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THE NATURAL HISTORY OF KAIPARA HARBOUR : A BIBLIOGRAPHY

by

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Miscellaneous Publication 79

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INTRODUCTION

Kaipara Harbour is the most extensive of the drowned river valley systems of the North Auckland Peninsula. Its main inflowing rivers are the Wairoa from the north and the Kaipara from the south, although other streams enter around the harbour. It is broad and shallow with many inlets and promontories giving it a coastline of over 3000 km (see Frontispiece). The entrance is impeded by a bar which has been the cause of many wrecks in the past.

At the turn of the century the Kaipara was an important trading port for timber and kauri gum, and for many years regular boat services operated between Dargaville and Helensville calling in at the many settlements around the harbour. Today the mangrove, toe-toe and bush-lined harbour is important as a summer recreational area for the heavily populated Auckland region and as an over-wintering area for many migratory birds.

This bibliography aims to present a broad spectrum of the information available on the Kaipara Harbour and the references included are divided into eight sections : General; Archaeology and Ethnology; Charts, Maps and Tables; Biology; Botany; Zoology; Geology and Geography; and Hydrology and Meteorology. Within each section the entries are arranged alphabetically by author and chronologically where the same author has written several articles. Papers of joint authorship are listed under the senior author after those for which the senior author was the sole author. Papers and books included in the 'General' section are often of a descriptive nature and may cover two or more of the other categories. Some historical references have also been included in the 'General' section.

Fossils are claimed equally by biologists and geologists; in this work papers on foraminifera are listed under geology but papers on other plant and animal groups are listed under Botany and Zoology respectively and cross-references are given at the end of the section on Geology.

The references were located by a systematic search of the journals held in the New Zealand section of the N.Z. Oceanographic Institute Library, and follow-up searches of the catalogue and selected journals of the Alexander Turnbull Library and the National Museum Library. In most cases, a brief note on the

content of the paper or its particular relevance to the region is given. References were also found by searching the citation lists of papers thus located, and some of these articles have not been seen by the author. In these references, the annotations are derived from the context of their citation. The publications searched are listed in Appendix A.

In locating the references the contents list and/or index of the journal was read and all papers covering the North Auckland or Northland region investigated further. Therefore some relevant references, particularly in the biological sciences, will have been missed because there was no indication in their title of the study area. Some of these will have been found in reference lists and back-checked but the bibliography does not pretend to be comprehensive in entries dealing with species distribution and records from the region.

The reference abbreviations used in this bibliography are according to the "World List of Scientific Periodicals, Fourth Edition" edited by Peter Brown and George Burder Stratton and published by Butterworths of London. For books, unpublished manuscripts and journals ceasing publication before 1900 or initiated after 1960, the guidelines set out in Hurley (1974)* were followed.

ACKNOWLEDGMENTS

I would like to thank M.A. Rudge, A. Broome, B. Farrell and E.J. Maciver of the N.Z. Oceanographic Institute Library for their help in locating references; also the librarians from the National Museum, Alexander Turnbull Library, General Assembly Library, Geological Survey DSIR, Ecology Division DSIR, Science Information Division DSIR, University of Otago, University of Auckland, and Victoria University of Wellington.

Mrs R.M. Thompson typed the manuscript for publication as well as supplying a number of references, and providing editorial assistance with the world-listing and general checking of references.

* HURLEY, D.E. 1974: Titles of selected scientific periodicals and expedition reports dealing with marine sciences, New Zealand and the Antarctic. *Misc. Publs N.Z. oceanogr. Inst.* 58.

GENERAL

1. BAGNALL, A.G.; PETERSEN, G.C. 1948: "William Colenso Printer Missionary Botanist Explorer Politician. His life and journeys". Reed, Wellington. 494 pp.
 Colenso landed at North Kaipara Head which he describes in his journal as follows : "The Heads of Kaipara and the adjacent country for several miles ... are high hills of sand, utterly destitute of verdure and present[in]g a most desolate appearance; the shoals within and without the Heads are extensive and numerous over wh[ich] the sea breaks continually; often terrifically. ... a more melancholy look[in]g spot could scarcely be conceived, not even by the most creative imagination". The Harbour is also described as "mangrove-lined" and "mosquito-infested".
2. BARLOW, P.W. 1888: "Kaipara or experiences of a settler in north New Zealand". Sampson, Low, Marston, Searle and Rivington, London. 219 pp.
 "... when people will exercise their own judgments, and not be led away by flaming puffs in the newspapers, or by extravagant reports made in the interest of land companies, then the North Kaipara will assume its proper position in New Zealand, and be known throughout the length and breadth of the land as the Eden of the North!" (p.72).
 Describes the forest around the harbour, its wildlife, and the fish caught within the harbour.
3. BARTON, R.J. (Comp.) 1927: "The letters and correspondence of the Rev. John Butler". Palamontain and Petherick, Masterton.
 Includes a description of the Kaipara region and its inhabitants in 1820.
4. BEAGLEHOLE, J.C. 1974: "The Life of Captain James Cook". Adam & Charles Black, London. 760 pp.
 Kaipara Harbour was termed "False Bay" by Cook.
5. BRADBURY, E.K. [1973]: "The great Northern Wairoa". The author, Dargaville. 194 pp.
 History of the district around the Wairoa River and Kaipara Harbour.
6. BRAITHWAITE, E. 1970: "The companion guide to the North Island of New Zealand". Collins, Auckland and London. 462 pp.
 Kaipara Harbour is discussed on p.76. According to Maori legend it is so named because the food of the god Tangaroa, *para*, grows in the woods and so the region is named Kai-para - Feast of Para.
7. BRETT, H.; HOOK, H. 1927: "The Albertlanders, brave pioneers of the sixties". Brett Printing Co. Ltd, Auckland. 436 pp.
 Describes the history of the Kaipara region.
8. COLENZO, W. 1844: "Excursion in the Northern Island of New Zealand : in the summer of 1841-2". Land, Launceston. 95 pp.
 Colenso travelled as far north as Kaipara. He describes the botany, zoology and geography of the regions he visited.

9. DIEFFENBACH, E. 1843: "Travels in New Zealand, with contributions to the geography, geology, botany and natural history of that country. Vol. I". Murray, London. 431 pp.
Includes the Kaipara area.
10. ELDER, J.S. (Ed.) 1932: "The letters and journals of Samuel Marsden, 1765-1838; senior chaplain in the colony of New South Wales and superintendent of the Mission of the Church Missionary Society in New Zealand". Coulls, Somerville, Wilkie Ltd and A.H. Reed for Otago University Council, Dunedin. 580 pp.
Included in Marsden's travels was a trip to Kaipara where he was entertained by Te Kawau, the Ngati Whatua chief. Contains many references to Kaipara, Kaipara Harbour and Kaipara River, which can be located through the index.
11. GREY, F. 1962: "McLeods of Helensville". The author, Auckland. [36 pp.]
A history of one of the first pakeha settlers in the Kaipara region, and the founders of Helensville.
12. HARGREAVES, R.P. 1974: The early years - (2) - Timber and flax. *N.Z. Nature Heritage* 1(9): 243-47.
The Maoris from various harbours, including Kaipara, provided the necessary manpower to harvest the kauri.
13. HAY, W.D. 1882: "Brighter Britain! or Settler and Maori in Northern New Zealand". Bently, London. 2 vols.
Kaipara area is described in volume 1, pp 89-95, 103-4. Kauri forests are described in volume 2, chapter 6, "Our naturalists note book".
14. HORN, D.J. 1954: The Northern Wairoa; its development by Europeans 1840-1950. Unpublished M.A. thesis (history), University of Otago.
15. INGRAM, C.W.N. 1972: "New Zealand Shipwrecks 1795-1970. 4th ed." A.H. & A.W. Reed, Wellington. 448 pp.
Several ships have gone down in Kaipara Harbour including the *Aurora*, the first ship to arrive in New Zealand with immigrants from England, landing at Wellington in January 1840.
16. JACKSON, J.R. 1974: Auckland Thermal No.1. Kaipara Harbour. Study of local reaction to proposed power station with regard to effect upon fishing. *N.Z. mar. Sci. News* 17: 15-16.
A brief report by the Senior Engineer.
17. N.Z. MINISTRY OF WORKS, TOWN AND COUNTRY PLANNING BRANCH, 1964: "National Resources Survey Part 5. Northland Region". Government Printer, Wellington. 202 pp.
References to Kaipara Harbour and Kaipara district may be located through the index. Includes several charts.
18. POLACK, J.S. 1839: "New Zealand being a narrative of travels and adventures during a residence in that country between

the years 1831 and 1837". 2 vols. Richard Bentley, London.

The scenery, forests and Maori life of the Kaipara region in 1831 are discussed. He describes a Maori catching 100 lb of snapper in one hour in the Kaipara Harbour (Vol.1, p.198).

19. SHEFFIELD, C.M. 1963: "Men came voyaging". Whitcombe & Tombs, Auckland. 262 pp.
A history of the Helensville region incorporating the southern Kaipara Harbour. Includes photographs.
20. STALLWORTHY, J. 1916: "Early Northern Wairoa". Wairoa Bell and Northern Advertiser, Wairoa.
21. TILLY, R.N. (Comp.) 1886: "Brett's New Zealand and South Pacific Pilot with nautical almanac for the years 1887-88". Brett, Auckland. 370 pp.
Gives detailed sailing instructions for entering the Kaipara. Describes the region and its main industry of milling.
22. WADE, W.R. 1842: "A journey in the northern island of New Zealand, interspersed with various information relative to the country and people". Rolwegan, Hobart. 200 pp.
Includes geographical and botanical descriptions of Kaipara, by the first missionary to travel through the region.
23. WAKEFIELD, E.G.; WARD, J. 1837: "The British colonisation of New Zealand; being an account of the principals, objects, and plans of the New Zealand Association". Parker for The New Zealand Association, London. 423 pp.
Includes a thorough geographical description of Kaipara Harbour, with sailing directions, and an account of the first entry into Kaipara Harbour by the schooner *Fanny* in 1836.
24. WAKEFIELD, E.J. 1848: "The handbook for New Zealand : consisting of the most recent information, compiled for the use of intending colonists, by a late magistrate of the colony". Parker, London. 493 pp.
Gives information on the state of native agriculture at Kaipara and its economic importance, as well as other historical, geographical and commercial information.
25. WAKEFIELD, E.J. 1955: "Adventure in New Zealand". An abridged edition, edited by Joan Stevens. Whitcombe & Tombs Ltd, Christchurch. 320 pp.
Wakefield visited Kaipara and briefly describes the area (p.73) considering it "far from promising".
26. WARD, J. 1839: "Information relative to New Zealand for use of colonists". Parker, London. 78 pp.
The information is largely on geography and climate. Gives a thorough description of Kaipara.
27. WEST, C.S. 1953: "A history of Helensville and Kaipara". Institute Printing & Publishing Society Ltd, Helensville. 52 pp.

