspicion. See also comparative photographs numbers 5 and 6 taken from the same place in 1925 and 1965. The missionary's photograph number 5 was taken in 1925 while it was still raining and the water rising.
- 2.10 Certain erroneous conclusions, with regard to the navigability of the entrance to the lagoon, were made by some early visitors to the area. In a letter written after a visit to the Estuary, reference is made to a Mr. White who stated that, while on a hunting trip in 1849, he had discovered a navigable entrance to the Umfolozi River (22). Subsequently Messrs. White, Morris, Gibson and Edmonstone formed a party to investigate, with the idea of forming a trading company with a harbour at Lake St. Lucia. Some of them sailed up the coast in the “Heidi Cutter” (a boat of shallow draught) and the overland party launched a small boat (carried up by oxwaggon) at the Umfolozi Drift and sailed 15 miles down the river to the Bay. They encountered oyster rocks, shallows and estimated the depth at the mouth as 12 feet. Edmonstone, in a letter to Garden, claimed, “I cannot perceive that the bar has moved since I first visited St. Lucia Bay no more than 12 months since.” (22). This was a very sweeping statement in the light of the experiences of the other early visitors.
- 2.11 A contradiction of the foregoing is to be found in a letter written during Gate's trip of the same year, 1852, dated 6th August. Quote “had a good look at this bay, the mouth is very like the Cowie and will never answer. There is a large sand patch in the chops and very little room on either side” (12).
- 2.12 The indication is that the mouth was closing at the time and/or, that there was a double mouth as indicated in Map 2.
- 2.13 On several occasions, some during the 20th century, suggestions and surveys have been made with regard to the opening up of the St. Lucia Estuary as a Port. The principal obstacles have been the periodic closing and shifting of the mouth and the shallowness of the lagoon. Anchorage was available in the bay in three to ten fathoms of water (55) with, however, only moderate protection from the weather. It was thought that the lagoon could provide this protection if an entrance could be

obtained. Anchorages are shown on the Morrison and Newman Map 1878-1879 (36) and Map 1.

- 2.14 There is no confirmation to be found of the popular legend that a Portuguese ship was wrecked while trying to negotiate the Narrows. It would appear from what has been written by various navigators and explorers of this coast that no one was foolhardy enough to attempt a crossing of the bar without taking soundings. This is confirmed by Professor Axelson in his letter to Professor Bayer (5).
- 2.15 It would appear from the records that the mouth was unlikely to have exceeded 4 feet in depth over the bar, except when the floods were in full spate, at which time the current would have been too strong for any sailing ship to negotiate.
- 2.16 In 1936 the Zululand Game Reserves and Parks Board came into being as a department of the Natal Provincial Administration. The original intention was to obtain funds for the development of the Estuary Area by the sale of plots at the Estuary Township. Prior to 1920 only one building had been erected in the area to serve as accommodation for fishermen. This building was of wattle and daub. In 1922 a hotel or "sanatorium" was started. Until about 1936 few people visited the area other than local farmers. Its popularity did not really commence until about 1936 or 37. However, immediately after the formation of the Board complaints started coming in to the effect that the popularity and subsequent development of the place was being spoiled by the periodic closing of the mouth. Siltation was blamed and the prime causers were said to be the Umfolozi Sugar Mill and its draining of the Umfolozi swamps and straightening of the course of the Umfolozi River. No attention was paid to the previous history of the Estuary (43). The Provincial Administration tried various methods of keeping the mouth open and combating siltation. In 1955 the mouth closed and it was thought that it had closed permanently. Various drastic steps were taken but towards the end of the year it opened again of its own accord much to everyone's surprise (58).
- 2.17 It would appear, therefore, that the mouth was not open at all times in the past.

3.00 SILTATION AND THE CANALIZATION OF THE UMFOLOZI RIVER

- 3.01 Siltation of this area has undoubtedly been taking place at a very slow rate since long before the advent of man. Significant siltation probably dates from the intensive settlement of the White Umfolozi catchment by Zulu tribes. After the Zulu Wars, when Zululand was divided into Magisterial Districts, many Bantu were settled along the rivers. Shortly afterwards (about 1906 after the completion of the Somkele railway line) the first European settlers started to move in. The first cane farms in the delta area of the Umfolozi started in 1911. These settlements probably constituted the cause of accelerated siltation.
- 3.02 The Umfolozi flats, which today supply the life blood of the Umfolozi Co-operative Sugar Planters Mill, once consisted of vast swamplands covered with Papyrus and reeds which served to trap its load of silt and allowed it to discharge into the St. Lucia Estuary in a clean condition. Over the centuries the river has deposited great

quantities of silt on the flats, most of it in the form of fertile topsoil brought down from the catchment area with the result that the flats constitute some of the richest land in the country. The Umfolozi Flats extend for a distance of 15 miles east to west and vary in width from 2 to 7 miles (3).

- 3.03 From 1911, when the first settlers moved into the area, each flood put many of the farms under water. The serious floods of 1930 culminated in the decision to cut a straight unrestricted passage for the Umfolozi through the swamp areas. The settlement has experienced many serious floods in its short existence i.e. 1911, 1918, 1925, 1930, and again in 1957 and 1963. The floods of 1963 were estimated at 300,000 cusecs. The channel or drain through the Flats was designed to cope with 33,000 (3).
- 3.04 The effect of the Umfolozi Flats settlement alone (regardless of bad inland farming methods) with its destruction of the filtering swamps and riverine vegetation was to accelerate siltation at the Estuary more than any other cause.
- 3.05 A company erected a factory on the south bank of the Umfolozi near the Estuary to utilize papyrus reed for making paper. They encountered difficulties in harvesting from boats and ended by draining areas in order to harvest more satisfactorily, with the result that the plants were killed. The company finally went bankrupt and the factory was sold in 1922 (58).
- 3.06 “The Umfolozi River flowed naturally into St. Lucia Lake, and with successive floods the Estuary gradually silted up until in 1951 the Provincial Administration felt it incumbent upon themselves to do something about it. A high levee was thrown up blocking off the river, which was given a new mouth to the sea. With no force of water coming down to keep the mouth of the estuary open, it blocked up; and the Administration battled to keep this open - to no avail. By 1955 the once vast stretches of water were reduced to a mere few feet. From what was known as “Honeymoon Bend” to the dunes, the Estuary resembled a narrow river. Reeds encroached steadily and old landmarks disappeared. In front of the hotels and residences mudbanks appeared. The pont was no longer able to function and residents were marooned. A causeway was hurriedly bulldozed across and this left even less water in the Estuary. Most of the hotels and fishing camps were forced to close down” (58).
- 3.07 “The Administration had a scheme to form a basin near the mouth, and to dig a 30’ channel right through to Charters Creek, later to enlarge the channel to double the width. At some time during this process it was intended to open the mouth, and the force of water down this channel would keep it open, but during the latter part of 1955, the mouth opened on its own accord and has stayed open. A bridge was erected on the site of the old pont crossing, and this was opened to traffic in December 1955. The causeway, however, was not removed until April, 1956, as the piers of the bridge were being further strengthened by the placing of boulders around them” (58).

3.08 The following quotation from a letter by the Director of Irrigation, Pretoria in 1944 (31) serves to illustrate that the problem was fully understood by the Government 20 years ago: -

“UMFOLOZI DRAINAGE SCHEME: SILTING UP OF ST. LUCIA ESTUARY.”

With reference to your minute dated 16th inst., which is unnumbered and appears over the signature of Mr. Naser, I have to reply that this department is well aware of the fact that the mouth of the Umfolozi at St. Lucia Bay is silting up. This process may be ascribed to three factors: -

- 1) The progressive increase of denudation in the Umfolozi Catchment and resultant progressive increase in silt content of the flow of this River.
- 2) The fact that the major portion of the swamp areas has already been built up to an elevation out of reach of all but except occasional floods some of these areas lying even above any known floods.
- 3) Canalization and drainage which has been going on for some considerable time.

The main factor is number 1. The Umfolozi Swamps were originally a lagoon of considerable size and depth. Natural denudation of the highlands gradually turned this lagoon into a swamp, commencing at the upper reaches. Bad veld management in recent years accelerated this process to such an extent that changes became evident even over a few years. Without any drainage, the process of building up a Delta must proceed and must do so at an increasing rate. That is a natural process greatly abetted by farming in the catchment. Fact 2 follows as self-evident, and the process is pushed forward into the sea. Canalization had added its quota; for instance, Warner's drain is said to be twice as wide in places as it was originally when completed in September 1936.

The portion at St. Lucia Bay is not the result of any drainage work carried out by this Department, as we have only recently commenced and none of our drains are yet connected up and in service. This is borne out by your Provincial Representative who states:

‘As you are aware, the Umfolozi River mouth was at one time deep water, but to-day is being replaced by mud banks and is not now navigable even by the smallest craft.’

The danger to the future settlement of denudation, existing drains, and new works has been fully realized and provision has been planned for a long levee to be built to enclose the swamp land between the reclaimed areas and the River mouth, and to arrange for flood waters to be discharged into this with the dual object of preventing as much silt as possible from being deposited in the mouth and to build up this area a view to future extension of the settlement. Some silting up of the River mouth will still go on and the keeping clear of the outlet to the sea will form part of the regular maintenance work, which will be necessary. At present your Department is anxious to have reclaimed land available for the settlement of exservicemen, and every effort

is being made to expedite this aspect of the Project, but you may rest assured that the implication involved have had this Department's consideration all along.

(Sgd.) DIRECTOR OF IRRIGATION.

3.09 The following report by A.O. Curry in 1945 gives an idea of the comprehension of the problem:

“Many people feel real apprehension concerning the rapid silting up of Zululand's inland waters. At Richards Bay and St. Lucia Estuary very serious silting has taken place in recent years. Extensive areas, which a few years previously were deep waters with sand bottoms, are now mud banks above the high water level, so much silting has taken place that it is safe to say that the volume of water in Richards Bay has been reduced to half during the last twenty year period. Inland rivers are now in the main sand beds. In many places where hitherto there were deep pools, the streams and rivers now percolate through sand beds, with no visible surface water. If we are to save our valuable and still extensive Zululand inland waters, remedial measures are desperately urgent.”

