

ELECTROLYTIC ZINC COMPANY OF AUSTRALASIA LTD
West Coast Department

68-529.

Report on Heavy Mineral Appraisal of the Islands
of the Hunter Group, North-West Tasmania.

EXPLORATION LICENCE

4/66

By

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Report No.94

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(excluding Three Hummock Island)

PLATES:

1. Three Hummock Island 1 inch : 2000 feet
2. The Hunter Group Islands - 1 : 125 000
 plan showing sand deposits

Synopsis:

The Hunter Group of Islands, which lie in Bass Strait off the north coast of Tasmania, north-west of Smithton were taken up under Exploration Licence 4/66, the intention being to seek concentration of heavy minerals.

Aerial reconnaissance and study of air photographs, followed by ground investigations showed that large areas of wind blown dune sand as well as lesser areas of parallel coastal dunes were present on all of the islands.

An extensive scout drilling programme carried out on Three Hummock Island revealed only trace quantities of heavy minerals. A more rapid appraisal of the other islands yielded similar results. The work done indicated that no further work was warranted and the licence was relinquished.

1. INTRODUCTION:

Towards the end of 1965 the Company became actively interested in beach sand minerals and there was some correspondence between the Managing Director and the Bureau of Mineral Resources in Canberra. This was followed by discussions between Dr. G.R. Mayers of the Development Department and officials of the B.M.R. regarding possible areas for investigation.

In Tasmania consideration was given to areas which might be suitable for the accumulation of large amounts of wave formed and wind blown sand and which may possibly contain deposits of valuable heavy minerals, having regard to the configuration of land available at that time.

The only area which was in fact free of occupation at that time and which appeared to have the physical requirements was the group of offshore islands which formed the Hunter Group. An aerial reconnaissance carried out on the 17th March, 1966, confirmed the presence of large areas of wind blown dune sand with lesser areas of parallel wave formed dunes.

An offshore area of 690 square miles encompassing the islands of the group was pegged on the 31st May, 1966, and Exploration Licence No. 4/66 was granted to the Company on the 22nd June, 1966.

2. LOCATION AND ACCESS:

The Hunter Group of islands comprises three larger and two smaller islands together with several small islets. They are Hunter Island, Three Hummock Island, Robbins Island, Walker Island and Perkins Island.

The Group lies in Bass Strait close to the north west tip of Tasmania, and north-west of the town of Smithton. Three Hummock Island, Hunter Island and Perkins Island are Crown Land, whilst Robbins and Walker Islands are private property. The three larger islands are permanently inhabited, the land being used mainly for stock grazing. There are variable amounts of improved pasture.

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The most convenient means of access is by air and strips suitable for light aircraft are maintained on the larger islands. Norwest Air Charters Pty. Ltd. of Smithton provide an air link carrying mail and supplies to the inhabitants. Robbins Island may be reached at low tide by four wheel drive vehicles.

3. SUMMARY OF WORK CARRIED OUT:

(a) Reconnaissance:

Initial reconnaissance was carried out by aerial inspection and study of air photographs. Areas of dune sand were delineated on Three Hummock and Hunter Islands, whilst a large area of low curved parallel dunes was noted on Robbins Island and also on Perkins Island.

This was followed up by ground reconnaissance on Three Hummock and Hunter Island whereby previous observations were checked. Although no obvious signs of heavy mineral concentrations were observed, it was decided to proceed with test boring. Three Hummock Island was selected for the initial test work, because it showed the greatest potential in terms of sand available.

(b) Boring - Three Hummock Island

A party consisting of one geologist, student assistant and two drill operators were placed on the island. The equipment used was the standard 3 inch hand auger with 5 feet aluminium extension drill rods supplied by Dormer Engineering Pty. Ltd. Personnel and equipment were transported by air from Smithton. Supplies were brought in periodically by air from Smithton.

Holes were drilled on five separate lines which were laid out with tape and compass to cover the main areas of sand. The positions of the lines are shown in Plate I. Holes were drilled at 100 ft. or 500 ft. spacings. Samples were taken at 10 ft. intervals except for line 2 where the interval was 5 ft. The samples were quartered twice and collected in polythene bags.

Details of the boring are tabulated in Appendix I.

Panning of selected samples indicated low concentrations of heavy minerals. Therefore only those samples obtained on lines 2 and 4 were submitted for quantitative mineral estimate. The results of this analysis are shown in Appendix II.