28. Cont'd
Includes a short section entitled "The Harbour" (pp 45-6). Mainly a history of the people of the area.

29. WRIGHT, L.W. 1969: Rise and fall of the port of Kaipara. *N.Z. Geogr.* 25 : 61-67.

The height of export activity from Kaipara was around the turn of the century with 200,000 tons exported in 1900. It has not been used commercially since the 1930's.

ARCHAEOLOGY AND ETHNOLOGY

30. ARCHEY, G. 1933: Wood carving in the North Auckland area. *Rec. Auckland Inst. Mus.* 1(4) : 209-18.

Kaipara carvings (Pl.41, figs 5, 6) illustrate the elongation of the human head characteristic of the area.

31. BELLWOOD, P. 1969: Pa excavations at Otakanini, South Kaipara and Lake Mangakaware, Waikato. *N.Z. archaeol. Ass. Newsl.* 12(1) : 38-49.

A preliminary report of an excavation.

32. BELLWOOD, P.S. 1971: Otakanini Pa, South Kaipara. *N.Z. archaeol. Ass. Newsl.* 14(3) : 74-76.

Summarises the work done in the area.

33. BELLWOOD, P. 1971: Fortifications and economy in prehistoric New Zealand. *Proc. prehistoric Soc.* 37(1) : 56-95.

Discusses in some detail excavations of Otakanini Pa which is on a small island in the southern part of Kaipara Harbour, off Aotea (see Frontispiece). Contains a detailed diagram of Maori pas around Kaipara Harbour, indicating igneous outcrops, mangrove swamps and main areas of oysters and cockles.

34. BELLWOOD, P. 1972: Excavations at Otakanini Pa, South Kaipara Harbour. *Jl R. Soc. N.Z.* 2(3) : 259-91.

"The excavations revealed three periods of earthwork construction which may correlate with the traditional history of the site, together with well-preserved evidence for palisades, fighting stages, storage pits, and a possible shelter." (Abstr.)

35. BEST, S. 1975: Archaeological site recording in the southern half of the South Kaipara Peninsula. Unpublished report. N.Z. Historic Places Trust.

36. BUDDLE, R. 1911: Maori Rock - engravings in the Kaipara district. *Trans. Proc. N.Z. Inst.* 43 : 596-97.

Description, with photograph, of some rock-carvings on an ancient pa near Haranui in the Parkhurst district of Kaipara.

37. DAVIES, C.O.B. 1876: "The life and times of Patuone, the celebrated Ngapuhi chief". Field, Auckland. 141 pp.

Patuone is said to have fought with Hongi Hika in the Kaipara region and these campaigns are described.

38. GARDNER, P.R. 1962: Wooden club from Kaipara. *J. polynes. Soc.* 71 : 402.
Describes an artefact found at the mouth of the Mataia Stream which enters Kaipara Harbour near Glorit.
39. GRAHAM, G. 1918: Maki - a chief of the Wai-o-hua Tribe. *J. polynes. Soc.* 27 : 219-21.
Includes a visit by Hauparoa, the Kaipara chief, to Maki at Tirangi bearing gifts, and a return visit to the Kaipara, where Maki built a pa and made war on the Wai-o-hua of Kaipara, Waikakarei and Mahurangi, avenging past humiliations of Hauparoa.
40. GRAHAM, G. 1938: Mahuhu, the ancestral canoe of Ngati Whatua. *J. polynes. Soc.* 48 : 186-91.
Describes the settlement of the Ngati Whatua people of Kaipara, including an account of their conquest of South Kaipara.
41. GROUBE, L.M.; GREEN, R. 1959: Site survey of South Kaipara Head : preliminary results. *N.Z. archaeol. Ass. Newsl.* 2(2) : 8-13.
Describes the pa sites, pits and middens discovered.
42. HARDING, E. 1928: Prehistoric drains on the Kaipara, west coast. *J. polynes. Soc.* 37 : 367-68.
Describes artificial drainage system on Kaipara North Head.
43. LAW, G. 1969: Review of sites excavated in the northern North Island, New Zealand. *N.Z. archaeol. Ass. Newsl.* 12(3) : 164-77.
Includes South Kaipara.
44. SIMMONS, D.R. 1974: A lintel from South Kaipara Head. *Rec. Auckland Inst. Mus.* 11 : 101-2.
Description of a Maori carved door lintel.
45. SMITH, S.P. 1895: The history of Otakanini Pa, Kaipara. *Trans. Proc. N.Z. Inst.* 28 : 41-47.
Includes an account of the traditional history of Kaipara. The Otakanini pa was one of the strongholds of the Ngatiwhatua tribe.
46. SMITH, S.P. 1898: "The peopling of the north : notes on the ancient Maori history of the northern peninsula and sketches of the history of the Ngati-Whatua tribe of Kaipara, New Zealand : Heru Hapanga". Whitcombe & Tombs, Christchurch. 108 pp.
A supplement to the Journal of the Polynesian Society vols 6 and 7.
47. SULLIVAN, J.P. 1972: "The history and ethnography of the Auckland, Kaipara and Mahurangi districts, prior to 1860. A select bibliography from the holdings of Auckland Public and Auckland University Libraries". National Library of New Zealand, Wellington. [32 pp].
The southern end of Kaipara Harbour provides the northwest boundary of the area covered. All entries are well annotated.

48. SWADLING, P.L. 1972: Shellfish gathering in prehistoric New Zealand. Unpublished M.A. thesis, University of Auckland.
A general study of mainly North Island sites, but includes a case study of Otakanini Pa, South Kaipara Peninsula.
49. TRAVERS, W.T.L. 1872: "Some chapters in the life and times of Te Rauparaha, chief of the Ngatitōa". Hughes, Wellington. 77 pp.
Describes the destruction caused by Ngapuhi at Kaipara.
50. TUHAERE, P. 1924: An historical narrative concerning the conquest of Kaipara and Tamaki by Ngati-Whatua. *J. polynes. Soc.* 32: 229-37.
Contains introductory notes followed by the narrative in English and Maori. Gives a pedigree of the Maori chiefs of the area.

CHARTS, MAPS AND TABLES

51. ARROWSMITH, J. (Comp.) 1842: Chart of "the Harbour and City of Auckland, the Capital of New Zealand, with the districts of the rivers Kaipara, Waitemata, Tamaki, Wairoa, Waihou or Thames, Mercury Bay, Kawhia, Piako, Waipa, Waikato, Manukau, Tauranga, etc.". Reference quoted in: Petermann, A. 1864: Observations upon the cartography of New Zealand. Pp 3-8 in Hochstetter, F. von; Petermann, A. "The geology of New Zealand: in explanation of the geographical and topographical Atlas of New Zealand. From the scientific publications of the Novara Expedition. Translated by C.F. Fischer". Delattre, Auckland. 113 pp.
Not seen by the author.
52. DRURY, B. 1854: "Sailing directions for the northern part of the colony of New Zealand". Auckland.
Describes the four channels into Kaipara Harbour, warning against the very narrow Northern Channel where the *Aurora* went down.
53. HOCHSTETTER, F. von; PETERMANN, A. 1864: "Atlas of New Zealand. Six maps of the provinces of Auckland and Nelson". Delattre, Auckland. (Translation of: "Geologisch-topographischer. Atlas von Neu-seeland". Perthes, Gotha. 1863).
Kaipara Harbour is included in the Auckland province.
54. HUNT, T.M.; SYMS, M.C. (in press): Sheet 3. Auckland. 1:250,000 Magnetic Anomalies. *Magnetic Map N.Z. Geophys. Div. Dep. scient. ind. Res.*
55. HYDROGRAPHIC DEPARTMENT, ADMIRALTY, 1858: Kaipara Harbour. 1:68,540. *Chart B.A. 2614.*
56. HYDROGRAPHIC OFFICE, ROYAL NEW ZEALAND NAVY, 1966: Survey of South Channel from South Head to Oyster Point. Unpublished report.
57. HYDROGRAPHIC OFFICE, ROYAL NEW ZEALAND NAVY, 1969: Manganui Bluff to Manukau Harbour. 1:290,000. *Chart N.Z. 43.*

58. IRWIN, J.; MAIN, W.deL. (in press): Lake Humuhumu Bathymetry. 1:5,544. *N.Z. oceanogr. Inst. Chart, Lake Ser.*
59. IRWIN, J.; MAIN, W.deL. (in press): Lake Ototoa Bathymetry. 1:5,544. *N.Z. oceanogr. Inst. Chart, Lake Ser.*
60. JACKSON, J. 1974: Bar soundings in entrance area. Unpublished report, Ministry of Works and Development, P.O. Box 33-255, Takapuna.
61. McLINTOCK, A.H. (ed.) 1959: "A descriptive atlas of New Zealand". Government Printer, Wellington. 109 pp.
Discusses the geology and oyster and toheroa fisheries at Kaipara Harbour, which is described as a shallow harbour of intricate outline.
62. NEW ZEALAND DEPARTMENT OF LANDS AND SURVEY : Topographical Series. NZMS 1 1:63,360.
Sheet 27 Ruawai 2nd ed. 1969
Sheet 28 Maungaturoto 2nd ed. 1965
Sheet 32 North Head 2nd ed. 1972
Sheet 33 Kaipara 3rd ed. 1974
Sheet 37 Helensville 3rd ed. 1973
NZMS 18 1:250,000 Sheets 2 and 3
NZMS 19 1:500,000 Sheet 2
63. REILLY, W.I. 1965: Sheet 2a. Whangarei. 1:250,000. Bouguer and Isostatic Anomalies. *Gravity Map, N.Z. Geophys. Div. Dep. scient. ind. Res.*
64. SCHOFIELD, J.C. 1967: Sheet 3 - Auckland (1st ed.). *N.Z. geol. Surv. Map. 1:250,000.*
65. THOMPSON, B.N. 1961: Sheet 2a - Whangarei. 1:250,000. *N.Z. geol. Surv. Map.*
66. WARDS, I. (ed.) 1976: "New Zealand Atlas". Government Printer, Wellington. 292 pp.
Mentions the titanomagnetite sands from Kaipara Harbour southwards.
67. WOODWARD, D.J. 1971: Sheet 3. Auckland. 1:250,000. Bouguer and Isostatic Anomalies. *Gravity Map, N.Z. Geophys. Div. Dep. scient. ind. Res.*

GEOLOGY AND GEOGRAPHY

68. ANDERSON, A.G. 1952: Rural villages of Waitemata, Rodney and Otamatea counties. A study in the geography of rural settlement. Unpublished M.A. thesis, University of Auckland.
This thesis has not been seen by the author but is included as these are the three counties bordering on Kaipara Harbour.
69. ARLIDGE, E.Z. 1955: The geology of Hukatere Peninsula, North Kaipara Harbour. Unpublished M.Sc. thesis, University of Auckland.