“The primary cause of silting at Richards Bay and St. Lucia Estuary, is due to the canalizing of the alluvial flats, thus opening up the rivers to flow through the extensive areas of reeds and papyrus grass and undergrowth which hitherto acted as a filter to flood water, The main cause of silting of rivers, lakes and bays is due to the overstocking and ploughing of steep hillsides in the huge Native areas in the interior causing grass cover which binds the earth to be entirely denuded during drought periods, and causing wholesale erosion when the inevitable cloudbursts and heavy rains fall at the end of the periodic droughts. Millions of tons of earth and sand are then washed down the waterways silting up the riverbeds, lakes and bays. It is safe to say more stock die of starvation and thirst during drought periods in the densely overstocked Native areas of Zululand than are killed for human consumption at all times. They succumb in thousands, after a ghastly and prolonged death, a total loss to the country, after devastating the pastures and causing wholesale soil erosion, and silting of our inland waters. In this way the total lack of any control measures in the Zululand Native areas is the direct cause of a chain of devastation, which is entirely unnecessary and is avoidable by practical control measures.”

“Native stock which they unfortunately regard as their bank, have for many years been dipped and protected from disease by the Veterinary Department without charge. Today there is more stock in Zululand Native areas than ever before in those areas not affected by the tsetse fly, and it is obvious that before the present drought ends, some hundreds of thousands will die of hunger and thirst. Time and time again a set of circumstances arises during periodical droughts, which can only be described as calculated and wholesale cruelty to dumb animals. Some officials of the Native and Veterinary Departments regard this mortality as a blessing in disguise as it reduces the numbers of Native stock. There is, however, no excuse what ever for such ghastly conditions to be perpetuated when organized control in the Native areas would prevent not only the wholesale sputtering of domestic stock but will prevent

the silting of our inland waters” (15). The final section of this letter deals with ways and means of controlling native stock.

- 3.10 In Captain Potter's files mention is made of siltation taking place at the river mouths, particularly those flowing into False Bay (43). From some of the old maps that have been collected, it would appear that considerable siltation has taken place over approximately the last 80 years at the mouth of the Hluhluwe River and the Mzinene River, while the Mkuze River seems to have changed its course in the process of silting near its mouth.
- 3.11 The cause of siltation at the Estuary is most easily followed by reference to maps, reports of early explorations, and later surveys of the area.
- 3.12 Methven, in his letter concerning his survey of the area in 1902, refers to his use of an Admiralty Chart, containing a survey of the coast and the lagoon, made by Captain Aldrich of “H.M.S. SYLVIA” in 1884. To quote Methven, he says: “This survey as far as the Lagoon is concerned, appears only to be approximate, and very considerable changes have evidently occurred since the date at which it was made. “These changes are no doubt to be accounted for by various contributing causes, such as floods in the Umfolosi River bringing down large quantities of detritus, heavy seas affecting the sandspit at the mouth, and, in a very important degree. by windblown sand” (35) (See also par. 3.30).
- 3.13 Methven's conclusion that considerable siltation of the Estuary or Lagoon had taken place between 1850 and 1903 is borne out by various sketch maps of the period such as the map by the “Intelligence Department, Horse Guards from Military Trigonometrical Surveys, and various Topographical Sketches made by Officers during 1879” (30), a map dated 1855 from Den Norske Zulumisjion, 1865, Morris and Newman's map 1878 - 1879, (36). Delegorgues map 1844 (17), and Maps 1 and 2. All of these maps, together with some other old sketch maps examined, indicate a large open expanse of water at the Estuary Mouth. No indication whatever is given of narrow channels and obstructing islands, mudflats etc. Baldwin, Cato and Edmonstone talk of the “Bay” or “Lagoon” being an enormous expanse of open water, over which they sailed, shooting hippos, birds and crocodiles. Plant in 1852 described St. Lucia Bay as “about the size of that of Natal” (40), which contrasts strangely with Methven's remark in 1903, “the area of the Lagoon, exclusive of the tidal reaches of the two rivers, appears to be somewhere about two square miles or under one third that of Durban Bay” (35).
- 3.14 Map 2, though only rough, and incorrect in outline, but with detail of sandbars, reeds etc., obviously indicates that the Lagoon or Bay was open water. The sand area in the Umfolosi mouth was probably very shallow water. The reed beds marked on either side of the Umfolosi channel were probably more recently colonized areas, the reeds probably growing in water, or in an area covered by water at flood or high water times. Map 2 of 1883 - 84, can be compared with Map 3 of 1905, where the level of sand in the mouth of the Umfolosi has risen and consolidated, to a large extent, into an area covered by reeds and marsh with odd patches of mangroves and scrub. A tongue of mud, covered at high tide, extends from this island towards the

mouth. Comparing Map 3 with Photograph number 7 of 1927, the reed swamp island on Map 3 has been raised and covered with bush and grass, part of the mud tongue has been incorporated, and a small island “bush covered” appeared at the tip.

- 3.15 Following this picture through to Photograph number 8, taken in 1937, and Photograph number 9, taken in 1957, after a certain amount of dredging had been done, the levee started, and the Umfolozi opened to the sea. The small island at the tip of the tongue had been incorporated into mudflats, and the estuary channel had dwindled down to a small sluggish dead-end channel. In the photograph, some channels have been opened up and an attempt made to open the Estuary to the sea. Photograph number 10, taken in 1960, gives a better picture of the devastation, but more dredging development had taken place by the time it was taken.
- 3.16 After following this pattern of siltation from 1884 to 1950 (a period of approximately 70 years), where siltation has been so rapid as to silt up an enormous body of water, it is not hard to believe the original sketch maps of the 1840's and the previous descriptions of the Lagoon. The siltation from 1832 to 1884 was probably on a smaller scale and less noticeable. Nevertheless, in a period of approximately 40 years, considerable consolidation of the shallows along the shores is not an unreasonable assumption, considering that in the following 70 years the whole Lagoon became choked with silt.
- 3.17 The original outline of the Lagoon of the 1820's probably followed the footpath east of the Dugu Dugu bush, on Map 3. Delegorgue reported that dense tropical forest extended to the waters (17). The original mouth probably lay between the low ridge in the north, and the Sugar Loaf in the south. As Methven (35) indicated in his letter, it would appear that the whole area had changed considerably since Captain Aldrich's survey of 1884. The anchorage in 10 fathoms of water under the lee of Sugar Loaf (8) is now nonexistent.
- 3.18 Photographs taken in the 1920's illustrate the amount of water area that was available for boating. There was apparently more water available for boating then than there is today, despite the dredging that has taken place. Boats were launched opposite the hotels (see Photograph No. 7) and sailed round the central spit, over a large surface area of open water, or through the west channel and up the Umfolozi and even along the Umsunduzi. Mr. Wood during the 1920's sailed his boat up the Umfolozi as far as the confluence of the White and the Black, later proceeding for some distance up the Black Umfolozi River (57).
- 3.19 During the 1930's various methods were suggested for combating the siltation of the Bay, but these proved ineffectual. The Provincial Council voted the sum of R20.00 in the 1940's for dredging channels (43). The levee was built in 1951.
- 3.20 Nowhere in the narrative of the early hunters in the area (i.e. Edmonstone, Garden, Cato, Baldwin, Dunn etc.) is there any mention of any difficulty to access by boat to the main lake from the Estuary. The only problem that is mentioned is that of the north wind piling up the waters where the Narrows meet the Lake, making it

impossible for them to get a boat through against a strong north wind. This area, just north of Brodies Crossing, was known then by the name of Hells Gate.

Various small boats and a cutter, (presumably fitted with keels), were sailed through this channel during the 1850's and 60's without difficulty. Many of these boats were launched at a point 15 miles up the Umfolozi River, and sailed down through the lagoon at the Estuary, up the Narrows and into the Lake as far as, and up into, the Nyalazi River (6). Early maps tend to show the Narrows section connecting the Lake with the bay as being comparatively straight. (However, considering the inaccuracy of the early maps, and combined with evidence of siltation, one is led to believe that some deviation of the route has come about during the last hundred years).

- 3.21 The first complaints of shallowness appear in Captain Potter's files are from 1939 onwards (43). Mrs. McKenzie of the first hotel at the Estuary told me that people first encountered difficulties at Indlelanendhlovu during the mid 30's and it became custom to attempt to go to the Lake from the Estuary by motor boat, but only when there was a north wind blowing which gave them sufficient depth (34). Mr. Potter tried to deepen the channel to the lake apparently in the section just south of the crossing where the narrows emerge into Catalina Bay. This initial dredging was done by hand at a cost of R22.
- 3.22 Chief Mtubatuba objected to the deepening of Indlelanendhlovu Crossing, and this brought to the notice of the authorities that the Bantu were taking cattle across and grazing illegally on the eastern shores, as this area at the time was Crown Land (43). This brings to light that during the 1930's this southern area in the neighbourhood of the crossing was good grass country. (43,47). This area is now considered very poor grazing (10). With regard to the dredging, this was successfully completed and the channel marked by iron stakes. These stakes are still there, but the channel can only be navigated (except after heavy rains and floods) by a very shallow draught boat, such as turbocraft.
- 3.23 The members of the St. Lucia Lake Commission experienced this section on 26th May, 1964, when they had to transfer from the outboard motor launch "Avocet" just north of Indlelayendhlovu (Brodies) Crossing and travel down a section of Catalina bay and into the Narrows by Turbocraft (capable of travelling in only 4" of water).
- 3.24 Prior to the introduction of the Pont during the late 1930's at the Estuary, the only means of access to the eastern shores was by oxwagon across Indlelayendhlovu opposite 'Brodies Store', which was originally situated on the east side of the Lake, or by native dugout ferry, This route was also known as the coast road and was used by a few hunters, but mostly by Bantu as a route through to Tongaland and Delegoa Bay (17,20).
- 3.25 Many people still know this route or crossing by its native name and Feyling, the missionary at Mt. Tabor, described it as being 1,950 yards wide with a hard sandy bottom.