In view of the poor results obtained on Three Hummock Island, it was considered only necessary to carry out a rapid appraisal of the remaining islands.

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This was done in two days using a Bell G3B-1 helicopter. Beaches, high dunes and creeks were examined and five bores were sunk. At no point visited on any of the islands was an heavy mineral concentration noted.

An extensive area of low arcuate parallel dunes occupying the central part of Robbins Island was investigated. It had been considered that these might represent successive beach dunes and might therefore be a favourable area.

This area was almost completely waterlogged, only the parallel crests rising above the water table. The bore revealed a dark brown sand rich in organic material. After panning off the light organic matter there remained an extremely fine clean sand with traces of heavy minerals. This is considered to be indicative of lagoon infilling rather than beach development.

4. CONCLUSIONS:

Nowhere within the area under exploration licence was there seen any concentration of valuable heavy minerals. Extensive areas of wind blown dune sand were delineated, which were subsequently shown to consist mainly of silica and shell fragments. Other likely areas e.g. Robbins Island, were likewise proved to be devoid of economic mineralisation.

Beneath the superficial cover the bedrock consisted of Devonian Granite (Three Hummock Island) and PreCambrian quartzite and slates (other islands). These were inspected where outcrops were present but no sign of mineralisation was seen.

It is therefore concluded that the islands possess no economic mineral potential. It is recommended that the exploration licence be relinquished.

5. ACKNOWLEDGEMENTS:

It is desired to record the assistance given during the investigation by the lesser of Three Hummock Island, Mr. J. M. Alliston, who provided accommodation for the field party as well as providing tractor transport for moving the drilling equipment.

G. H. Griffiths

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Line 1

Hole 0 collared 95 ft. above high water mark.

Hole No.	Depth	Finished in	Distance from previous hole
0	17	water	-
1	22	"	100 ft.
2	13	"	100
3	30	"	150
4	19	"	100
5	13	"	100
6	14	"	100
7	14	"	100
8	13	"	74
9	44	"	100
10	45	"	500
11	44	"	442

Line 2

Hole 1 collared 168 ft. above high water mark.

Hole No.	Depth	Finished in	Distance from previous hole
1	37	water	-
2	34	"	100
2A	26	"	100
3	17	"	100
4	13	"	100
5	18	"	100
6	12	"	100
7	54	"	170
8	31	"	498

Line 3

Hole 1 collared at track at north end of line.

Hole No.	Depth	Finished in	Distance from previous hole
1	10	water	-
2	29	"	500
3	60	"	500
4	34	"	600
5	52	"	600
6	44	"	500
7	52	"	500
8	55	"	600
9	16	"	400
10	45	rock	337
11	37	Black Sail	at edge of beach

APPENDIX ILine 4

Hole No. 1 at south end of line.

Hole No.	Depth	Finished in	Distance from previous hole
1	59	water	-
2	62	"	500
3	63	"	500
4	63	"	500
5	42	Granite	500
6	13	"	500
7	25	"	500

Line 5

Hole No. 1 at north end of line.

Hole No.	Depth	Finished in	Distance from previous hole
1	5	water	-
2	19	"	500
3	30	"	500
4	6	"	500
5	16	rock	500
6	75	limit of rods	500
7	75	"	350
8	19	water	500
9	17	"	500
10	35	"	500
11	20	"	500
12	12	"	500
13	39	"	500
14	53	"	500
15	62	"	500
16	38	"	500
17	28	"	500

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APPENDIX II

Table of Assay results - Three Hummock Island.