70. MALLANCE, P.F.; MCCARTHY, J.A. 1975: Geology of Okahukura Peninsula, Kaipara Harbour, New Zealand. *N.Z. Jl Geol. Geophys.* 18 : 721-43.
A detailed survey, including a geological map.
71. MARRON, R.H. 1957: The geology of the Bream Tail - Central Kaipara region. Unpublished M.Sc. thesis, University of Auckland.
72. MARTRUM, J.A. 1917: Additional facts concerning the distribution of igneous rocks in New Zealand. *Trans. Proc. N.Z. Inst.* 49 : 418-24.
Discusses Kaipara granite (p.421).
73. MARTRUM, J.A. 1924: The geology of the Riverhead - Kaukapakapa district, Waitemata County, Auckland. *Trans. Proc. N.Z. Inst.* 55 : 139-53.
74. MARTRUM, J.A. 1937: The greensand-hydraulic limestone contact at Pahi, Kaipara. *N.Z. Jl Sci. Technol.* 19 : 431-40.
"The purpose of this paper is to put forward evidence which it is hoped may induce hesitation in those who might otherwise accept unreservedly the conclusion of Marshall [1924] and Henderson [1936] that the hydraulic limestone stratigraphically overlies the so called Pahi greensand with its contact of molluscan shells that are regarded by Marwick [1931] as indicating early Eocene age." (Introduction, p.431).
75. FLACK, P.M. 1964: Igneous and metamorphic rocks from Tokatoka, Northland. Unpublished M.Sc. thesis, University of Auckland.
76. FLACK, P.M. 1966: Volcanic breccias of the Tokatoka district, Northland. *N.Z. Jl Geol. Geophys.* 9 : 285-300.
Tokatoka is on the eastern banks of the Northern Wairoa River just north of Kaipara Harbour. Breccias from 40 localities in the Tokatoka district are examined; they are either clastic dikes or tuff-breccias of the Navajo type.
77. FLACK, P.M. 1967: Igneous geology of the Tokatoka district, Northland. *N.Z. Jl Geol. Geophys.* 10 : 1-30.
"All the igneous rocks and breccia bodies described belong to the Manukau Breccia of the Waitemata Group (Otaian)." (Abstr.).
78. FLACK, P.M. 1967: Petrochemistry of the Tokatoka igneous rock suite, Northland. *N.Z. Jl Geol. Geophys.* 10 : 903-22.
Presents and discusses 14 analyses representative of the Manukau Breccia (Otaian) rock types in the Tokatoka district.
79. BLACK, P.M.; BROTHERS, R.N. 1965: Olivine nodules in olivine nephelinite from Tokatoka, Northland. *N.Z. Jl Geol. Geophys.* 8 : 62-80.
80. BLACK, P.M.; BROTHERS, R.N. 1968: Nepheline-bearing volcanic rocks from Northland. *Trans. R. Soc. N.Z., Geol.* 6(4) : 39-44.
Gives petrographic descriptions of nepheline-bearing limburgites from Hukatere Peninsula and Tokatoka.

81. BROTHERS, R.N. 1948: Geology of the north western portion of the Waitemata County, Auckland. Unpublished M.A. thesis, University of Auckland.
Includes description of the South Kaipara Peninsula.
82. BROTHERS, R.N. 1954: New facies of the Waitemata group near Tinopai, Kaipara Harbour. *N.Z. Jl Sci. Technol., sect. B*, 36 : 25-31.
Pumice sandstones, andesite-pumice breccias, and andesite agglomerates previously dated as Pliocene(?). Purua beds are redescribed as facies of Waitemata Group (Altonian).
83. BROTHERS, R.N. 1954: A physiographical study of Recent sand dunes on the Auckland west coast. *N.Z. Geogr.* 10 : 47-59.
The area discussed stretches from Anawhata to Kaipara South Head, which is represented in figure 1 (p.48) as being Recent dune sands to seaward and Pleistocene sandstone bordering the harbour.
84. BROTHERS, R.N. 1954: The relative Pleistocene chronology of the South Kaipara district, New Zealand. *Trans. R. Soc. N.Z.* 82 : 677-94.
"The coast between Anawhata and Kaipara South Head is formed mainly by sands (wind-bedded and water-laid), pumiceous silts and muds classed as Kaihu Group (? late Pliocene to Pleistocene)". (Abstr.).
85. BROTHERS, R.N. 1974: Kaikoura orogeny in Northland, New Zealand. *N.Z. Jl Geol. Geophys.* 17 : 1-18.
A discussion of the geological history of North Auckland.
86. BURT, E.D.; NEYLAND, P.A. 1958: Properties of some foundry sands found in the Auckland area. *N.Z. Engng* 13 : 217-18.
The sand at Kaipara Harbour was taken from a low sand spit in the harbour. Tests proved 'very satisfactory' and it is now 'very widely used'. The sand at Woodhill was considered suitable for brass founding and shell moulding. A 'rather unusual deposit' was found at the rear of the Kaipara Co-operative Dairy Company at Helensville. About half the sample was retained on a 150 mesh sieve, while the rest was less than 20 μ diameter.
87. BURT, E.D.; NEYLAND, P.A. 1958: Properties of some foundry sands found in the Auckland area. *N.Z. Dep. scient. ind. Res. Inf. Ser.* 20 : 19 pp.
88. CARTER, L. 1967: Geology of Puketotara Peninsula, Kaipara, Northland. Unpublished M.Sc. thesis, University of Auckland.
89. CARTER, L. 1969: The Mahurangi Limestone from Puketotara Peninsula, Northland, New Zealand. *N.Z. Jl Geol. Geophys.* 12 : 104-18.
"The Mahurangi Limestone (Oligocene) on Puketotara Peninsula, is a highly deformed, whitish grey, fine-grained rock that typically lacks distinct bedding and identifiable macrofossils." (Abstr.).

90. CARTER, L. 1971: Stratigraphy and sedimentology of the Waitemata Group, Puketotara Peninsula, Northland. *N.Z. Jl Geol. Geophys.* 14 : 169-91.
Divides the lower Miocene Waitemata Group on Puketotara Peninsula into three formations : Timber Bay Formation, Pakaurangi Formation and Motuouhi Formation.
91. CLARK, R.H. 1948: The evolution and drainage of the area between the South Kaipara and Waitemata Harbours. Unpublished M.Sc. thesis, University of Auckland.
92. COLE, J.W. 1974: Volcanoes (1). *N.Z. Nature Heritage* 2(30) : 824-30.
The first volcanoes of andesitic composition (Manukau Breccia) are sited from Auckland to Kaipara.
93. COX, S.H. 1881: Geology of the Rodney and Marsden Counties. *N.Z. geol. Surv. Rep. geol. Explor. 1879-80, 13* : 13-39.
A detailed geological description of the area around Kaipara Harbour.
94. COX, S.H. 1882: North Auckland district, including Thames, Coromandel, Island of Kawau, and Drury coal field. *N.Z. geol. Surv. Rep. geol. Explor. 1881, 14* : 17-41.
A continuation of the earlier survey of the Kaipara region.
95. CRAWFORD, J.C. 1865: "Essay on the geology of the North Island of New Zealand". Printed for The Commissioners of the New Zealand Exhibition, 1865 by Fergusson & Mitchell, Dunedin. 27 pp.
"Limestones and calcareous sandstones are found profusely distributed in the Kaipara Harbour, of which the age is undetermined, but they are probably Tertiary". (p.15).
96. DAVEY, F.J. 1974: Magnetic anomalies off the west coast of Northland, New Zealand. *Jl R. Soc. N.Z.* 4(2) : 203-16.
"The measurements cover the northern part of Northland and an offshore strip about 30 km wide from Manukau Harbour to Three Kings Islands". (p.203).
97. EIBY, G.A. 1954: A reported earthquake in the North Auckland peninsula during May 1954. *Rep. Geophys. Div., Dep. scient. ind. Res. 20* : 9 pp.
"The maximum felt intensity of this shock at Kaipara, the centre of the reported damage, could not be expected to exceed MM3." (p.2).
98. EIBY, G.A. 1955: The seismicity of Auckland city and Northland. *N.Z. Jl Sci. Technol., sect. B, 36* : 488-94.
Includes earthquakes recorded in Kaipara and Helensville.
99. FERRAR, H.T. 1924: Rodney Subdivision. *A. Rep. N.Z. geol. Surv. 18*: 6.
Describes the deposits of the Otamatea Arm of Kaipara Harbour.

100. FERRAR, H.T. 1934: The geology of the Dargaville - Rodney Sub-division, Hokianga and Kaipara Divisions. *Bull. N.Z. geol. Surv. n.s.* 34 : 86 pp.
101. FINLAY, H.J. 1947: The foraminiferal evidence for Tertiary Trans-Tasman correlation. *Trans. Proc. R. Soc. N.Z.* 76 : 327-52.
Describes a sandstone bed of *Miogypsina* at Pakaurangi Point.
102. FINLAY, H.J.; McDOWALL, F.H. 1924: Preliminary note on the Clifden Beds. *Trans. Proc. N.Z. Inst.* 55 : 534-38.
Compares the fossil beds at Clifden, Southland with those at Pakaurangi Point.
103. FINLAY, H.J.; MARWICK, J. 1947: New Zealand Tertiary. Pp 22-37 in "The Outline of the Geology of New Zealand". N.Z. Geological Survey, Lower Hutt.
Discusses the rich fossil microfauna at Pakaurangi Point.
104. FLEMING, C.A. (ed.) 1959: "Lexique Stratigraphique International. Volume VI. Oceanie. Fascicule 4. New Zealand". Centre National de la recherche Scientifique, Paris. 527 pp.
Includes Batley Series, Kaihu Formation, Kaipara Granite, Kaipara Limestone, Mangarakau Sandstones and slates, Manukau Breccias, Marahemu Basalt, Otamatea Beds, Pahi Greensand, Pakaurangi Beds, Shelly Beach Formation, South Head Formation, Tangihua Series, and Waioneke Formation.
105. FOX, C.E. 1902: The volcanic beds of the Waitemata Series. *Trans. Proc. N.Z. Inst.* 34 : 452-93.
Uses the term Kaipara Limestone (P.490) but does not give a type locality. This term has not been used subsequently.
106. GIBB, H.S. 1965: The soils of Northland - Their potential and their limitations. Pp 5-11 in "Northland Farmers Conference, Whangarei, New Zealand". Northland Fertilizer Co. Ltd, Whangarei. 175 pp.
Not seen.
107. HAY, R.F. 1952: The rocks of the North Auckland peninsula considered as potential aquifers. *N.Z. Jl Sci. Technol., sect. B*, 33 : 248-57.
Discusses the Recent deposits of the Kaipara Heads and the lakes found therein.
108. HAYES, R.C. 1949: Earthquakes in New Zealand during the year 1948. *N.Z. Jl Sci. Technol., sect. B*, 31(1) : 37-40.
Includes one at Kaipara North Head.
109. HECTOR, J. 1877: Progress report on Kaipara district. *N.Z. geol. Surv. Rep. geol. Explor. 1874-76*, 9 : v.
"The youngest formations of the district are seen at Komiti Point, Middle Kaipara, where earthy and tuffaceous clays, underlying the trachyte breccias, contain a variety of lower Miocene fossils ...".