- 3.26 A second crossing to the eastern shores was used by Bantu and their stock at the beginning of this century and possibly earlier until the 1940's when they were stopped by the authorities. This crossing, known as Eshiboweni is situated just south of Fanies Island (26).
- 3.27 Methven, in his letter to the Prime Minister of Natal, stated that the river section (Narrows) connecting the Lake with the Lagoon was some 13 miles long. The influence of the tide was not felt for more than 8 or 9 miles along this section. He estimated the maximum rise in tide at the lagoon to be no more than 4'6" (Spring tides), and the average rise at that time (Spring) to be about 3'. He referred to the admiralty chart, which showed that the greater area of the lagoon (about 2 square miles or 1/3 of Durban Bay) was dry at low water. "It is evident from debris along the shores, and the muddy character of the bottom of the lagoon that the Umvolosi, when in flood, brings down and deposits in it large quantities of alluvial matter, and debris, such as reeds, timber, etc., and that much of this remains in the Lagoon and is gradually silting it up"(35).
- 3.31 With regard to the Narrows he said, "The St. Lucia River being of considerable width and comparatively short length, and having its origin in the lake, the waters of which rise but little at any time, does not, I think, contribute much to the shoaling of the Lagoon, which, has, no doubt, at one time been larger than it is now, but, on the other hand, rather assists, by its tidal capacity, to keep it open" (35).
- 3.32 It would appear that the siltation of the narrows has taken place through the agency of the Umfolozi River. This would bear out in part the earlier contention of this report that the bar must have closed prior to floods for the Umfolozi to have a great effect on the Narrows and that the process of siltation must have been of a periodic nature. The flow of the river would have been northwards into the lake during the winter months, flowing up the narrows. In flood time a pressure would build up over the whole system (during the 1925 floods the depth at the Indlelalhlovo crossing was estimated by the missionary at Mt. Tabor to be 25 feet (24) and when the bar broke a flushing effect would be achieved. If the inflow of the rivers into the lake from the north had been poor, and the lake low, the silt-laden backwash of the Umfolozi would stagnate and this would result in silt being deposited mainly in the narrows.
- 3.33 Maps compiled by the Intelligence Department Horse Guards, Morris and Newman (36) and Map No. 3, show the Lake to have a muddy bottom, and average depth of nine feet. Methven says: "The average depth given on the Admiralty Chart is nine feet, but in many places it is said to be much less than this" (35). In view of the proceeding, and known depths of the lake in 1961 (21) it would seem more likely that the maximum rather than the average depth of the Lake was 9 feet, circa 1903. Later investigations have shown that Lake water levels vary from two feet below mean sea level after a severe drought to three feet above mean sea level during floods. Thus any early observations on Lake depth would depend on water levels at the time of the observation.

4.00 ANIMALS AND PLANTS

Until the time of European settlement in Northern Zululand and the opening up of the Estuary Township few people visited the area, as it was known for malaria and blackwater fever. Most of the early visitors were hunters who wrote little and cared only for “Big Game”. Smaller animals and antelope were shot for the pot and to pay labour, and were seldom if ever recorded. Of the few records that were made, many have been lost, or destroyed, such as John Dunn’s and Fynn’s papers, of which only a few odd sheets remain.

- 4.01 The earliest records of game in the Lake area come from the Portuguese. The accounts of the survivors of the “SAN BENTO” describe following an elephant path (possibly the old path still in existence), crossing the Narrows and following it up the eastern shores of the Lake, through Maputaland (Tongaland) (50).
- 4.02 The survivors of the “SAN ALBERTO” on crossing the Ubombo Mountains to the Makatini Flats record. “Many wild cattle, Buffaloes, Stags, Hares, Pigs, and Elephants”, grazing in large herds, also many birds and hippo in the rivers (50).
- 4.03 The plant communities or vegetation types of the whole of the Tongaland region are found in the immediate vicinity of the St. Lucia Lake (51,52a and 52b) and hence it can be assumed that animals of this region would also have occurred in the vicinity of the Lake.
- 4.04 There is evidence that considerable seasonal movements of game took place at one time. Both north-south and west-east movements were said to take place. The Zulus have a time of the year they called Nkhonkhoni (wildebeest), which is roughly January/February, when the wildebeest heralded the game movement from the hills to the plains. Braadvedt records that the animals, particularly wildebeest, moved down from the hills of Hlabisa, Umfolozi and Hluhluwe and concentrated largely in the “Mafunas Bush” area (the area north and west of False Bay) (40,39).
- 4.05 Bantu names of the hills on the eastern shores of the lake, may be an indication of the past animal populations: - “Enyatikazi (The Female Buffalo), situated between Cape Vidal and St. Mary's Hill; St. Mary's Hill itself, which was known as “Intabandhlovu”, or Elephant Hill, is another; and the southern section of the Ubomveni Hills was known as “Usilwane” (the place of the animals), and Brodies crossing was known as Indlelanendlovu (the path of the elephants). These names can be verified by some of the older local Bantu and from some of the old maps.
- 4.06 Henry Francis Fynn’s reports of his first visits to Zululand and Tongaland are unfortunately incomplete. Many of the papers have been lost and some of them are thought to be buried with his brother. From the surviving papers there are records of the larger animals common to the Tongaland area north of the Lake. He described elephants, buffalo, gnu, hartebeest, zebras, kudu, rhinoceros and various other antelope, innumerable other animals, and a “species of Inkonkoni” (which he sketched to look like a blue wildebeest) about which he says, “The bushy end of the tail, which is white, having stiff wiry hair which is shaggy and of a yellow colour”

(possibly *Connochaetes gnou* - black wildebeest; which would seem to be doubtful, even though historically these are animals of the plains) (27).

His comments on animals to be found north of the Tugela are as follows: -

“Buffaloes are to be found in immense droves”,
“Elephants are very numerous”,
“Lions very common”,
“Leopards abound throughout the country”
“Wild Hogs are numerous throughout the country” (These by his description of protuberances are warthog),
“Hyaenas and Wolves (Hunting dog) are common,
“Jackals are found in large droves”,
“Swine Species (bush pig)”,
“Baboons uncommon”,
“Monkeys numerous and of two kinds, grey and gold”,
“A great variety of antelope”
“Inklanga” (reedbuck or kudu)
“Massa the Roe” (Tsesseby, Amasassa in Zulu),
“Ukunbe” (red duiker),
“Umponoye” (possibly grey duiker),
“Blue Black” (blue duiker),
“Sikena” (small with horns of slate colour - steenbuck),
“Llehula” (red with white belly similar to Springbok but deficient of the white stripe - oribi),
“Lebanga” (red but small with horns erect - unknown)
“Civet cat or Genet cat numerous”
“Ikagyte” (greyish red like a squirrel - longtailed mongoose),
“Lekalele” Mouse Hunt,
“Umfuze”, - unknown,
“Umtlangale”, - unknown,
“Itackatcha”, (Cape Polecat),
“Ingangazane”, (unknown),
“Isephula”, (unknown),
“Insenekwane”, (unknown),
“Imfuwintia”, (unknown).

Some of the preceding has been identified. The remainder would appear to be species of mongoose.

- 4.07 Rowland Ward gives a comprehensive list of animals of Zululand; “In Zululand were to be found a few years ago, Elephants, Rhinoceros, Leopards, Cheetahs, Burchell’s Zebra, Eland, Blue Wildebeest, Hartebeest, Koodoos, Waterbuck, Sassabies, Impala, Inyala, Bush Pigs and Warthogs, besides all the smaller buck mentioned being found in Natal”, i.e. “Bushbuck, Reedbuck, Duiker, Steenbuck, Oribi, Little Red Bushbuck, Blue Buck, Bush Pig, Vaal and Red Rhebuck, and Klipspringer.”(54).

- 4.08 These lists are of the more common animals, and it may be expected that many of these would be found in the region of the Lake St. Lucia.
- 4.09 Mr. Braadvedt, while magistrate in the Ubombo district about 1918, and who was a “noted Zulu linguist and a keen naturalist, delighted in collecting stories about the animals found in the area in ‘the Old Days’ from some of the old Bantu surviving in the area at this time. According to the stories, giraffe were numerous on the Tongaland plains and round the lake area, as were wildebeest, buffalo, kudu and eland. He also remembers some stories of hartebeest and the shooting of cheetah and lion in the area north of the lake. Lions south of this area in the 20’s and 30’s he describes as strays. He maintains that the last of the roving herds of elephant south and west of the lake were killed out mostly by John Dunn and his Bantu hunters, the last pocket being cleared out by Dunn in what is now Umfolozi Game Reserve in about 1895 (9).
- 4.10 The last elephant in the Dukuduku forest area was shot in 1916; and the last one on the eastern shores of the lake in 1924 (4,34,45,53). The last lion to be shot at the lake was at False Bay in 1938 (14 & 45). The last red hartebeest was supposed to have been seen by Mr. De Beer (who is now the owner of the Thobotini Store in Tongaland) in the area of the Ndumu store in about 1930 (16). Mrs. Selley recalls a last surviving herd of Sassaby on the north shore of the Lake, about 1925, and that there had been some at Mhlosinga (16). Drummond and others recorded them north and south of the Lake in the 1860’s and 70’s (29) and Harrison on the western side, south of Nyalazi during the 1920’s (29).
- 4.11 Elephant appeared north of the Lake in either 1936 or 1937. They came down the Nibela peninsula and stayed near the water for some days. On one day they made a concerted effort to cross the area now known as Hells Gates but gave up with the leaders only a few yards out into the water, and returned up north again into Tongaland (37 & 45).
- 4.12 Mr. Arbuthnot remembers wildebeest, one lone elephant, buffalo, kudu, nyala, large numbers of warthog and a few zebra on the eastern shores of the Lake, north of Bangazi from 1920 to 1922 (4). Mrs. Jock Morrison remembers wildebeest, zebra and buffalo both on the east and western shores of the Lake about 1918/1920 (37). Dr. George Campbell recalls a large number of warthog all round the Lake during the 1930’s and many suni, nyala, reedbuck and a few black rhino at False Bay (11).
- 4.13 Woods, who hunted in Zululand from about 1914 to 1927, shot wild dog and photographed some on the eastern shores in 1914. According to early residents these animals were common around the Lake during 1918 to 1920 (57).
- 4.14 Baldwin, who is probably the “best known reference for the Lake area, saw wildebeest and lions when he crossed to shoot on the eastern side. He described grass as high as a man and referred to hippo, crocodiles, hyaena, buffalo, elephant, reedbuck, steenbuck and duiker in the areas proximate to the Lake. It is at times difficult to tell which side of the Lake he meant (6).