Line 2

Hole No	Sample No	Sample Increment	(ft)	% Content of H.M.C.			
				% H.M.	% Ilmenite	% Rutile	% Zircon
1	211	0-10		0.14	0.01	0.01	tr
1	212	10-20		0.15	0.01	tr	tr
1	213	20-30		0.24	0.01	0.01	tr
1	214	30-37		0.15	0.01	tr	tr
2	221	0-10		0.28	0.01	0.04	tr
2	222	10-20		0.15	0.01	0.01	tr
2	223	20-30		0.15	0.01	0.01	tr
2	224	30-34		0.40	tr	0.02	tr
2A	22A1	0-10		0.14	0.01	0.01	tr
2A	22A2	10-20		0.13	0.01	tr	0.01
2A	22A3	20-26		0.16	0.01	0.02	tr
3	231	0-10		0.10	tr	tr	tr
3	232	10-17		0.15	0.01	0.02	tr
4	241	0-10		0.09	0.01	0.01	tr
4	242	10-13		0.10	tr	tr	tr
5	251	0-10		0.09	tr	tr	tr
5	252	10-18		0.12	0.01	0.01	tr
6	261	0-10		0.08	tr	tr	tr
6	262	10-12		0.26	0.03	0.03	tr
7	271	0-10		0.12	0.01	0.01	tr
7	272	10-20		0.14	0.01	0.01	0.01
7	273	20-30		0.16	0.01	0.01	tr
7	274	30-40		0.15	0.01	0.01	tr
7	275	40-50		0.25	0.01	0.01	tr
7	276	50-54		0.25	0.01	0.01	tr
8	281	0-10		0.10	tr	tr	tr
8	282	10-20		0.45	0.02	tr	tr
8	283	20-30		0.47	tr	tr	tr
8	284	30-31		0.40	0.02	0.02	tr