110. HENDERSON, J. 1936: Pahi greensand. *A. Rep. N.Z. geol. Surv.* 30 : 14.
The Pahi peninsula is one of the many promontories of the Kaipara Harbour.
111. HOCHSTETTER, F. von, 1864: *Geologie von Neu-Seeland. Beitrage zur geologie der provinzen Auckland und Nelson. Novara-Exped. Geol. Theil. 1(1) : 274 pp.*
(Translated and edited by C.A. Fleming, 1959: "Geology of New Zealand, Contributions to the geology of the provinces of Auckland and Nelson". Government Printer, Wellington. 320 pp).
Discusses the results from the round the world voyage of the Austrian frigate *Novara* from 1857-1859. References to Kaipara Harbour may be found from the index.
112. HOCHSTETTER, F. von; PETERMANN, A. 1864: "The geology of New Zealand : in explanation of the geographical and topographical atlas of New Zealand. From the scientific publications of the Novara Expedition. Translated by C.F. Fischer". Delattre, Auckland. 113 pp.
References to the Kaipara region occur through the discussion. This volume also contains Hochstetter's lecture "On the Geology of the Province of Auckland" as delivered to the members of the Auckland Mechanics Institute in 1859 and published in the *Auckland Provincial Government Gazette* 8(14) : 87-100.
113. HOGBEN, G. 1892: Notes on the earthquake of the 24th June 1891. *Trans. Proc. N.Z. Inst.* 24 : 574-77.
The earthquake was recorded at Helensville. The map facing p.578 shows isoseismal of intensity III on the Rossi-Forel Scale encircling the southern half of Kaipara Harbour.
114. HOPGOOD, A.M. 1961: The geology of Cape Rodney - Kawerau district, Auckland. *N.Z. Jl Geol. Geophys.* 4 : 205-30.
115. HUGHES, W.S. 1966: Igneous rocks from the northern Wairoa district. Unpublished M.Sc. thesis, University of Auckland.
116. JONES, B.G. 1966: The geology of Pakaurangi Point, Kaipara, New Zealand. Unpublished M.Sc. thesis, University of Auckland.
117. JONES, B.G. 1969: The stratigraphy and structure of Pakaurangi Point, Kaipara, New Zealand. *Trans. R. Soc. N.Z., Geol.* 6 : 219-46.
Divides the Waitemata Group rocks in the area into the Puketi Formation in the west and the Pakaurangi Formation in the east.
118. JONES, B.G. 1970: Paleontology and paleoecology of Pakaurangi Point, Kaipara, New Zealand. *Trans. R. Soc. N.Z., Earth Sci.* 7 : 137-76.
"Paleoecological studies indicate that the Pakaurangi Formation was deposited in a warm (23-27°C), agitated- or quiet-water, marine depositional environment" whereas "The Puketi Formation was rapidly deposited in shallow non-marine water and contains numerous erosional breaks with associated soil and lignite horizons". (Abstr.)

119. JONES, B.G. 1972: Sedimentology of the Waitemata Group (Lower Miocene) at Pakaurangi Point, Kaipara, New Zealand. *Jl R. Soc. N.Z.* 2(2) : 187-209.
 "The sediments of the Pakaurangi Formation are fossiliferous and range from immature lithic labradorite-feldsarenites to immature volcarenites". (Abstr.).
120. JONES, W.M. 1939: Magnetic surveys in North Auckland. *N.Z. Jl Sci. Technol., sect. B*, 21 : 77-89.
 A discussion of the Pahi district of Kaipara.
121. KEAR, D. 1957: Erosional stages of volcanic cones as indicators of age. *N.Z. Jl Sci. Technol.* 38 : 671-82.
 Suggests Tokatoka Peak of Taranaki to early Wanganui age.
122. KEAR, D. 1957: Pumice chronology in New Zealand. *N.Z. Jl Sci. Technol., sect. B*, 38 : 862-70.
 "The distribution of conspicuous pumice in North Island rocks is described and illustrated within the framework of Finlay and Marwick's series and stages. It is most simply explained by a northern andesitic source, nearest to Kaipara Harbour, which was active in the lower Southland ..." (Abstr.).
123. KEAR, D. 1959: Stratigraphy of New Zealand's Cenozoic volcanism north-west of the volcanic belt. *N.Z. Jl Geol. Geophys.* 2 : 578-89.
 Discusses Tokatoka Peak.
124. KEAR, D. 1964: Coastal sand deposits - north-western North Island. *N.Z. Jl Forestry* 9(2) : 139-45.
 "Sand from these volcanic rocks has drifted as far north as Kaipara Harbour, a total distance of 200 miles" (p.141). The volcanoes referred to are from Mt Egmont to as far north as Kawhia Harbour. The relatively flat areas around Kaipara Harbour are attributed to the sea level remaining constant for a considerable period of time.
125. KEAR, D. 1965: Geology of New Zealand's ironsand resources. *Proc. 8th Commonw. Min. Metall. Congr. Aust. N.Z., N.Z. Sect., Pap.* 219 : 10 pp.
 "New Zealand's titanomagnetite ironsands occur in coastal deposits at the western North Island from Kaipara Harbour to Wangaehu". (Abstr.).
126. KEAR, D.; WATERHOUSE, B.C. 1961: Quaternary surfaces and sediments at Waihi Beach. *N.Z. Jl Geol. Geophys.* 4 : 434-45.
 Compares the levels at Waihi with those at South Kaipara.
127. KEAR, D.; WATERHOUSE, B.C. 1967: Onerahi chaos-breccia of Northland. *N.Z. Jl Geol. Geophys.* 10 : 629-46.
 Figure 1 (p.630) shows areas of probable chaos-breccia on the north-western shores of Kaipara Harbour.

128. KEAR, D.; WATERHOUSE, B.C. 1971: Further comments - Waihi Terrace and Hamilton ash ages. *Earth Sci. J.* 5 : 114-15.
Compares Waihi with South Kaipara.
129. LEAMY, M.L. 1974: Soils : classification and distribution. *N.Z. Nature Heritage* 3(38) : 1049-59.
The heads and shore areas of Kaipara Harbour display four different soil types : yellow-brown sands, northern podzols, northern yellow-brown earths, and Recent, gley, and organic soils.
130. LILLIE, A.R. 1959: A century of geological research in the Auckland province. *N.Z. Jl Geol. Geophys.* 2 : 920-43.
Table 1 outlines the geological history of different sections of the Auckland province, including Helensville - Bream Bay - Pahi. Kaipara Harbour is mentioned in the text.
131. MCCARTHY, J.A. 1972: Geology of the Okahukura Peninsula. Unpublished M.Sc. thesis, University of Auckland.
132. McDOUGALL, J.C. 1972: Carbonate variations in slope sediments Kaipara, New Zealand. *N.Z. Jl Geol. Geophys.* 15 : 558-71.
"A series of sediment samples ... show an increase in the percentage of carbonate with depth, and in finer grade sediments with depth and distance from shore". (Abstr. p.558).
133. McDOUGALL, J.C.; BRODIE, J.W. 1967: Sediments of the western shelf, North Island, New Zealand. *Mem. N.Z. oceanogr. Inst.* 40 : 54 pp.
The area covered extends from Wanganui to Kaipara.
134. MAIR, R. 1872: Notes on a thermal spring near Helensville, Kaipara. (Abstr.) *Trans. Proc. N.Z. Inst.* 4 : 396.
Brief description from memory of a spring about a quarter of a mile from the western bank of the Kaipara River. The temperature was 120°F and the water clear with an "inky taste".
135. MARSHALL, P. 1917: Geology of the central Kaipara. *Trans. Proc. N.Z. Inst.* 49 : 433-50.
A detailed discussion.
136. MARSHALL, P. 1921: The Cretaceous rocks of the Kaipara district. (Abstr.) *Trans. Proc. N.Z. Inst.* 53 : 515.
137. MARSHALL, P. 1921: The Cretaceous rocks of the Kaipara district. (Abstr.) *N.Z. Jl Sci. Technol.* 4 : 40.
138. MARSHALL, P. 1924: The "hydraulic limestones" of North Auckland. *Trans. Proc. N.Z. Inst.* 55 : 617-18.
"The 'hydraulic limestone' is ... a foraminiferal limestone ... extending south-westward to the Kaipara Harbour". (p.617).
139. MARSHALL, P. 1926: The Upper Cretaceous Ammonites of New Zealand. *Trans. Proc. N.Z. Inst.* 56 : 129-210.

Describes concretionary mudstones exposed at Batley on the Otamatea Arm of the Kaipara Harbour.