- 4.15 Findlay mentioned large baboons in the vicinity of the north end of the Lake. He also recorded kudu, red bush duiker, reedbuck and hippo in the region, and quoted Baldwin in saying that George Shadwell's party killed 150 hippo and 91 elephant at the Lake in 1853. John Dunn (quoted by Findlay) said, "that season I killed to my own gun 203 sea cows and a lot of other game and was only away three months". Kudu were recorded as being shot at the Estuary (25). This would give a fair indication of the vast amount of animals that inhabited the area at the time.
- 4.16 W.H. Drummond probably gave the most complete picture of hunting in Zululand of all the writers of the period. He referred to vast herds of buffalo (two species) on the Makatini flats along the coastal region and along the Ubombo range. He mentioned having shot 29 in one day in this area. Boer parties in groups with about 40 Bantu hunters each, while hunting for skins, were known to wipe out a whole herd in one day. Eland and kudu were very common (circa 1850). He recorded shooting eland in the Umfolozi/Corridor area and "water antelopes", "Koodoos", "Gnu", "Crocodiles" in pools, and Tsesseby, "*Bubalus lunata*", along the banks of the Umsunduzi River. Tsesseby were then uncommon south of the Usutu, but were found in the scattered thorn areas in groups of two to ten; they made very good eating and were easy to shoot (20). All of Drummond's area lies west, south and north of the Lake. Further, he referred to the coast road as an alternative route to crossing the Ubombo Mountains from the Tongaland plains. It would seem that this was the route used by other hunters who passed down the eastern shores of the Lake and crossed at Indlelayendhlovu.
- 4.17 Local legend (among the Europeans) has it that the elephants used to cross the Lake at "Hells Gate" or "Indlelanendhlovu". This has always been thought to refer to the Hells Gates at the entrance to False Bay, the elephants crossing from the Nibela peninsula to the Indhlozi peninsula. However, the great depth of soft mud would have prevented any crossing. From old maps Hells Gate was originally situated at the north end of Catalina Bay, at the Mitchell Inlands, and the old crossing known as Indlelanendlovu is the crossing now known as "Brodies Crossing". (See map 1 (13,30,36). This ford has a hard sandy bottom and the depth is unlikely to exceed four feet and at times is as low as 18 inches. It was used as the only means of access to the Estuary by early visitors and by the Missionary at Mt. Tabor. It has been used since time immemorial "by the Bantu as a route to Tongaland and Mocambique".
- 4.18 The importance of this route is that it provided a means of access to the eastern shores for animals from the south as well as from the north.
- 4.19 Garden listed the same animals as Fynn and Drummond, and described "Amassasa" (tsesseby) in the Pongola area and elephant, buffalo, eland, "wolves" and "pigs" in the coastal strip between Richards Bay and St. Lucia Bay. Bushmen were recorded in the Ubombo mountain area. They lived on game, which they hunted on the flats as far north as the Maputa River (28).
- 4.20 Ludlow gave a fair description of the vegetation of the Lake and a few useful animal notes; "Travelled through dense forest to Goose Point" (identified from maps of the period as the tip of the Indhlozi peninsula). "Emerged onto the crest of a hill and

saw the Lake on either side of us.....shores fringed with dense foliage". He remarked on the shores of the east side being forest covered and that the north side was not visible. From Goose Point to the Nibela was noted as being only two to three miles wide. The point where he stood was "only a few feet above water level" and comparatively clear of bush. The surrounding area was composed of tall rank grass and dense patches of gigantic "Euphorbias" and "Mimosas". Hippos, crocodiles and pelicans could be seen from this point. "The shore was of high sandstone cliffs covered with creepers and tropical plants.....there was a break in the cliffs about 50 yards wide, covered in short sweet grass" (probably one of the Coves). "We saw the spoor of Black Rhino, Nyala and Waterbuck, Koodoo, Quagga and Bushbuck". His description of the surrounding country reads: "Orchard like country covered with Monkey-Orange trees..... contrasting with the bare grey branches and black thorn trees. At; the foot of a steep hill grew sugar cane wild by the side of the reed beds studded with white arum lilies. In all directions lay huge trunks of fallen trees covered with masses of creeping plants, ferns and grasses". He reported seeing "Tiger traps". The entrance to the Nyalazi River he described as "being concealed by a dense bank of reeds, so narrow that two boats were unable to pass, and cranes, ibises and king-fishers were seen (33).

- 4.21 The following material is from the writings of Mr. R.W. Plant, a naturalist who roamed Zululand collecting specimens, finally dying from "the fever" and being buried at the Estuary on 15th March 1858 (42). Unfortunately Mr. Plant's journals appear to have been lost, but his account of an earlier expedition is of considerable interest.
- 4.22 Moving north from Richards Bay in 1851, Plant encountered several species of antelope, the only one mentioned by name being "Eiland". They were travelling near the coast and described, "Trees gathered into dense forests", on their right while travelling north. Botanical names of plants found in the area were listed. St. Lucia Bay was described as about the size of that of Natal; "the entrance is almost stopped by a bar, so much so that it is quite possible to wade across the mouth". This was at the beginning of September. He listed trees, orchids and other plants from "Umgoa" (Ongoye) district south of the Lake. At St. Lucia Bay "There is plenty of wood but it is not so dense as near Umgoa: the herbage is very rank, and the weather extremely hot and moist. Elephants seem in great plenty over this district, as we frequently saw herds of them. "Orchids as I expected are on the increase" (42). This was Plant's first journey to the area, which he revisited again on several occasions, and explored more thoroughly.
- 4.23 Delegorgue 1838 - 1844 described the vegetation in the vicinity of the Estuary, saying that after a half-hour's walk, they penetrated the humid forests, such as he had never seen before and saw many "terrestrial crocodiles" (Monitor Lizards) and large snails. He came to a long lake-like river about 2 miles from the sea. He saw herds of 60 to 100 hippos, counting about 110 in one herd, as well as buffalo and elephant. He described forest vegetation "wild banana" and "palms", very different from the "Umvolosi vegetation". The waters edge was lined by dense tropical forest (17).

- 2.24 Photograph No. 11 shows a boat being taken through the Mapelane side of the Estuary for launching. This photograph taken in 1923 or 1924 illustrates well the type of vegetation that was encountered in this area before the clearing of more recent years.
- 4.25 In the general Zululand region Delegorgue collected specimens of elephant, white rhino, hippo, bush pig, warthog, Burchell's zebra, blue wildebeest, eland, red hartebeest, roan antelope, waterbuck, bushbuck, reedbuck, vaal rhebuck, duiker, red duiker, lion, spotted hyaena and wild dog (17). Unfortunately it was not possible to pinpoint his collecting sites from his inaccurate locality map.
- 4.26 Garden, in a letter dated 31st July 1852, referred to hartebeest at a hill called Itole, which may be the hill now known as Sithole on the southeast corner of Hluhluwe Game Reserve (28). David Leslie recorded them in the Enthabenkulu area just south of the Umfolozi Game Reserve, near the White Umfolozi.
- 4.27 George French Angas, in 1849, described the first nyala known to science from the northern shores of the Lake and nyala were named *Tragelaphus angasi* after him.
- 4.28 Dollman mentioned a subspecies of *Lycaon pictus* (wild dog), *Lycaon pictus zuluensis* said to be found only in Zululand. The range of sessaby was said to be from the Cape Colony through Rhodesia to the Congo, and nyala from North Natal through Mocambique to Lake Mweru (19).
- 4.29 In *The Book of Antelopes* (1894 - 1900) is described the tail of the Sessaby, worn as a queue by the Zulus and this is illustrated in Angas' book in the Africana Library in Johannesburg. Hartebeest are listed as being common to Zululand and the locality of nyala is given as north of St. Lucia Bay along low undulating hills. Oribi were also common to Zululand (44).
- 4.30 Bird, quoting from Dampier's voyages described elephant, "various bucks", buffalo, zebra and lion in the vicinity of "St. Lucia Bay"(7).
- 4.31 Early writers (1845 to 1900) indicate that Impala were uncommon over the whole of Zululand. Only occasionally was the odd group recorded.
- 4.32 Jackal are still heard at the Lake and were reported to have been common in earlier times (34).
- 4.33 Scaly pangolin is still to be found on the western side of the Lake
- 4.34 Baboons still occur to the immediate northeast of the Lake and have been recorded earlier from both sides of the Lake. Vervets and samango monkeys and bushpigs are still in evidence.
- 4.35 Nyala were last recorded on the eastern shores in 1961 or 1962 (59). This report was never confirmed.

4.36 Conclusion

Animals recorded on the eastern shore of the Lake are as follows: -(Scientific names are from Ellerman et al (23)

1.	Bush baby*	<i>Galago crassicaudata</i> E. Geoffrey
2.	Vervet Monkey*	<i>Cercopithecus aethiops</i> Linnaeus.
3.	Samango Monkey*	<i>Cercopithecus mitis</i> Wolf
4.	Baboon	<i>Papio ursinus</i> Kerr.
5.	Jackal	<i>Canis mesomelas</i> Schreber.
6.	Wild Dog	<i>Lycaon pictus</i> Temminck.
7.	Hyena	<i>Crocuta crocuta</i> Erxleben.
8.	Leopard	<i>Panthera pardus</i> Linnaeus
9.	Lion	<i>Panthera leo</i> Linnaeus
10.	Antbear*	<i>Orycteropus afer</i> Pallas
11.	Elephant	<i>Loxodonta africana</i> Blumenbach.
12.	Zebra	<i>Equus burchelli</i> Gray.
13.	Bushpig*	<i>Potamochoerus porcus</i> Linnaeus.
14.	Warthog	<i>Phacochoerus aethiopicus</i> Pallas.
15.	Hippo*	<i>Hippopotamus amphibius</i> Linnaeus.
16.	Red Bush Duiker*	<i>Cephalophus natalensis</i> A. Smith.
17.	Pithi	<i>Cephalophus monticola</i> Thunberg.
18.	Grey Duiker*	<i>Sylvicapra grimmia</i> Linnaeus.
19.	Steenbuck*	<i>Raphicerus campestris</i> Thunberg.
20.	Suni*	<i>Nesotragus moschatus</i> Von Dueben.
21.	Common Reedbuck*	<i>Redunca arundinum</i> Boddaert.
22.	Waterbuck	<i>Kobus ellipsiprimus</i> Ogilby.
23.	Blue Wildebeest	<i>Connochaetes taurinus</i> Burchell.
24.	Kudu	<i>Tragelaphus streptoceros</i> Pallas.
25.	Nyala	<i>Tragelaphus angasi</i> Gray.
26.	Bushbuck*	<i>Tragelaphus scriptus</i> Pallas.
27.	Buffalo	<i>Syncerus caffer</i> Sparrman.

Those animals marked with an asterisk are still to be found in this area.

Animals that were probably present, which were known to the western shores, plus the area to the north and south include: -

1.	Scaly pangolin	<i>Manis temminckii</i> Smuts.
2.	Tsesseby	<i>Damaliscus lunatus</i> Burchell.
3.	Eland	<i>Taurotragus oryx</i> Pallas.

Possibilities include: -

1.	Red Hartebeest	<i>Alcelaphus buselaphus</i> Pallas.
2.	Black Rhinoceros	<i>Diceros bicornis</i> Linnaeus.
3.	Squarelipped Rhinoceros	<i>Ceratotherium simum</i> Burchell.
4.	Impala	<i>Aepycerus melampus</i> Lichtenstein.

5. Giraffe

Giraffa camelopardalis Linnaeus.

Apart from these animals there are numerous small mammals, birds and reptiles.

1. Ellerman et al. give *Diceros simus* for square-lipped rhino but *Ceratotherium simus* is now more generally accepted.