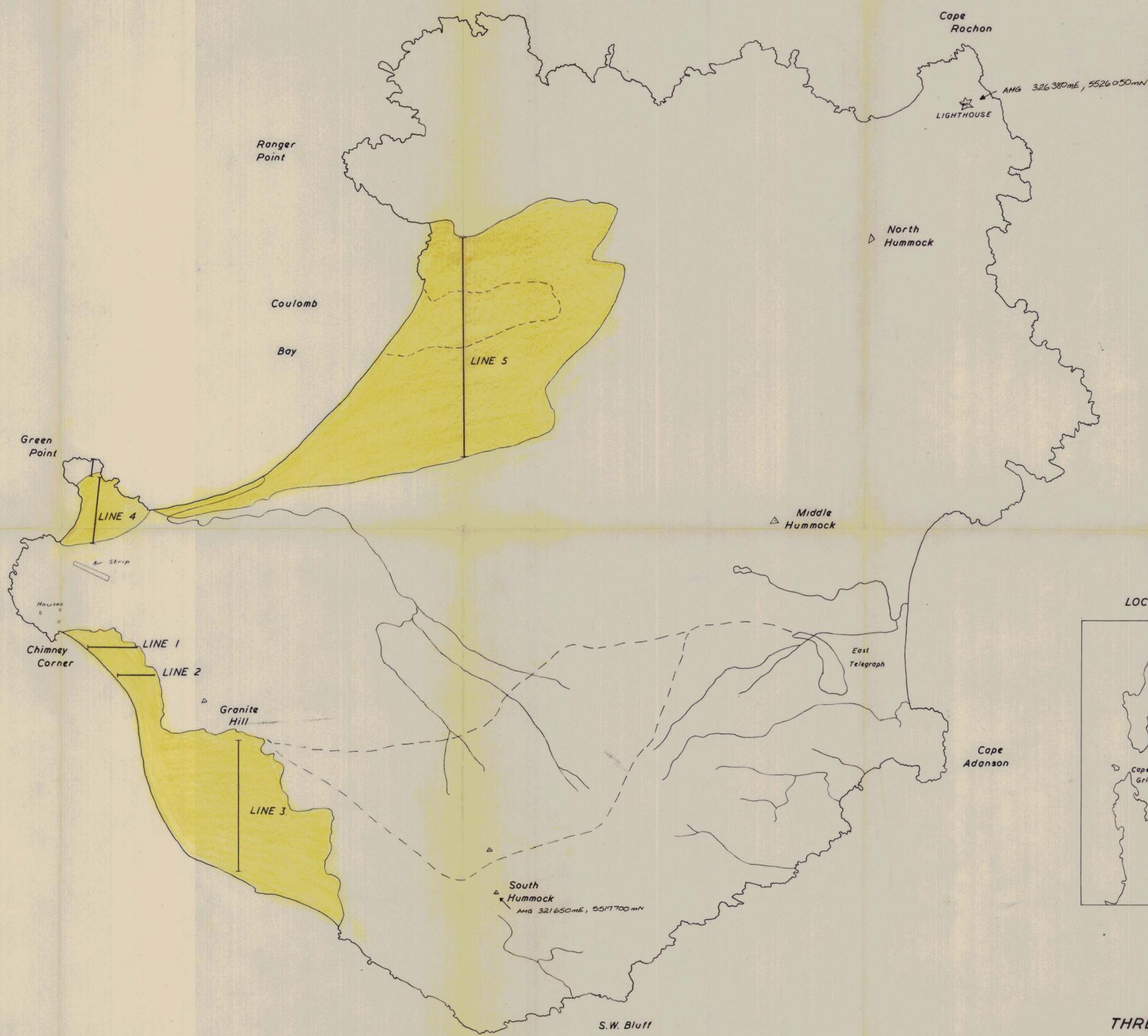
Line 4

Hole No.	Sample No.	Sample Increment (ft)	% H.M.	% Content of H.M.C.		
				% Ilmenite	% Rutile	% Zircon
1	411	0-10	0.24	0.01	0.01	tr
1	412	10-20	0.20	tr	0.04	tr
1	413	20-30	0.20	tr	0.02	0.01
1	414	30-40	0.15	0.01	tr	tr
1	415	40-50	0.19	0.01	0.02	tr
1	416	50-59	0.14	0.01	0.01	tr
2	421	0-10	0.18	0.01	0.04	0.01
2	422	10-20	0.16	0.01	0.03	0.01
2	423	20-30	0.12	0.01	0.01	tr
2	424	30-40	0.22	0.01	0.02	tr
2	425	40-50	0.12	0.01	0.01	tr
2	426	50-60	0.17	0.01	0.01	tr
2	427	60-62	0.12	0.01	0.01	tr
3	431	0-10	0.16	tr	0.02	tr
3	432	10-20	0.11	0.01	0.01	tr
3	433	20-30	0.19	tr	0.01	tr
3	434	30-40	0.10	0.01	0.01	tr
3	435	40-50	0.10	tr	0.01	tr
3	436	50-60	0.14	tr	0.01	tr
3	437	60-63	0.13	tr	0.01	tr
4	441	0-10	0.15	tr	tr	tr
4	442	10-20	0.09	tr	tr	tr
4	443	20-30	0.10	tr	tr	tr
4	444	20-40	0.14	0.01	0.1	tr
4	445	40-50	0.14	0.01	tr	tr
4	446	50-60	0.07	tr	tr	tr
4	447	60-63	0.11	tr	tr	tr
5	451	0-10	0.13	0.01	tr	tr
5	452	10-20	0.20	0.05	tr	tr
5	453	20-30	0.12	0.01	tr	tr
5	454	30 -40	0.12	tr	0.01	tr
5	455	40-42	0.14	0.01	tr	tr
6	461	0-10	0.15	0.01	tr	tr
6	462	10-13	0.16	0.02	0.01	tr
7	471	0-10	0.15	0.01	tr	tr
7	472	10-20	0.16	0.01	0.01	tr
7	473	20-25	0.23	0.01	tr	tr

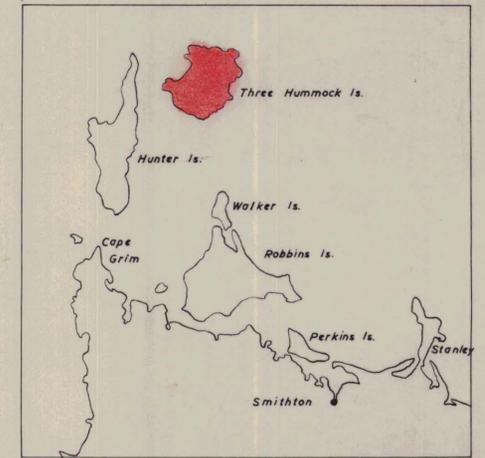
APPENDIX III

Heavy mineral content of samples from Hunter Group
(excluding Three Hummock Island)

Sample No.	Location	% H.M.C.	% Content of H.M.C.			
			% Ilmenite	% Rutile	% Zircon	% Monazite
HH1	Hunter Is.	0.36	9½	tr	tr	24
HH2	"	0.75	9	½	tr	13
HR1	Robbins Is.	0.19	7½	5½	4	tr
HP1	Perkins Is.	0.26	19½	3½	1½	3
HW1	Walker Is.	0.21	3½	4½	1½	½



LOCALITY PLAN



AMG REFERENCE POINTS ADDED

110011

THREE HUMMOCK ISLAND

Scale: 1" = 2000' Approx.

September 1966

AREA: 18,000 acres (27 Sq. miles)

LEGEND
— Bore Lines.
 Areas of wind blown dunes.