140. MARSHALL, P. 1929: Beach gravels and sands. *Trans. Proc. N.Z. Inst.* 60 : 324-65.
141. MASON, B. 1957: Larnite, scawtite, and hydrogrossular from Tokatoka, New Zealand. *Am. Miner.* 42 : 379-92.
 "... an andesite dike, probably of Pliocene age, has metamorphosed the surrounding limestone of the Onerahi Formation (Lower Tertiary)." (Abstr.)
142. MAXWELL, C.F. 1897: On alterations in the coast-line of the North Island of New Zealand. *Trans. Proc. N.Z. Inst.* 29 : 564-67.
 "The coast-line from Kaipara Heads to Maunganui Bluff, many miles in length, shows very distinctly that the sea has made inroads on the solid land, or, in other words, the land projected much further into the ocean at one time than it does at present". (p.565).
143. MORGAN, P.G. 1916: Kaipara district, North Auckland. *A. Rep. N.Z. geol. Surv.* 10 : 11-13.
144. NICHOLSON, D.S.; FYFE, H.E. 1958: Borehole survey of North Island ironsands from New Plymouth to Kaipara Harbour. *N.Z. Jl Geol. Geophys.* 1 : 617-34.
145. O'BRIEN, J.P. 1970: Alpine-type serpentinites of the Auckland province. Unpublished M.Sc. thesis, University of Auckland. Unseen. Includes the area covered by NZMS N33 which shows the central Kaipara and the land to the east.
146. O'BRIEN, J.P.; RODGERS, K.A. 1973: Alpine-type serpentinites from the Auckland Province - II. North Auckland serpentinites. *Jl R. Soc. N.Z.* 3(2) : 263-80.
 Figure 1 shows the geological structure of the eastern shores of Kaipara Harbour.
147. PARK, J. 1886: On the Kaipara District. Hobson and Rodney Counties. *N.Z. geol. Surv. Rep. geol. Explor.* 1885, 17 : 164-70.
148. PARK, J. 1887: Kaipara and Wade Districts, Auckland. *N.Z. geol. Surv. Rep. geol. Explor.* 1886-87, 18 : 219-29.
 Detailed report on the geology of the area.
149. RICHARDSON, R.J.H. 1975: The Quaternary geology of the North Kaipara Barrier. Unpublished M.Sc. thesis, University of Auckland.
150. SCHOFIELD, J.C. 1970: Coastal sands of Northland and Auckland. *N.Z. Jl Geol. Geophys.* 13 : 767-824.
 "Progradation along the west coast, since at least the Pliocene, has built up the very large Manukau, South Kaipara, and North Kaipara barriers and Aupouri Tombolo. ... The south-eastward directed North Kaipara Barrier and smaller barriers to the north, and the

150. Cont'd

north-westward directed South Kaipara and Manukau barriers have been built by the opposing oceanic West Auckland and Westland Currents that converge opposite the Kaipara Harbour entrance." (Abstr. p.767).

151. SCHOFIELD, J.C. 1975: Sea-level fluctuations cause periodic, post-glacial progradation, South Kaipara Barrier, North Island, New Zealand. *N.Z. Jl Geol. Geophys.* 18 : 295-316.

"The offshore region between Mt Egmont and the Kaipara Harbour entrance forms the offshore portion of the Egmont - Kaipara Sand System". (Abstr. p.295).

152. SCHOFIELD, J.C.; WOOLHOUSE, L. 1969: Industrial sands of Northland and Auckland. *In Industrial Minerals and Rocks 1969. N.Z. Dep. scient. ind. Res. Inf. Ser.* 79.

Includes the Kaipara region.

153. SCOTT, G.H. 1970: Miocene foraminiferal biotopes in New Zealand : Waitemata Group, Kaipara, Northland. *N.Z. Jl Geol. Geophys.* 13 : 316-42.

Analyses samples from 24 localities.

154. SMITH, S.P. 1881: On some indications of changes in the level of the coast line in the northern part of the North Island. *Trans. Proc. N.Z. Inst.* 13 : 398-410.

Includes discussion on the beaches, sandhills and old coastline of the Kaipara - lower Wairoa River region.

155. SQUIRES, D.F. 1958: The Cretaceous and Tertiary corals of New Zealand. *N.Z. geol. Surv. paleont. Bull.* 29.

156. WELLMAN, H.W. 1962: Holocene of the North Island of New Zealand : a coastal reconnaissance. *Trans. R. Soc. N.Z., Geol.* 1(5) : 29-99.

Figure 1 shows the author examined the northern arm of Kaipara Harbour.

157. WILLIAMS, G.J. 1974: "Economic Geology of New Zealand. Monograph Series No. 4". Australasian Institute of Mining and Metallurgy, Parkville. 490 pp.

References to the Kaipara Basin may be located through the index.

158. WRIGHT, L.W. 1969: Coastal changes at the entrance to the Kaipara Harbour 1836-1966. *N.Z. Geogr.* 25 : 58-61.

Discusses the geomorphology of the entrance to Kaipara Harbour, using historical records. Records the changes noted by mariners in the positions, depths, and mouths of the entrance channels to the Kaipara Harbour.

159. YOCK, D. 1973: A study of the beach and dune sands from Muriwai to Kaipara South Head. Unpublished M.Sc. thesis, University of Auckland.

See also items : 186, 235, 236, 239, 246, 255, 256, 257, 258, 259, 260, 261, 262, 270, 271

BIOLOGY

160. AUCKLAND REGIONAL AUTHORITY PLANNING DIVISION, 1976: "Report on a coastal resource area Kaipara South Peninsula". Auckland Regional Authority, Auckland. 115 pp.
A detailed report on the ecology of Kaipara Harbour and its environs, including discussion of present use and future potential.
161. AYLING, A.M. 1975: Rocky shores of harbours. *N.Z. Nature Heritage* 5(74) : 2073-76.
Kaipara is given as an example of a silt covered shore and its zonation indicated diagrammatically. It is said to be "completely undated with deep deposits of river-borne mud that smothers all rock outcrops" except where the tide removes the silt.
162. COCKAYNE, L. 1909: Department of Lands : Report on the sand dunes of New Zealand : the geology and botany, with their economic bearing. *Append. J1 House Repres. N.Z. 1909* : C-13, 30 pp.
Includes the dunes on both North and South Kaipara Heads.
163. COCKAYNE, L. 1911: Department of Lands : Report on the dune-areas of New Zealand : their geology, botany, and reclamation. *Append. J1 House Repres. N.Z. 1911, 2* : C-13, 76 pp.
A detailed survey on the New Zealand dunes. Included in those of the Auckland region are two belts both north and south of Kaipara Harbour, that to the north being 29 miles long and $\frac{1}{2}$ - $3\frac{1}{4}$ miles wide, and that to the south being $30\frac{1}{2}$ miles long with an average width of $1\frac{1}{2}$ miles, (varying from 1 mile to 4 miles).
164. CUNNINGHAM, B.T. 1957: The coastal dune lakes. *Proc. N.Z. ecol. Soc.* 5 : 22-23.
Includes the sand-dune lakes of the Kaipara Heads. Discusses the flora and fauna found in this type of environment.
165. CUNNINGHAM, B.T.; MOAR, N.T.; TORRIE, A.W.; PARR, P.J. 1953: A survey of the western coastal dune lakes of the North Island, New Zealand. *Aust. J. mar. Freshwat. Res.* 4 : 343-86.
A biological survey, including lakes on both North and South Heads, Kaipara Harbour.
166. DONOVAN, W.F. 1970: The bionomics of *Bosmina* in a sand dune lake. Unpublished M.Sc. thesis, University of Auckland.
The lake in question is Lake Rototoa, on the South Head of Kaipara Harbour.
167. GREEN, J.D. 1976: Plankton of Lake Ototoa, a sand-dune lake in northern New Zealand. *N.Z. J1 mar. Freshwat. Res.* 10 : 43-59.
Describes the seasonal cycles of abundance of the phytoplankton and zooplankton.
168. HENLEY, A.J. 1950: Agricultural land use in Waitemata County. Unpublished M.Sc. thesis, University of Auckland.
Not seen.

168. Cont'd Included because it may be relevant to Southern Kaipara either directly or indirectly via run-off.
169. MORTON, J.E.; MILLER, M. 1968: "The New Zealand Sea Shore". Collins, Auckland. 638 pp.
References to Kaipara Harbour and peninsula may be located through the index.
170. NATURE CONSERVATION COUNCIL, 1976: Kaipara South Peninsula. *Nat. Cons. Counc. Newsl.* 19 : 6-7.
Reviews the Auckland Regional Authority Report on the Kaipara Peninsula and makes several observations on how to encourage use and discourage abuse of the region.

BOTANY

171. ALLAN, H.H. 1933: Fleabane and sea aster. Their identification and incidence in tidal-land reclamation. *N.Z. Jl Agric.* 46 : 341-44.
Both fleabane, *Erigeron canadensis*, and sea aster, *Aster subulatus*, are found on the Northern Wairoa River, but their common names in the area are "fireweed" and "fleabane" respectively, which can lead to some confusion.
172. ANDERSON, K. 1975: Botanical literature of Northland, New Zealand. *N.Z. Jl Bot.* 13 : 31-60.
Covers the region north of Auckland City. Figure 1 is a locality map with the numbers of relevant articles indicated in position on the map.
173. ARNOLD, E.H. 1937: Manchurian rice grass (*Zizania latifolia*). Its occurrence and distribution in the Northern Wairoa district. *N.Z. Jl Agric.* 55 : 129-33.
Discussion of a plant which was then a weed in the soft mud and tidal river banks of the Northern Wairoa. Said to have been introduced via dumped ballast from South Africa around the turn of the century when the Northern Wairoa was an active port, trading in white-pine and kauri timber.
174. AUCKLAND BOTANICAL SOCIETY, 1947: Lectures and excursions. *Auckland bot. Soc. Newsl.* 4(2) : 1-3.
Account of a trip to Woodhill, near Helensville, to examine sand reclamation work.
175. AUCKLAND BOTANICAL SOCIETY, 1949: A local flora. *Auckland bot. Soc. Newsl.* 6(4) : 5-8.
Outlines a plan for a botanical survey of the Auckland area. The northern boundary is a line from Warkworth to the Kaipara Heads.
176. BAGNALL, D.C. 1970: Mount Auckland. *Auckland bot. Soc. Newsl.* 27(4) : 8-10.
Describes the plants seen, both on a trip to the summit, and on a walk around the foot of the mountain.

177. BASCAND, L.D. 1970: The roles of *Spartina* species in New Zealand. *Proc. ecol. Soc. N.Z.* 17 : 33-40.
Includes discussion, tabulated data and a photograph of *Spartina alterniflora* and *S. townsendii* at Kaipara Harbour.
178. BIELESKI, R.L. 1975: Kauri forest. *N.Z. Nature Heritage* 4(53) : 1461-68.
A map of pre-European spread of the kauri shows the eastern shores of both North and South Kaipara Harbour to be kauri forest, with the western shores and a central eastern area to be swamp and scrub.
179. CHAPMAN, V.J. 1975: Mangrove and salt marsh. *N.Z. Nature Heritage* 4(48) : 1329-32.
Kaipara Harbour is in the southern part of the mangrove range, and here the hybrid *Spartina alterniflora* from North America has established itself.
180. COCKAYNE, L.; ALLAN, H.H. 1926: Notes on New Zealand floristic botany, including descriptions of new species etc. (NO.5). *Trans. Proc. N.Z. Inst.* 57 : 48-72.
Includes species from Kaipara.
181. COLENSO, W. 1888: On new phaenogamic plants of New Zealand. *Trans. Proc. N.Z. Inst.* 20 : 188-211.
Describes *Theylmitra cornuta* from Kaipara North Head.
182. CONNOR, H.E. 1971: *Cortaderia splendens* Connor sp.nov. (Gramineae). *N.Z. Jl Bot.* 9 : 519-25.
Describes and names a new species, including specimens from Poutu, Kaipara Harbour.
183. CUTTEN, E.L. 1934: The sand dunes of the Dargaville coast. *Te Kura Ngahere* 3 : 177-80.
Describes sand dune fixation scheme between Kaipara North Head and Mangonui Bluff, including species found on the dunes, and those planted.
184. DAVIS, E.M. 1968: Helensville lakes. *Auckland bot. Soc. Newsl.* 26(2) : 7-9.
Brief article describing the area and listing the plants seen.
185. EDGAR, E. 1966: The male flowers of *Hydatella inconspicua* (Cheesem.) Cheesem. (Centrolepidaceae). *N.Z. Jl Bot.* 4 : 153-58.
Lake Rotokawau and Swan Lake, North Head, Kaipara Harbour, are known localities for *H. inconspicua* (Fig.2, p.156).
186. EDWARDS, W.N. 1926: Cretaceous plants from Kaipara, N.Z. *Trans. Proc. N.Z. Inst.* 56 : 121-28.
The plants are thought to be Upper Senonian (Campanian) because of the ammonites with which they are associated.