5.00 SUMMARY AND COMMENTS by P.G. Stewart.

5.01 The mouth of the Umfolozi River and the Lake has been variable in position, depth and width throughout its known history and has closed up completely from time to time (27,40,55,56,41,50,46,58). The closing of the mouth usually coincided with dry periods (27,46,50,55,56,41,46,58,22,12) and occurred most frequently in late winter (55,56).

5.02 When the mouth was closed, the continued flow of the Umfolozi river would have flowed into the Lake thus assisting to some degree in stabilizing Lake level and salinities. The earliest recorded instance of the mouth closing completely was 1823 but as early as 1576 its known to become very shallow (27,41).

5.03 It would therefore appear that keeping the mouth open for 12 months in the year is not the natural course of events.

5.04 The closing of the mouth has been known to result in the trapping and deaths of numerous fish, including sharks, in the Estuary (58,56).

5.05 Although the mouth area of the Lagoon was subject to periodic closure by the sea, it was at one time, circa 1850, a large sheet of water, navigable by small boats, extending from the present Estuary Township to Mapelana and inland as far as the Dukuduku Bush (42,17,8,30,36,35). This area has gradually silted up and by 1903; considerable changes were recognized (35). However, the greatest changes have taken place since 1925. Until about 1927 there are numerous records of men sailing small boats on a large sheet of open water, up the Umfolozi as far as the confluence of the Black and White Umfolozi Rivers, and even up the Umsunduzi (22,57,43).

5.06 Siltation of the Lagoon area probably started accelerating with the settlement of the Umfolozi rivers by Bantu and later by whites. However, greatly accelerated siltation resulting in the virtual disappearance of open water can be traced directly to the opening up of the Umfolozi Flats for sugar planting. The recurrent flooding of these farms, including on two occasions the washing away of the mill, resulted in many attempts to canalize the river which have achieved success in so far as only exceptional flood does damage to the farms. However, the canalization and drainage of the flats has resulted in the destruction of once extensive reed and papyrus swamps, which previously served as a vast "slack water" area where a great part of the sand and silt load of the Umfolozi was deposited. The Umfolozi River carries greater silt loads today than it did in the past because of erosion (the result of poor farming practices) in the catchment. Thus, not only is more silt being brought down but there is also no longer an effective "filter" area for normal floods before it

reaches the Lagoon (3,58,31,15,43,35). The Estuary and Narrows silted up rapidly and this process was not halted until 1951, when a levee was built and the Umfolozi diverted to give it a separate mouth to the sea (58).

5.07 The Lagoon or Estuary area was the main area affected by siltation but there is evidence that the mouth has silted up considerably since 1900 presumably as a result of the Umfolozi flowing up the Narrows towards the Lake when Lake levels were low or the mouth closed.

5.08 Relevant dates of closing and opening of the mouth canalization, drainage and reclamation works which it has been possible to collect are: -

1576 (Approximately)	The bar at the mouth was “not deep”, according to Perestrello, who also described the shoals to the south of the mouth as extending “into the sea a cannon shot. (41).
Late 16th Century	River in full spate and flowing swiftly, with a strong tide. This is how the survivors of the San Bento found the estuary (50)
1823	The estuary mouth was closed when King and Farewell tried to establish a trading port at St Lucia. (27).
1833	As the mouth was closed, Capt. Owen, who was on a survey voyage, did not land at the lake. (40)
1849	A navigable entrance to the Umfolozi River was said to have been discovered by a Mr. White. (22)
1851	The entrance was “almost stopped” by a bar to such an extent that it was “possible to wade across the mouth” in the opinion of R.W. Plant, a naturalist who visited St Lucia Bay in September. (42)
1852a	The depth of the Mouth was estimated to be 12 feet by Edmonstone. White (referred to above in 1849), Morris and Gibson.
1852b.	There was a “large sand patch in the chops and very little room on either side” in August of 1852 according to Cato seemingly contradicting the previous statement; but both statements could have been correct at different times of the year. (12)
1853	Entrance was about 50ft wide in July at low water with a depth of 12ft at spring tide, the tidal range being 4’6” according to Rider who visited the area on a hunting trip.
1856	Mouth was much altered by floods during April, and conditions at the mouth were to be very changeable, as reported in the Journal of the Geographical Society in 1862.
1885 and 1895	The Mouth was usually completely blocked from September to November by a sand bar which was

	annually swept away by floods, according to the British War Office publications. (55 & 56).
1902	Mouth could not be crossed in September 1902 when C.W. Methuen investigated the possible establishment of a harbour, but he reported that the sandspit south of the entrance was very low and that the whole condition of the Mouth was very unstable. He considered that contributing causes to the changes in the Estuary were floods in the Umfolozi, heavy seas affecting the sandspits and windblown sands. (35)
1903	Mouth was closed by a bar of sand when H.M.S. Barracouta visited St Lucia. (46).
1905	Water depth in the Mouth was 3.6ft below low water of ordinary spring tide and up to about 7ft in the Estuary, according to the first reliable survey of the Estuary area as shown on a map signed in 1905 by C.J. Crofts, Harbour Engineer of the Natal Harbour Department. (Map 3).
1911	Flood in Umfolozi. Probably in other rivers.
1918	Serious flood in Umfolozi. Probably in other rivers. Damage to settlement.
1922-23	Mouth closed and reopened naturally
1925	Serious flood in Umfolozi.
1927	Drainage and canalization of Umfolozi swamps started.
1930	Flood
1932	Mouth closed and was re-opened artificially.
1936	Completion of main canal i.e. "Warner's drain" in Umfolozi swamps.
1937	First report of oyster mortality
1939	First complaints of shallowness of Estuary for boating.
1940	Attempts made to dig a deeper channel from the Estuary to the Lake.
1951	Reclamation starts the "Levee" is built and Umfolozi River given a separate mouth. This has remained open to date.
1952	Reclamation work started. Separate Mouth was cut for Umfolozi river and levee built between Umfolozi and Estuary.
1951-55	Mouth closed.
1955 (latter half)	Mouth reopened naturally.
1955	Flood
1956	Serious flood
1955 to 1961	Mouth closed and was reopened by the Natal Provincial Administration reclamation section on three occasions, each time for about a year, and finally opened in February 1961.

1961 Feb. 5 th	Mouth opened by reclamation section of NPA.
1963	Serious flood in all rivers of the catchment and the highest on record in the Umfolozi.
1965 April	Mouth closed for a few days in April and was dredged open again.

Additional information has been added to the above table obtained from the Kriel Commission's report. (Kriel, J.P. 1966. Report of the Commission of Enquiry into the alleged threat to animal and plant life in St Lucia Lake, 1964-1966. Government Printer, Pretoria.)

5.09 Up to 1963 the record of depths and siltation rates in the main body of the Lake up to 1963 is scanty. It would appear that at the turn of the century a depth of 9 feet was not uncommon in the Lake (35,34,27). However, there is evidence that some considerable siltation has taken place since 1900, particularly in the region of the Hluhluwe, Nyalazi and Mzinene River Mouths (43), and depths of nine feet are uncommon even during flood periods.

5.10 Certain changes in place names have taken place, the more important ones are: -

Brodies Crossing - was Indlelandlovu

Hells Gates - was located at the south end of the lake just north of Brodies Crossing.

Tip of Ndlozi Peninsular - Goose Point.

Estuary - used to be much more extensive before siltation and was known as the Lagoon.

St. Mary's Hill – Intabayendlovu

5.11 Records of vegetation to be found in the vicinity of the Lake are extremely scanty. However, there is little evidence that great changes had taken place prior to Tinley's descriptions (51,52a,52b). Changes that have occurred are: -

a general increase in density of woody plants, especially in the Nibela and northwards; the drying up of extensive areas, of marsh and springs both on the west and east side of the Lake as a result of afforestation; the virtual disappearance of large lala palms; an increase in the density of shrubs and woody plants associated with the protection from fire of much of the grasslands of the eastern shores area; and the dying out of groups of trees caused by a general rise in water table in False Bay Park which is caused in turn by the clearing of bush to the west of False Bay Park (10,58,3,42).

5.12 None of these changes would have caused the complete disappearance of any of the game in the Lake area and this can thus be attributed solely to the depredations of white hunters and their Bantu assistants and more recently, Bantu poachers.

5.13 The following lists summarize the game which once inhabited the Lake region.

The eastern shores area and the grasslands immediately north of the Lake but east of the Mkuze swamps at one time carried all the following (those marked with an asterisk still occur)

Bush baby, *vervet monkey, samango monkey*, baboon, jackal, wild dog, hyena, leopard, lion, antbear*, elephant, zebra, bush pig*, warthog, hippo*, pithi, red bush duiker*, grey duiker*, steenbuck*, Suni*, Common Reedbuck, waterbuck, blue wildebeest, kudu, nyala, bushbuck*, buffalo.

Animals which may have occurred include scaly pangolin, tsessebe, eland, black rhinoceros, and giraffe. No small mammal species have been listed as there are no records of these but it can be assumed that most of these will still occur.

- 5.14 To the west and north of the Lake are habitats, which would support virtually the whole range of southern African large mammals. Those not listed above and known to occur close to the Lake include: -

black rhinoceros, white rhinoceros, giraffe, tsessebe, eland, porcupine, impala, scaly pangolin. Possibilities include roan antelope, and red hartebeest, and, including the Lebombo Mountains, mountain reedbuck, klipspringer and oribi.

- 5.15 One or more of the following routes must have been used by game as access to the eastern side; Brodies Crossing, Esikoweni (south of Fanies Island), across the Mkuze swamp, around east of Selly's Lakes, and across the bar when the mouth was shallow or closed.

6.00 References

The library or other source where information was obtained is listed in brackets at the end of each reference.

1. ANGAS, George, French. 1849. Kaffirs Illustrated. (Africana Library, Johannesburg).
2. ANON. 1883-1884. Plan of Township and Farms laid out in the neighbourhood of St. Lucia Bay. (Archives, Pietermaritzburg).
3. ANON. 1965. Umfolozi Sugar Planters Ltd. Naunlu, April 9. pp.8-10.
4. ARBUTHNOT, 1964. Personal communication. (An ex. Civil Servant who worked in the Hlabisa area from the early 1900's to late 1930's).
5. AXELSON, E. 1964. Letter to Prof A.W. Bayer dd. June 10th (Listed document No St. L. 15).
6. BALDWIN, W.C. 1863. African Hunting from Natal to the Zambezi (1852-1860). Harper Bros., New York. (Durban Reference Library).
7. BIRD, John. 1888. The Annals of Natal 1495 to 1845 (Witwatersrand University Library).
8. BOUNDARY COMMISSION OF ZULULAND. 1886. Journal of the Commission appointed to mark out the Boundaries of Zululand. (Durban Reference Library).