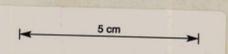


Plate 1

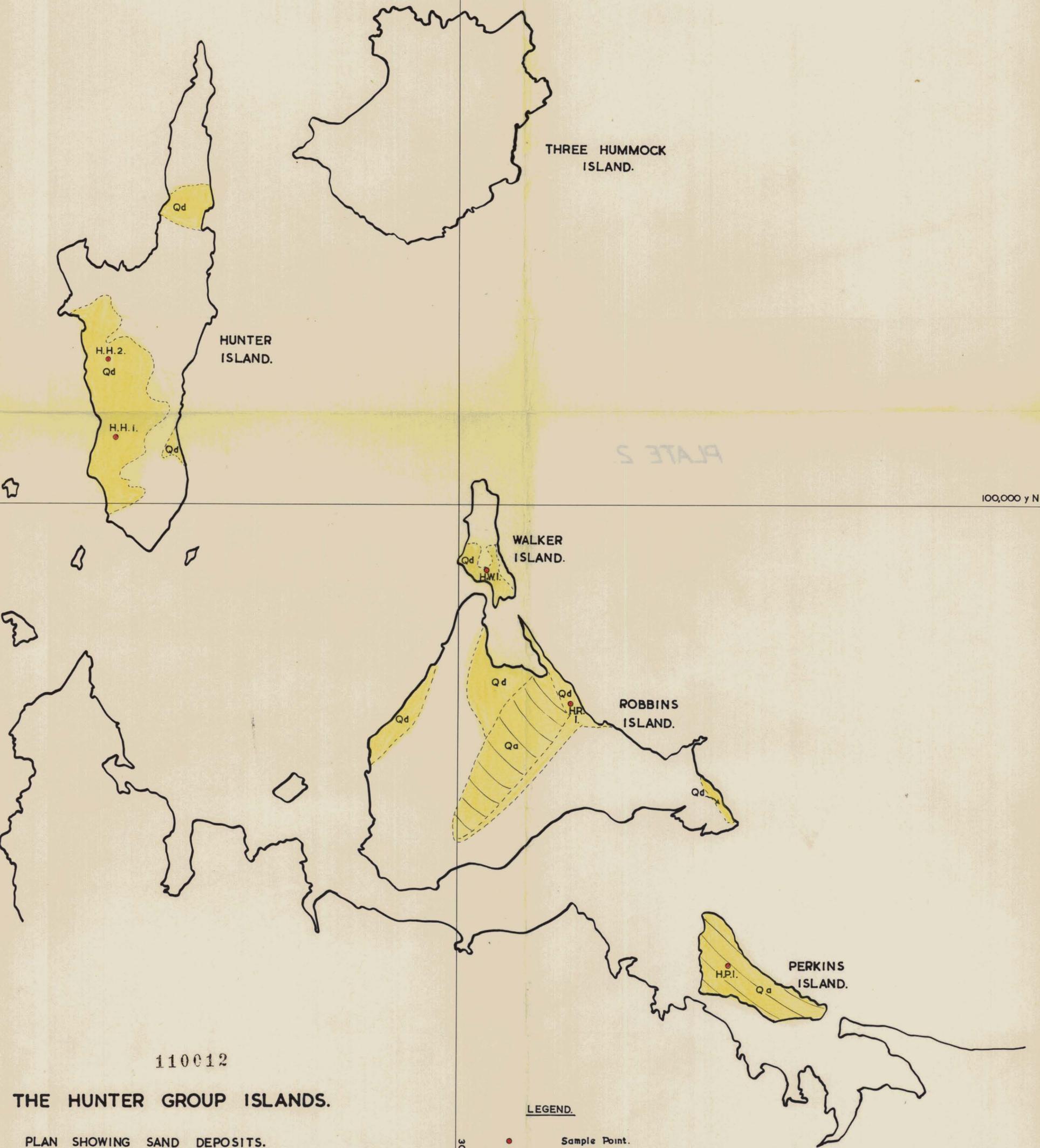


PLATE 2

100,000 y N

300,000 y E

110012

THE HUNTER GROUP ISLANDS.

PLAN SHOWING SAND DEPOSITS.

SCALE 1 : 125000

DATE 9|66.



LEGEND.

- Sample Point.
- Qd Sand Dunes.
- Qa Alluvium (Lagoon Filling.)