187. FORDE, M.B. 1964: *Haloragis erecta* : a species complex in evolution. *N.Z. Jl Bot.* 2 : 425-53.
Describes this perennial herb, which displays great morphological variety throughout its distribution. Figure 9 (p.436) indicates those *H. erecta* from South Kaipara Head are of the scabrid type.
188. FRANKLIN, D.A. (Comp.) 1968: Biological flora of New Zealand. 3. *Dacrydium cupressinum* Lamb. (Podocarpaceae). Rimu. *N.Z. Jl Bot.* 6 : 493-513.
The rimu is "reliably reported to be present" on the south east shores of Kaipara Harbour (p.500).
189. FUGE, D.N. 1964: Mangrove swamps of North Auckland. Unpublished M.A. thesis, University of Otago.
Includes a section on the mangrove areas of Kaipara Harbour, with maps.
190. GLANVILLE, E.B. 1937: Grassing of consolidated sand areas, Northern Wairoa, North Auckland. *N.Z. Jl Agric.* 54 : 328-44.
The area under discussion is North Kaipara Head between the Northern Wairoa River and the coast as far north as Maunganui Bluff. A detailed discussion of soil types, topography, present vegetation and potential of the land for farming. Includes several photographs.
191. HATCH, E.D. 1949: The New Zealand forms of *Pterostylis* R.Br. *Trans. Proc. R. Soc. N.Z.* 77 : 234-46.
Includes species from Kaipara.
192. HATCH, E.D. 1963: The Waipoua orchid - eight years later. *Auckland bot. Soc. Newsl., March* : 1-3.
The story of the discovery of *Yoania* at Waipoua and Glorit on the eastern shores of Kaipara Harbour.
193. HATCH, E.D. 1964: An orchidaceous trip to Glorit. *Auckland bot. Soc. Newsl., March* : 7.
Discussion of a field trip to an area on the east shore of Kaipara Harbour.
194. HYNES, P. 1969: Muriwai Lake. *Auckland bot. Soc. Newsl.* 26(3): 5.
Describes three plants recorded from Muriwai Lake, South Kaipara. They are *Pycneus sanguinolentus*, *Gnaphalium candidissimum*, and *Ricciocarpus* sp.
195. KIRK, T. 1871: On the botany of the northern part of the province of Auckland. *Trans. Proc. N.Z. Inst.* 3 : 166-77.
Adiantum formosum is recorded from the Kaipara district.
196. KIRK, T. 1878: Notes on plants observed during a visit to the north of Auckland, April, 1868. *Trans. Proc. N.Z. Inst.* 1 : 84-88. (2nd edition, 1st edition 1868).
Mentions an undescribed *Coprosma* observed in the Kaipara.

197. KÜCHLER, A.W. 1972: The mangrove in New Zealand. *N.Z. Geogr.* 28 : 113-29.
Kaipara Harbour is one of the mangrove locations discussed.
198. LLOYD, D.G. 1972: A revision of the New Zealand, Subantarctic, and South American species of *Cotula*, section *Leptinella*. *N.Z. Jl Bot.* 10 : 277-372.
Cotula membranacea is recorded from "Northern Wairoa (River, Kaipara Harbour)". (p.310).
199. MacMILLAN, B.H. 1972: Biological flora of New Zealand. 7. *Ripogonum scandens* J.R. et G. Forst. (Smilacaceae) Supplement, Kareao. *N.Z. Jl Bot.* 10 : 641-72.
A distribution map indicates one example of *R. scandens* confirmed by a herbarium specimen, and one reliable report from the southeast shores of Kaipara Harbour.
200. PALMER, A.D. 1968: Woodhill. *Auckland bot. Soc. Newsl.* 25 : 8-9.
Lists the plants seen, both in the forest and on the sand hills.
201. PALMER, A.D. 1974: Mt Auckland. *Auckland bot. Soc. Newsl.* 31(1) : 13.
Description of the mountain and its flora.
202. PARRIS, B.S. 1972: The genus *Doodia* R.Br. (Blechnaceae : Filicales) in New Zealand. *N.Z. Jl Bot.* 10 : 585-604.
Distribution maps of the different species examined indicate several specimens of *Doodia media australis* were collected from the shores of Kaipara Harbour or Kaipara Heads.
203. PISHIEF, P.J. 1974: Mangroves in New Zealand : A preliminary bibliography. *Misc. Publs N.Z. oceanogr. Inst.* 63 : 10 pp.
Kaipara Harbour is in the middle of the main range of the mangrove, as indicated in the frontispiece.
204. PLEDGE, D.H. 1974: Some observations on *Hydatella inconspicua* (Cheesem.) Cheesem. (Centrolepidaceae). *N.Z. Jl Bot.* 12 : 559-61.
The specimens were collected from Lakes Waihere, Taharoa and Kai-iwi. *Hydatella inconspicua* was recorded from Swan Lake and Lake Rotokawau but the author could not find specimens here. It was, however, found in Lake Humuhumu, these lakes all being freshwater lakes on Kaipara North Head.
205. ROBBINS, R.G. 1949: Bryophyta ecology at Woodhill. Unpublished M.Sc. thesis. University of Auckland.
206. SMIT, B. 1975: An analysis of the determinants of farm enlargement in Northland, New Zealand. *N.Z. Geogr.* 31 : 160-77.
A discussion of agriculture in Hobson, Otamatea and Rodney Counties, these being the farmlands bordering the Kaipara Harbour.

207. SNEDDON, B.V. 1975: Ribbonwoods. *N.Z. Nature Heritage* 4(51) : 1418-20.
Kaipara marks the northern limit of the long-leafed lacebark, *Hoheria sexstylosa*.
208. WARDLE, P. 1968: The taxonomy and distribution of the stipulate species of *Pseudopanax* in New Zealand. *N.Z. Jl Bot.* 6 : 226-36.
Pseudopanax arboreum is recorded from Kaipara Harbour (Fig. 2, p.234).
209. WARREN, D.M. 1972: Woodhill. *Auckland bot. Soc. Newsl.* 29(4) : 11.
Records the plants seen on a visit to Woodhill Forest.
210. WORMALD, B. 1975: Muriwai Lakes. *Auckland bot. Soc. Newsl.* 32(4) : 13.
Describes the plants seen around the lakes on South Kaipara Head.
211. ZOTOV, V.D. 1971: *Zoysia* Willd. (Gramineae) in New Zealand. *N.Z. Jl Bot.* 9 : 639-44.
Zoysia planifolia and *Z. pauciflora* are recorded from Kaipara Harbour, the former from North Head and the latter from both North and South Head. *Zoysia minima* is not recorded from the area.

ZOOLOGY

212. ANDREW, I.G. 1963: White heron invasion, 1957. *Notornis* 10 : 311-15.
Kaipara was the main settling area in the North Auckland district for *Egretta alba*, an immigrant from Australia.
213. BATTON, C.S. 1971: Some aspects of the energetics of *Gobiomorphus* sp. from Lake Rototoa. Unpublished M.Sc. thesis, University of Auckland.
Investigates the energy relationships of the common lake bully, *Gobiomorphus basalis* in Lake (R)Ototoa on Kaipara South Head.
214. BELL, B.D. (Convener) 1975: Field Investigation Committee. *Notornis* 22 : 170-71.
The committee reported about 200 chicks of the Caspian tern were hatched at the South Kaipara Head colony in the previous season.
215. BROCKIE, R.E. 1975: Distribution and abundance of the hedgehog (*Erinaceus europaeus*) L. in New Zealand, 1869-1973. *N.Z. Jl Zool.* 2(4) : 445-62.
Between 1948 and 1973, the hedgehog increased its range northwards into the area around Kaipara Harbour. The earliest record of the hedgehog in the area was in North Kaipara in the period 1920-39 (Figure 1).
216. BROWN, B. 1974: Common sandpiper in the Kaipara Harbour. *Notornis* 21 : 267-68.
Tringa hypoleucos was seen at Port Albert.

217. BULL, P.C.; PORTER, R.E.R. 1975: Distribution and numbers of the rook (*Corvus frugilegus* L.) in the North Island of New Zealand. *N.Z. Jl Zool.* 2(1) : 63-92.
South Kaipara Head is the site of one known rookery.
218. CARROLL, A.L.K. 1969: The pukeko (*Porphyrio melanotus*) in New Zealand. *Notornis* 16 : 101-20.
The pukeko is "common" ... "in country adjacent to Kaipara Harbour".
219. CARROLL, A.L.K. 1970: The white-faced heron in New Zealand. *Notornis* 17 : 3-24.
Kaipara Harbour is an "especially favourable" winter haunt of *Ardea novaehollandiae* with very large flocks present.
220. CASSIE, R.M. 1955: Population studies on the toheroa, *Amphidesma ventricosum* Gray (Eulamellibranchiata). *Aust. J. mar. Freshwat. Res.* 6 : 348-91.
221. CHAPMAN, M.A.; GREEN, J.D. 1973: Copepod production in some northern lakes. *N.Z. limnol. Soc. Newsl.* 9 : 23-24.
Brief note comparing copepod production in the eutrophic Lake Rotorua, mesotrophic Lake Rotoiti and oligotrophic Lake Ototoa. The species investigated was *Calamoecia lucasi*.
222. CHEESEMAN, T.F. 1908: Notice of the occurrence of the lesser frigate-bird (*Fregata ariel*) in the North Auckland district. *Trans. Proc. N.Z. Inst.* 40 : 265-66.
The second record of the lesser frigate-bird in New Zealand, this one being taken at Pahi.
223. COLMAN, J.A. 1976: Geographical variation in fin ray numbers in the New Zealand sand flounder *Rhombosolea plebeia* (Richardson). *N.Z. Jl mar. Freshwat. Res.* 10 : 485-97.
Shelly Beach, Kaipara Harbour was one of the sample locations.
224. CRANFIELD, H.J. 1975: Bluff oysters. *N.Z. Nature Heritage* 5(71) : 1965-70.
Despite its name, the Bluff oyster is found in inlets of northern New Zealand, including Kaipara Harbour.
225. CROCKETT, D.E.; KEARNS, M.P. 1975: Northern little blue penguin mortality in Northland. *Notornis* 22 : 69-72.
Included in the results are 86 specimens of *Eudyptula minor* from North Kaipara Head - Omamari.
226. CURTIN, L. 1970: An experiment to determine the suitability of concrete spat collectors for rock oyster cultivation on the hard limestone foreshore at Kaipara Harbour. *Fish. Tech. Rep.* 51 : 11 pp.
227. CURTIN, L. 1971: Marine department rock oyster spat collecting programme 1969-70. *Fish. Tech. Rep.* 65.