9. BRAADVEDT, H.P., 1965. Personal Communication. (Son. Of Missionary, magistrate at Hlabisa and Ubombo, trekked up to Zululand as a young boy in 1886, noted Zulu linguist).
10. BRYNARD, A.M. 1964. Personal communication.
11. CAMPBELL, George. Personal communication.
12. CATO, 1852. "Garden Papers", Incomplete Diary and Papers, transcribed by Dr Killie Campbell. Unpublished. (Natal Society Library, Pietermaritzburg).
13. CROFTS, C.J. 1905. Natal Harbour Dept, Zululand Coast Surveys, Survey of Mouth of Umfolosi River and Entrance to St. Lucia Lake, January.(Archives, Pietermaritzburg).
14. CUNDILL, V.C. & CUNDILL G.J., 1964 & 1965. Personal Communication. (Local farmers).
15. CURRY, A.O., 1945. Letter dd. August 15. (From Captain Potter's files, Hluhluwe Game Reserve).
16. DE BEER, J.F., 1965. Personal communication.
17. DELEGORGUE, A., Voyage dans L'Afrique Australe 1838-1844.Vol II. (Witwatersrand University Library).
18. DENYER, L.G., 1963. Personal communication via P.G. Stewart.
19. DOLLMAN, J.G., 1921. Catalogue of Selous Collection. British Museum of Natural History. (Witwatersrand University Library).
20. DRUMMOND, W.H., 1875. Rough Notes on the Large Game and Natural History of South and South East Africa. Edmonstone & Douglas, Edinburgh. (Dr Killie Campbell Library).
21. DUTTON, T.P., 1961. Chart of depths at St. Lucia Lake. (Listed document No. St. L. 2).
22. EDMONSTONE, 1852. "Garden Papers", Incomplete Diary and Papers, transcribed by Dr Killie Campbell. Unpublished. (Natal Society Library, Pietermaritzburg).
23. ELLERMAN, J.R., MORRISON-SCOTT, T.C.S., & HAYMAN .R.W., 1953. Southern African Mammals 1758 to 1951 A Reclassification. British Museum, London.
24. FEYLING, L.O. 1941. Unpublished Papers. (Eshowe Museum).
25. FINLAY, F.R.N 1903. Big Game Shooting in South East Africa. (Dr Killie Campbell Library).
26. FOURIE, L.I.K.1964. Details of Fannies Island Lake crossing from information gleaned from Nduna Skumbe. Unpublished. (Listed document No. St. L. 23).
27. FYNN, H.F. 1823. Diary and Papers, with transcript - incomplete. (Dr Killie Campbell Library).
28. GARDEN, 1852. 'Garden Papers', Incomplete Diary and Papers, transcribed by Dr Killie, Campbell. Unpublished. (Natal Society Library, Pietermaritzburg).
29. HARRISON, E.R., 1964. Personal communication. (Son of Harrison who was ex mounted police, Hlabisa area, and one of the early farmers whose farm borders on the St Lucia Lake area).
30. INTELLIGENCE DEPARTMENT HORSE GUARDS.1879. Map made from Military Trigonometrical Surveys and various Topographical Sketches made by Officers. (Dr Killie Campbell Library).
31. IRRIGATION, DIRECTOR OF, .1944. (Undated letter from Captain Potter's files for 1944, Hluhluwe Game Reserve).

32. LESLIE, David., 1875. Among the Zulus and Amatonga, Glasgow. (Africana Library, Johannesburg).
33. LUDLOW, W.R., 1882. Zululand and Cetewayo, an account of Zulu Customs Etc., after residence in their Kraals. (Durban Reference Library).
34. McKENZIE, Mrs., 1965, Personal .Communication. (Wife of first owner of the fishing camp at St. Lucia Estuary and builder of first hotel).
35. METHVEN, C.W., 1903. Zululand Harbours, St. Lucia Bay. Govt. Notice No. 88, 1903. Natal Government Gazette February 3. (Archives, Pietermaritzburg).
36. MORRIS AND NEWMAN, 1879. Map 1878-1879. (Dr Killie Campbell Library).
37. MORRISON, J., Mrs., 1965. Personal communication. (Resident at Makakatana since about 1918, widow of 'Broodies' partner).
38. NATAL PARKS BOARD. 1964. Graph Relating Salinity, Lake Level and Rainfall. (Listed document No. St, L. 2).
39. NELSEN, C. 1964. Personal communication. (State Veterinarian, Eshowe).
40. OWEN, W.F.W. 1833. Narrative of Voyages to Explore the Shores of Africa, Arabia and Madagascar, performed by the Ships LEVEN and BARRACOUTA, under the direction of Capt. W.F.W. Owen. R.N. Vol. I. (Durban Reference Library).
41. PERESTRELO, 1576. From translation in 'Records of South and South East Africa', by G.C. Theale, 1898. (Africana Library, Johannesburg).
42. PLANT, R.W. 1852. Notice of an Excursion in the Zulu Country. Hooker's Journal of Botany and Kew Garden Miscellany, Vol. IV. (British Museum of Natural History).
43. POTTER, H.B. Capt., 1936-1947. From files of reports, letters etc. (Hluhluwe Game. Reserve).
44. SCLATER, P.L. & OLDFIELD, T. 1900. The Book of Antelopes, Vols. 1 & 4. (Witwatersrand University Library).
45. SELLEY, M. Mrs., 1965. Personal communication. (Widow of Selley of Selley's Lakes and one of St. Lucia Estuary's first residents).
46. SESSIONAL PAPER OF THE COLONY OF NATAL. 1904. Letter to His Excellency Sir Henry McCullum concerning HMS BARRCOUTA'S survey of St. Lucia Bay, dd. October 27, 1903. (Dr Killie Campbell Library).
47. SHARP, T.A., 1965. Personal communication. (One of the older residents of St. Lucia Estuary).
48. SOMMERFELT, H.L., 1865. Den Norske Zulumisjion. Map dated 1855. (Africana Library, Johannesburg).
49. SYMONS, R., 1965. Personal communication, (One of the first rangers of the early Provincial Game Reserve Administration).
50. THEALE, G.C., 1898. Records of South and South East Africa. Several Vols. (Durban Reference Library).
51. TINLEY, K.L., 1958. A Preliminary Report on the Ecology of the Pongola and Mkuze Flood Plains, Natal Parks, Game and Fish Preservation Board. Unpublished.
- 52a. TINLEY, K.L., 1965. Ecological Survey of Ndumu Game Reserve, Natal Parks, Game and Fish Preservation Board. Unpublished.
- 52b. TINLEY, K.L., 1965. The Vegetation of the St. Lucia Lake Area. (Listed document No. St.L. 87a and 87b).
53. WALLS, W., 1965. Personal communication. (Ex S.A.R.&H. stationed at Mtubatuba from 1913, brother-in-law of Woods, the hunter-photographer).

54. WARD, Rowland, 1890. The Sportsman's Handbook to Practical Collecting and Preserving of Trophies. Simpkin, Marshall, Hamilton, Kent & Co. London. (Mr. Errol Harrison).
55. WAR OFFICE.1885. Precis of Information concerning Zululand. Harrison & Sons, London. (Dr Killie Campbell Library).
56. WAR OFFICE, 1895. Precis of Information concerning Zululand, Harrison & Sons, London. (Dr Killie Campbell Library).
57. WOOD, S.G., 1912-1936. (Copies of photographs and information obtained through Walls and McKenzie).
58. ZULULAND TIMES.1957. Golden Jubilee Issue, Thursday, January 3rd Various accounts of the early days in Zululand.
59. HITCHENS, P.M. 1965. Personal Communication.



Photo 1. High tide below "Anglers Arms" in 1923. The Anglers arms hotel, built in 1922, was on the site of the present first hotel south of the bridge at the Estuary (Photo: Woods, 57)



Photo 2. Low tide below “Anglers Arms” during the 1920’s. Note sandy beach. (Photo Woods, 57).



Photo 3. Estuary mouth closed, 1922. Stranded dead fish on the beach inside the estuary. The Sugar Loaf Mapelana, in background (Photo: Woods, 57).



Photo 4. The Rev. L.O. Feyling's donkey wagon crossing the Lake at 'Ndlelanendlovu', date unknown, on the way to Mt. Tabor Mission Station. Crossing now known as Brodies Crossing. (Photo Feyling, 24).



Photo 5. 'Ndlelanendlovu' crossing from Mt Tabor Mission Station, 1925, while still raining and water rising. (Photo: Feyling, 24). Caption on photo reads "Lake St Lucia Zululand in Flood 1925. The water on that flat plane on inland side was 18ft. under water (sic), in the drift there was about 25ft. of water. Photo was taken from Mt. Tabor M.S. while it was still raining. (Photo: Feyling, 24)



Photo 6. 'Ndlelanendlovu' crossing from approximately the same place as Photo 5, 1965. (Photo: W.D. Wearne).



Photo 7. From the air looking south over Estuary area, about 1927. Origin unknown (34).



Photo 8. Trigsurvey Photo No. 54738 of Job 117 of 1937. Shows considerable body of water available for boating, Umfolozi river flowing into Estuary and Estuary mouth open.



Photo 9. Trigsurvey Photo No 9370 of Job 400 of 1957. Final silting of the area had occurred, dredging commenced, the Umfolozi River given a separate mouth to the sea, and the Levee started.



Photo 10. Trigsurvey Photo No. 2271 of Job 442 of 1960. Considerable dredging had taken place, the Levee completed and a two span bridge erected.



Photo 11. Towing boat through path cut through Mapelana forest, to launch on Umfolozi River and be sailed to Estuary Township, about 1929. (Photo: Woods, 57).



Photo 12. High tide below Woods' house, about 1925. This house was situated 300 to 400 yards south of the Angler's Arms. (Photo: Woods, 57).



Photo 13. From 'mouth' of Umfolozi looking south at Mapelana area, about 1927 to 1930. (Photo: Woods, 57).



Photo 14. Last stage by sledge from 'Ndlelanendlovu' crossing to the Estuary Township, 1923. (Photo: Woods, 57).



Photo 15. Cutting a path through Mapelana forest, 1929. See photo No 11. (Photo: Woods, 57).



Photo 16. Last stage of carting boat to Umfolozi River for launching, about 1929. (Photo: Woods 57).



Photo 17. Dead and dying fish in Estuary, 1922. The Estuary mouth closed and fish were trapped. (Photo: Woods, 57).



Photo 18. Dead and dying fish at Estuary, 1922. See Photo No's 3 & 17. (Photo: Woods, 57).