228. CURTIN, L. 1973: Rock oyster spat collecting programme 1971-72. *Fish. Tech. Rep.* 110.
229. EDGAR, A.T. 1966: Welcome swallows in New Zealand, 1958-1965. *Notornis* 13 : 27-60.
A detailed discussion on the general biology of *Hirundo neoxena*, including its distribution. Has been reported breeding around Kaipara Harbour where its population is expected to increase.
230. EDGAR, A.T. 1974: Welcome swallow : a success story. *N.Z. Nature Heritage* 3(31) : 860-61.
The Welcome swallow was reported breeding around the Kaipara Harbour at least as early as 1965.
231. EDGAR, A.T.; GRANT, P. 1969: Nankeen kestrels in New Zealand. *Notornis* 16 : 288-98.
Lists occurrences and field notes on *Falco cenchroides*, including sightings near Poutu (North Kaipara Head).
232. EDGAR, A.T.; MCKENZIE, H.R.; SIBSON, R.B. 1969: Arctic waders in northern New Zealand summer 1968-69. *Notornis* 16 : 285-87.
Kaipara Harbour was one of the areas monitored.
233. FISH, G.R. 1966: An artificially maintained trout population in a Northland lake. *N.Z. Jl Sci.* 9 : 200-10.
Discusses Lake Waingata, a coastal sand-dune lake just northwest of Pouto.
234. FLEMING, C.A. 1944: A petrel on the North Island mainland. *N.Z. Bird Notes* 1 : 58-59.
Records a petrel of uncertain species from the South Kaipara Head peninsula.
235. FLEMING, C.A. 1950: The molluscan fauna of the Pahi Greensands, North Auckland. *Trans. Proc. R. Soc. N.Z.* 78 : 236-50.
236. FLEMING, C.A. 1958: A new species of *Sigapatella* (Gastropoda) from Cape Maria van Diemen, Northland, New Zealand. *Rec. Dom. Mus. Wellington* 3(2) : 141-43.
"*Sigapatella superstes* n.sp. from Cape Maria van Diemen is characterised by its fine irregular sculpture, shared among Australasian species only by *S. vertex* Marwick, an Eocene fossil from North Otago, and *S. otamatea* Laws, a Lower Miocene fossil from Kaipara Harbour. The survival in northernmost New Zealand of Mollusca formerly more widespread is discussed." (Abstr.)
237. GARRICK, J.A.F.; PAUL, L.J. 1975: Skates, rays and elephant fish. *N.Z. Nature Heritage* 4(58) : 1601-10.
Elephant fish occur on the continental shelf mainly of the South Island, but are recorded from Kaipara in the northwest.
238. GLEESON, N.M.; JENKINS, J.A.F.; SIBSON, R.B. 1967: Hudsonian godwit in Kaipara. *Notornis* 14 : 224.

238. Cont'd.
Description of various waders, including a Hudsonian godwit just north of Oyster Point.
239. GRANT-MACKIE, J.A. 1965: New invertebrates from the Lower Miocene Pakurangi Beds, Kaipara Harbour, with a redescription of the gastropod *Clifdenia* Laws. *Trans. R. Soc. N.Z., Geol.* 3 : 85-94.
Describes the gastropod, *Clifdenia turneri inflata*, n.subsp. and the stalked barnacle *Arcoscalpellum distinctum* n.sp. from the Upper Otaian (Lower Miocene).
240. GREENAWAY, J.P.C. 1969: Population surveys of toheroa (Mollusca : Eulamellibranchiata) on Northland beaches, 1962-67. *N.Z. Jl mar. Freshwat. Res.* 3 : 318-38.
The heads of Kaipara Harbour are included in the main west coast toheroa beaches.
241. GREENAWAY, J.P. 1972: Further data from population surveys of toheroa on Northland beaches 1962-71. *Fish. Tech. Rep.* 85 : 33 pp.
242. GREENAWAY, J.P. 1974: Population surveys of toheroa on Northland beaches 1972-75. *Fish. Tech. Rep.* 128 : 13 pp.
243. GREENAWAY, J.P.C. 1975: The effect of a limited open season for toheroa on Dargaville beach 1974. *Fish. Tech. Rep.* 139 : 11 pp.
244. GREENAWAY, J.P. 1975: Seasonal condition of rock oysters, *Crassostrea glomerata*, in North Auckland. *Fish. Rech. Rep.* 142 : 12 pp.
Kaipara Harbour was one of the localities investigated.
245. HARRISON, M. 1970: Kiwi distribution. *Wildlife - A Review* 2 : 23-25.
The North Island kiwi is shown to occur around the northern slopes of Kaipara Harbour in the records from 1950- to date.
246. HAYWARD, B.W. 1976: *Spirula* (Sepioidea : Cephalopoda) from the Lower Miocene of Kaipara Harbour, New Zealand (Note). *N.Z. Jl Geol. Geophys.* 19 : 145-47.
The first confirmed fossil record of the squid *Spirula* was collected from Hukatere Peninsula.
247. HOGGINS, F.E.; BROOKS, R.R. 1973: Natural dispersion of mercury from Puhipuhi, Northland, New Zealand. *N.Z. Jl mar. Freshwat. Res.* 7.: 125-32.
Investigates the natural dispersion of mercury along the course of the Wairoa River, which enters Kaipara Harbour at Dargaville. The mercury level of cockles, *Chione stutchburyi*, rock oysters, *Crassostrea glomerata*, pipis, *Paphies australe*, and green-lipped mussels, *Perna canaliculus* were measured and compared with specimens from other areas.

248. HUDSON, F.P. 1959: Petrels over the North Auckland mainland. *Notornis* 8 : 166.
Petrels heard after dark over Kaipara Flats. Suggested they are Cook's petrels (*Pt. cooki*) heading for Little Barrier Island.
249. HUDSON, F.P. 1960: Lesser frigate-bird in Kaipara. *Notornis* 9 : 109.
Observation in the southern part of Kaipara Harbour, of *Fregata ariel*.
250. HUDSON, F.P. 1963: Another Kaipara record of the lesser frigate-bird. *Notornis* 10 : 238.
Describes a male lesser frigate-bird (*Fregata ariel*) attacking a Caspian tern.
251. HUDSON, F.P. 1966: A starling roost in Kaipara Harbour. *Notornis* 13 : 220.
Observations on Moturemu Island off the mouth of the Tauhoa Creek in the southern part of Kaipara Harbour.
252. HUDSON, F.P. 1968: Spine-tailed swifts over Kaipara Flats. *Notornis* 15 : 42.
Description of six *Chaetura caudacuta*.
253. HUDSON, F.P. 1973: Probable sighting of fork-tailed swift. *Notornis* 20 : 168.
The sighting was at Kaipara Flats.
254. KELLY, G.G. 1932: Birds of the Kaipara Harbour. *A. Rep. Auckland Acclimatisation Soc.* 1932.
255. LAWS, C.R. 1937: Review of the Tertiary and Recent Neozelanic Pyramidellid Molluscs. No. 1 - the genus *Turbonilla*. *Trans. R. Soc. N.Z.* 66(4) : 402-22.
256. LAWS, C.R. 1938: Review of the Tertiary and Recent Neozelanic Pyramidellid Molluscs. No. 2 - the genus *Chemnitzia*. *Trans. R. Soc. N.Z.* 67(1) : 47-70.
257. LAWS, C.R. 1939: The molluscan faunule at Pakaurangi Point, Kaipara. 1. *Trans. R. Soc. N.Z.* 68 : 466-503.
Records 87 species of molluscs new to these beds.
258. LAWS, C.R. 1941: The molluscan faunule at Pakaurangi Point, Kaipara. 2. *Trans. R. Soc. N.Z.* 71 : 134-51.
259. LAWS, C.R. 1944: The molluscan faunule at Pakaurangi Point, Kaipara. 3. *Trans. R. Soc. N.Z.* 73 : 297-312.
260. LAWS, C.R. 1947: Tertiary Mollusca from Hokianga District, North Auckland. *Trans. Proc. R. Soc. N.Z.* 76 : 537-41.
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261. LAWS, C.R. 1948: Further Tertiary Mollusca from Hokianga District, North Auckland. *Trans. Proc. R. Soc. N.Z.* 77 : 142-50.
Correlates the Pakaurangi Beds with fossiliferous deposits at Hokianga.
262. LAWS, C.R. 1948: A new fossil Cirripede from the New Zealand Miocene beds. *Trans. Proc. R. Soc. N.Z.* 77 : 151-52.
Discusses the Pakaurangi Point beds.
263. LONGWORTH, J.F.; ARCHIBALD, R.D. 1975: A virus of black beetle, *Heteronychus arator* (F.) (Coleoptera : Scarabaeidae). *N.Z. Jl Zool.* 2(2) : 233-36.
The study area was a kikuyu pasture at Wharepapa near Helensville.
264. MCCASKILL, L.W. 1945: Preliminary report on the present position of the Australian magpies (*Gymnorhina hypoleuca* and *G. tibicen*) in New Zealand. *N.Z. Bird Notes* 1 : 86-104.
A fairly detailed report on the habits and distribution of the Australian magpie. Reported from several locations around Kaipara Harbour.
265. MacDONALD, N. 1953: Inquiry into the status of fairy tern in N.Z. Interim report. *Notornis* 5 : 84.
This species has been observed at Kaipara Harbour.
266. McDOWALL, R.M. 1974: Freshwater fishes - the Galaxiids. *N.Z. Nature Heritage* 2(20) : 559-64.
Includes species from the northern head of Kaipara Harbour and the Kai-Iwi lakes.
267. MCKENZIE, H.M.; MCKENZIE, H.R.; PRICKETT, A.; PRICKETT, J. 1958: White ibises at Kawhia, Kaipara and Te Awamutu in 1957. *Notornis* 8 : 56.
Records a white ibis from Te Kopuru.
268. MCKENZIE, H.R. 1965: Field study course Kaipara Harbour, January 1965. *Notornis* 12 : 70-79.
Detailed list of the birds observed in the various sections of the harbour.
269. MCKOY, J.L. 1975: Further records of *Teredicola typicus* C.B. Wilson, 1942 (Copepoda : Cyclopoida) from shipworms in northern New Zealand (Note). *N.Z. Jl mar. Freshwat. Res.* 9 : 417-21.
Forty-five specimens of *Bankia australis* from Kaipara Harbour were examined and all were uninfected.
270. MARSHALL, P. 1918: The Tertiary molluscan fauna of Pakaurangi Point, Kaipara Harbour. *Trans. Proc. N.Z. Inst.* 50 : 263-78.
Increases the recorded fossils from Pakaurangi Point (cf. Marshall 1917). Describes and figures all the new species and discusses the nature of the fauna.

271. MARSHALL, P. 1927: A Kaipara ammonite. *Trans. Proc. N.Z. Inst.* 58 : 357-58.
Describes *Grossouvrites denticulatus*, which had previously been described as *Novakites denticulatus* in Marshall (1926).
272. NEW ZEALAND MARINE DEPARTMENT, 1929-1941: Report on Fisheries. (Annual Reports for the years 1929-1941 inclusive).
Includes monthly means from sporadic surface observations at Kaipara from 1929 to 1941.
273. NIELSEN, S.A.; NATHAN, A. 1975: Heavy metal levels in New Zealand Molluscs. *N.Z. J. mar. Freshwat. Res.* 9 : 467-81.
Includes samples from Kaipara Harbour.
274. ORDISH, R.G. 1966: A systematic revision of the New Zealand water beetles (Coleoptera : Dytiscidae). *Rec. Dom. Mus. Wellington* 5(22) : 217-64.
A distribution map (p.262) records *Knantus pulverosus* from North Kaipara Head.
275. PRACY, L.T. 1974: Opossums (1). *N.Z. Nature Heritage* 3(32) : 873-82.
Studies of opossum distribution showed the southern Kaipara region to be occupied in 1948-1950, and in the survey of 1961-63, the northern Kaipara region had been invaded and colonised.
276. PRICKETT, A.; PRICKETT, J. 1956: Black-fronted terns (*C. albobristatus*) in Kaipara. *Notornis* 6 : 244-45.
Records of flock at Tangaihi, probably migrants from South Island.
277. RAPSON, A.M. 1952: The toheroa, *Amphidesma ventricosum* Gray (Eulamellibranchiata), development and growth. *Aust. J. mar. Freshwat. Res.* 3 : 170-98.
In the early years of the 20th century four factories on north Kaipara beaches were canning toheroa, operating on a system of strip digging. Includes descriptions of north and south Kaipara beaches.
278. RAPSON, A.M. 1954: Feeding and control of toheroa (*Amphidesma ventricosum* Gray) (Eulamellibranchiata) populations in New Zealand. *Aust. J. mar. Freshwat. Res.* 5 : 486-512.
279. ROBB, J. 1974: New Zealand lizards (2). *N.Z. Nature Heritage* 2(25) : 681-89.
Records the skink *Leiolopisma latilinearum* from Kaipara.
280. SIBSON, R.B. 1948: Black-fronted tern in the north. *N.Z. Bird Notes* 3 : 10-12.
The most northerly record is of a juvenile at Pouto, North Kaipara.
281. SIBSON, R.B. 1955: Probable white-capped (lesser) noddy in Kaipara. *Notornis* 6 : 176.

281. Cont'd
The first record of this species from the mainland of New Zealand.
282. SIBSON, R.B. 1963: A population study of the wry-billed plover (*Anarhynchus frontalis*). *Notornis* 10 : 146-53.
Kaipara Harbour is the third most important winter-quartering area of the wrybill.
283. SIBSON, R.B. 1963: Black-fronted tern at Kaipara in summer. *Notornis* 10 : 186.
The northern limit of the winter range of *Chlidonias albostratus* is Kaipara Harbour. Also observed were white-fronted terns (*Sterna striata*), little terns (*Sterna albifrons*) and various waders.
284. SIBSON, R.B. 1966: Increasing numbers of South Island pied oystercatchers visiting northern New Zealand. *Notornis* 13 : 94-97.
Kaipara Harbour is probably the most important wintering area in the North Island.
285. SIBSON, R.B. 1969: Giant petrels as migrants to northern New Zealand. *Notornis* 16 : 45-50.
Petrels banded on Signey Island, South Orkneys and Bird Island, South Georgia, have been recovered in Kaipara Harbour.
286. SIBSON, R.B. 1974: Migrant waders. *N.Z. Nature Heritage* 2(30) : 831-36.
Kaipara Harbour is one of the wintering sites of the pied oystercatcher.
287. SIBSON, R.B.; MCKENZIE, H.R.; URQUHART, D.A. 1962: Little egrets molested by gulls. *Notornis* 10 : 44.
Brief description of a little egret (*Egretta garzetta*) being attacked by several red-billed gulls (*Larus scopulinus*) at Port Albert in Kaipara.
288. SIBSON, R.B.; URQUHART, D.A. 1960: Terek sandpiper in Kaipara. *Notornis* 8 : 265-66.
Describes various species observed on the sandy tidal flats of mid-Kaipara. This is the third of the large harbours in the Auckland district from which the terek sandpiper has been recorded.
289. STEPHENSON, A.B. 1971: Further new records of fish in New Zealand waters. *Rec. Auckland Inst. Mus.* 8 : 235-41.
Records *Cyttoidops ventralis* from off Kaipara Head.
290. STEPHENSON, A.B. 1975: Sperm whales stranded at Muriwai Beach, New Zealand. *N.Z. Jl mar. Freshwat. Res.* 9 : 299-304.
The stranding occurred about 11.5 km south of the entrance to Kaipara Harbour.

291. STIDOLPH, R.H.D. 1954: Status of godwit in New Zealand.
Notornis 6 : 31-39.
The godwit is reported in 'countless thousands' in Kaipara Harbour.
292. TATTERSALL, W.M. 1923: Crustacea. Part VII - Mysidacea.
Nat. Hist. Rep. Br. Antarct. Terra Nova Exped. 1910, 3 : 273-304.
Gives the type locality of *Tenagomysis chiltoni* as "tidal inlet, Parakai" which is at the south end of Kaipara Harbour. The species is described as "abundant". (p.292).
293. WAGENER, L.J. 1966: Welcome swallows trying to nest in a boat in Kaipara Harbour. *Notornis* 13 : 196.
A pair found at Port Albert; they were inadvertently locked inside the cabin and died of starvation.
294. WALLER, M.A. 1959: Sulphur-crested cockatoo at Kaipara Heads. *Notornis* 8 : 165.
Seen on the South Head being blown before a strong westerly wind. The author suggests the bird was blown across the Tasman Sea.
295. WAUGH, G.D.; GREENAWAY, J.P. 1967: Further evidence for the existence of sub-littoral populations of toheroa, *Amphidesma ventricosum* Gray (Eulamellibranchiata), off the west coast of New Zealand. *N.Z. Jl mar. Freshwat. Res.* 1 : 407-11.

HYDROLOGY AND METEOROLOGY

296. FISH, G.R. 1969: Oxygen content in some New Zealand lakes.
Verh. int. Verein. theor. angew. Limnol. 17 : 392-403.
Includes Lake Waingata.
297. GREEN, J.D. 1975: Physico-chemical features of Lake Ototoa, a sand-dune lake in northern New Zealand. *N.Z. Jl mar. Freshwat. Res.* 9 : 199-222.
A study of one of the lakes on Kaipara South Head.
298. HEATH, R.A. 1975: Stability of some New Zealand coastal inlets. *N.Z. Jl mar. Freshwat. Res.* 9 : 449-57.
This analysis indicates that the entrance cross-sectional area to Kaipara Harbour is determined by tidal flow (and hence the tidal compartment).
299. HEATH, R.A. 1976: Broad classification of New Zealand inlets with emphasis on residence times. *N.Z. Jl mar. Freshwat. Res.* 10(3) : 429-44.
Discusses indirect methods of calculating the residence time of the water and indicates that tidal flushing is probably the most important flushing mechanism in Kaipara Harbour.
300. HOUNSELL, W.K. 1935: Hydrographic observations in Auckland Harbour. *Trans. Proc. R. Soc. N.Z.* 64 : 257-71.
Discusses mean annual ranges at Auckland, Tamaki, Russell and Kaipara.

301. JACKSON, J. [undated]: Results of drogue tests in Kaipara Harbour. Unpublished report, Ministry of Works and Development, P.O. Box 33-255, Takapuna.
302. IRWIN, J. 1974: Water clarity records from twenty-two New Zealand lakes. *N.Z. Jl mar. Freshwat. Res. 8* : 223-27.
Includes Humuhumu on North Kaipara Head.
303. IRWIN, J. 1975: Checklist of New Zealand lakes. *Mem. N.Z. oceanogr. Inst. 74* : 161 pp.
Describes the lakes found in each sheet of the N.Z. Department of Lands and Survey series maps NZMS 1. Kaipara Harbour features on sheets 27, 28, 32, 33 and 37 (p.18-20) and many small sand-dune lakes are documented.
304. MAUNDER, W.J. 1974: The dynamics of climate. *N.Z. Nature Heritage 1(11)* : 294-302.
Figures 2-4 show the mean annual rainfall at Kaipara Harbour to be 1100 mm to 1799 mm, with a mean annual maximum temperature of 26.0°C to 27.9°C and mean annual minimum of -20°C to +1.9°C.
305. SOIL CONSERVATION AND RIVERS CONTROL COUNCIL, 1955-1964: Hydrology Annual 2-12. Ministry of Works and Development, Wellington.
Gives tabulated data on river gaugings, floods, minimum flows and temperatures of rivers and lakes. Includes Wairoa, Kaipara, Puketotara and Wairau rivers. Volume 12, p.146 shows a map "Minimum flows with a probability of occurrence of once in ten years : Northland" the southern limit of which is the entrance to Kaipara Harbour. The values around the northern shores of the harbour vary from 0.06 cusecs per square mile on North Head to 0.22 cusecs per square mile at Kumate Bluff.
306. SPARROW, C.J. 1968: The climatic character of the Auckland rural area. *Earth Sci. J. 2* : 69-87.
The area covered includes the southern part of Kaipara Harbour.

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This is a general index including place names, specific and common names, geological terms and artifacts mentioned in the title or annotation. The charts are not included in the index. Authors names are not included in the index.

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 Journal of the Royal Society of New Zealand 1-6(3)
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