Photo 19. View up the Narrows from the Angler's Arms site, about 1922. (Photo: Woods, 57).



Photo 20. The Estuary mouth taken from "Long Island" about 1922 to 1927. The township is on the left and Mapelana in the right. (Photo: Woods, 57).



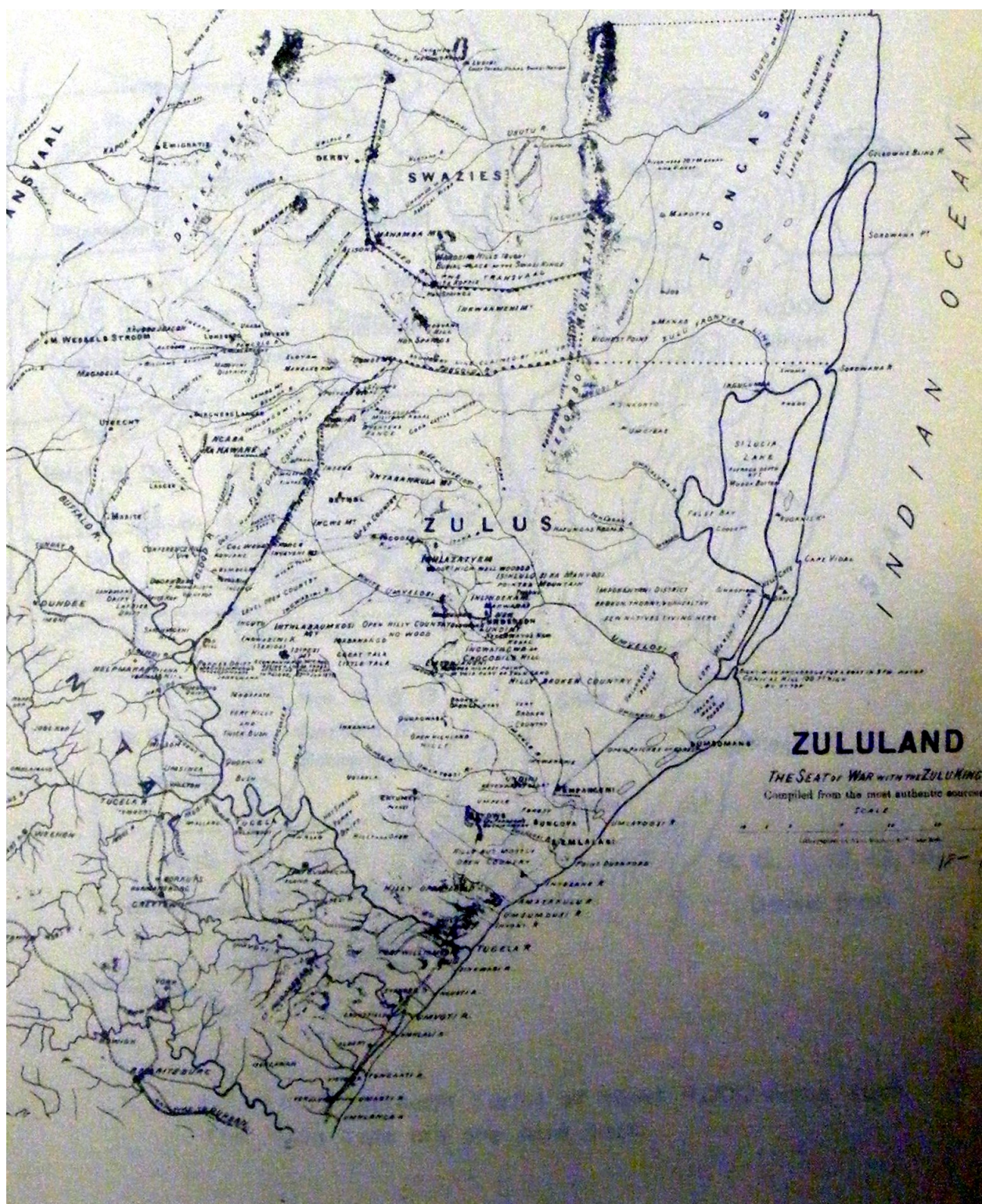
Photo 21. View across to Mapelana from “Long Island”, May 1934. (Photo: Woods, 57).



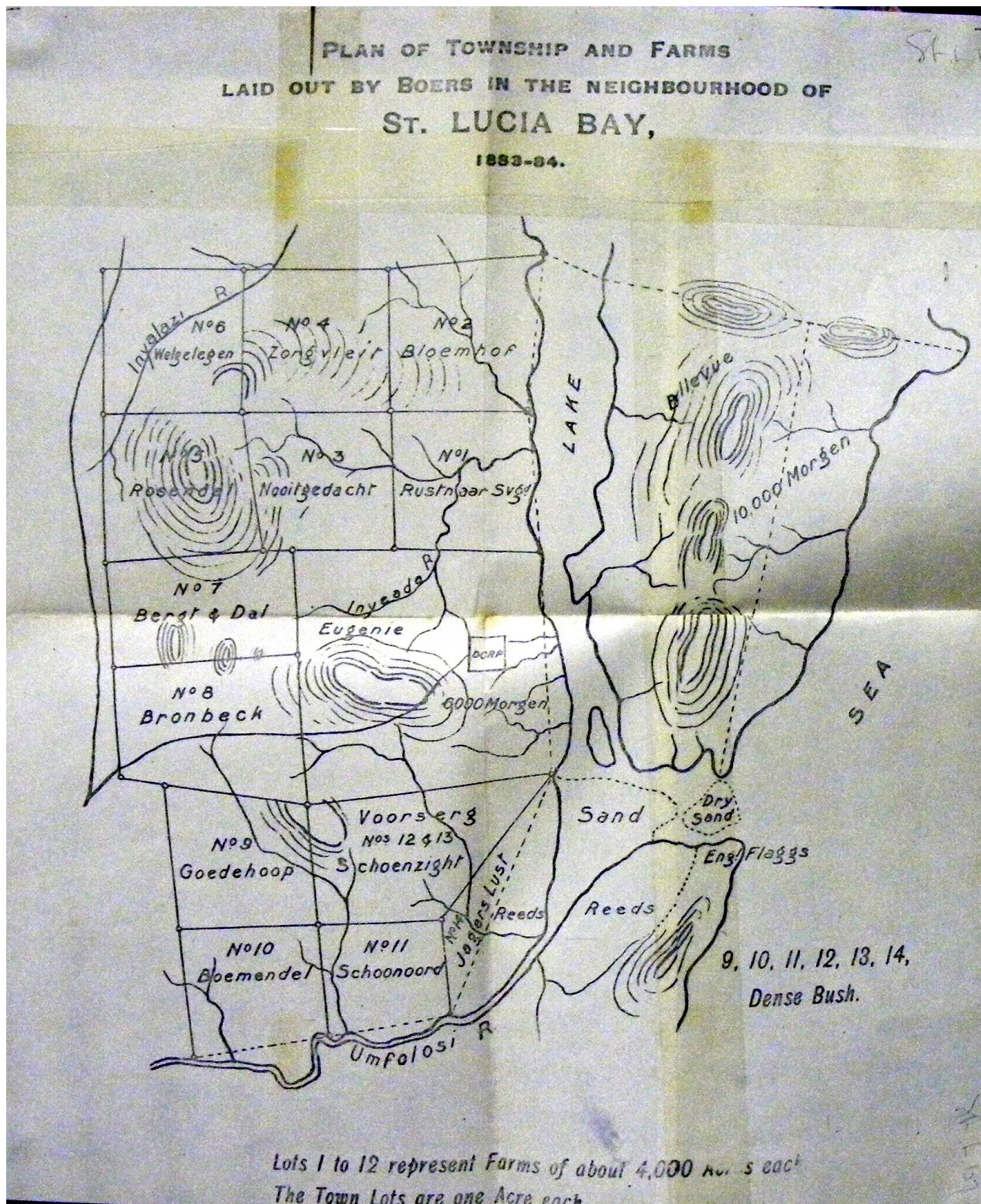
Photo 22. Mzunduzi River, south of the Estuary, 1922 or 1923. People would boat up this river in the days when siltation had not made this impossible. The Umfolozi and Mzunduzi still flowed into the Estuary. (Photo: Woods, 57).



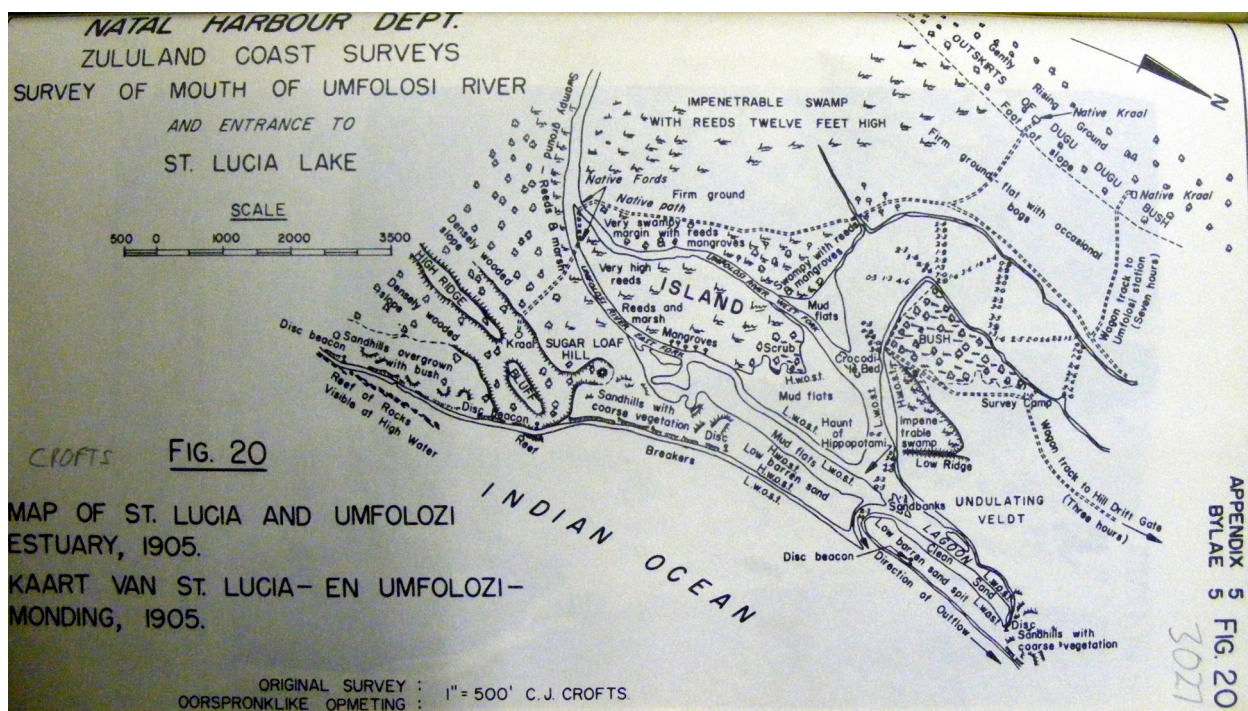
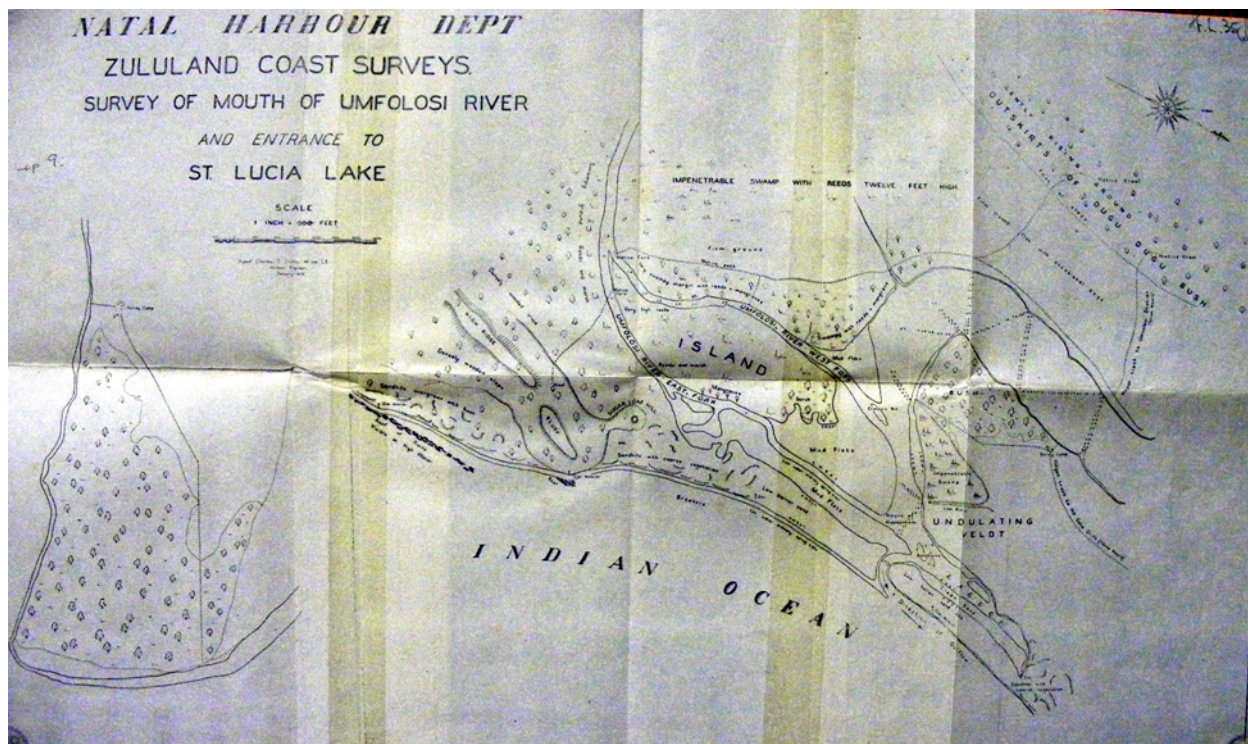
Photo 23. "Mahombi and two wild dogs 1913." Taken during a hunting expedition on the Eastern Shores. (Photo: Woods, 57).

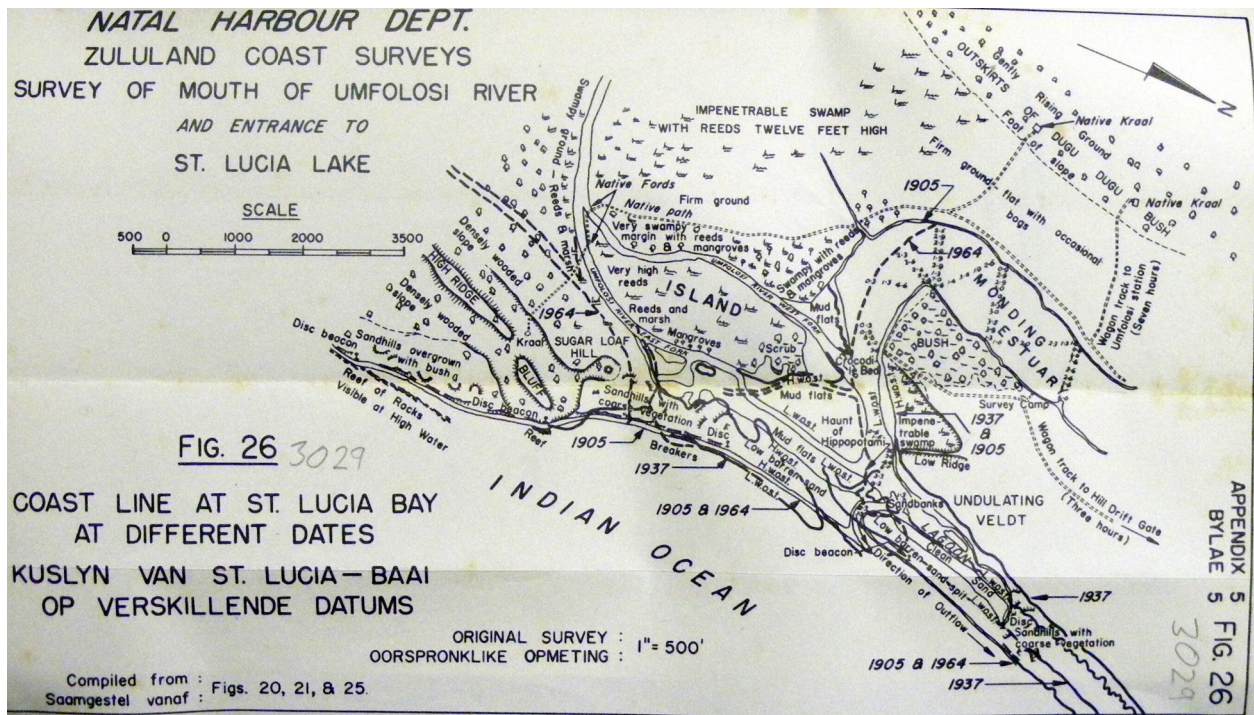


Map 1. British Military Map of Zululand 1979.

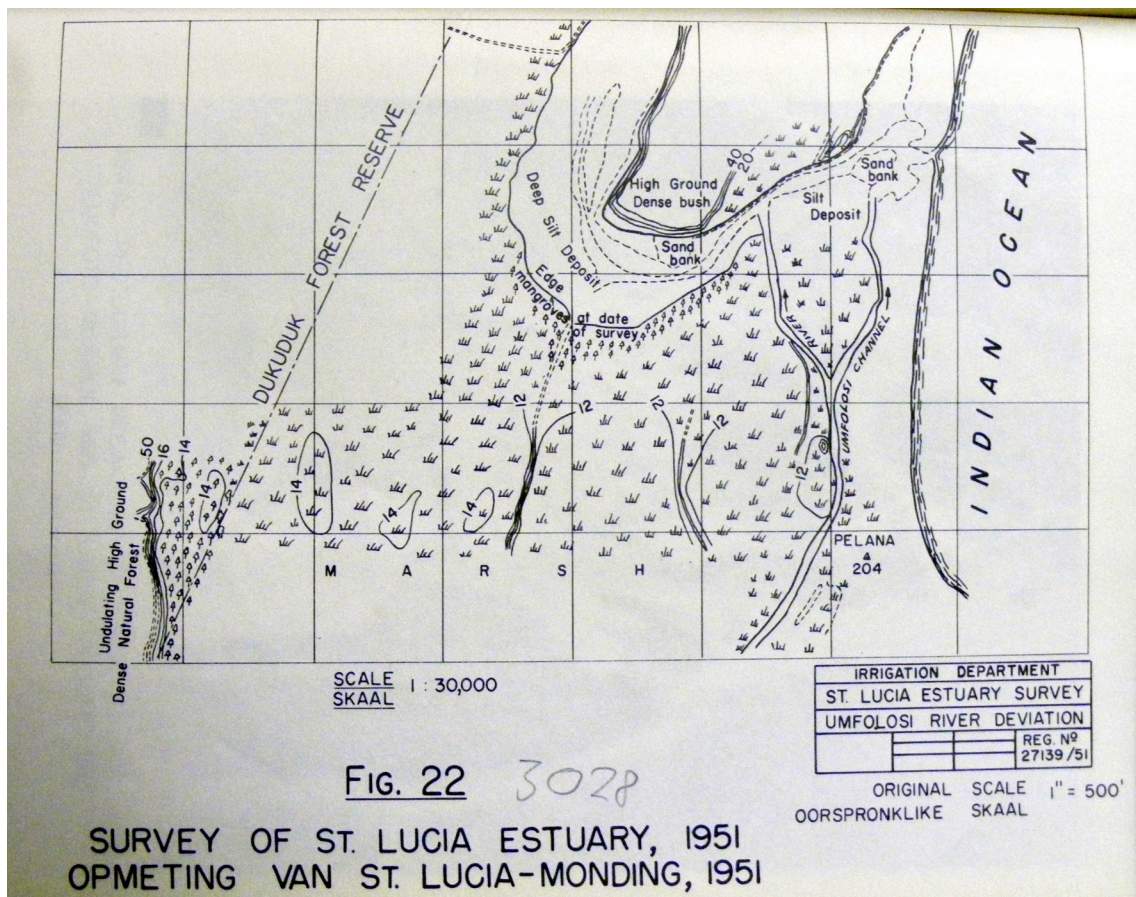


Map 2. Layout of the Boer Township 'Eugenie' to the immediate west of the St Lucia Estuary.





Map 5. Coastline of St Lucia Bay at different dates.



Map 6. Map of 1951 survey of the St Lucia Estuary.



Photo 24. Aerial photo of St Lucia Estuary taken in 1964.



Photo 25 a & b. Aerial photo of the St Lucia Estuary in 1970. Photo b is of the Umfolozi River to the south of photo a.



Photo 26. Aerial photo of Lake St Lucia Estuary taken in 1978.

Maps 4-6 and Photo 24 are reproductions from the Kriel Commission of Enquiry into the Alleged treats to Animal and Plants in Lake St Lucia (1965), and Photos 25a&b and 26 are inserted for interest into this report.