

5 420 Y

See Also 54194, 55694

U.S. National Park Service (F.R. Black)

1981 (2001)

Historic Resource Study

JAMAICA BAY: A HISTORY

**Gateway National Recreation Area
New York, New Jersey**

Cultural Resource Management Study No. 3

Frederick R. Black
Associate Professor of History
C. W. Post Center, Long Island University
for the
Division of Cultural Resources
North Atlantic Regional Office
National Park Service
U.S. Department of Interior

Washington, D.C., 1981

**Electronic Transcription
Formatting and Editing**

James L. Brown
Gateway National Recreation Area
2001

281

OCR

FORWARD

Cultural Resources and Natural Areas

Jamaica Bay is a place well known for its flora and fauna. This study adds another dimension to Jamaica Bay - its use by humans, especially during the Historic period. Understanding the human use of the Bay and its shore is both timely and historically interesting. Historically it is often entertaining, as well as informative, to learn how our ancestors, and the Native Americans who lived here before them, made their livings in an environment that is at once the same and different from the one we know - - the same in that much of the geography is similar; different in that the recent past has witnessed massive alterations to the natural environment of the Bay.

This study helps place the substantial modern changes in perspective. In doing that, it is timely. Increasingly we are made aware of the relatedness of cultural and natural phenomena. Jamaica Bay is no more a strictly natural resource than Manhattan Island. The history of human land use is an essential guide to comprehending the Bay's natural environment currently and in the near future.

The goals of Dr. Black's research were primarily managerial. We sought sufficient information to evaluate cultural resources, that is, historic and prehistoric archeological sites and historic structures within the Jamaica Bay Unit of Gateway National Recreation Area. Happily, the study provides much more than a fine management aid. It has a large potential to inform interested persons about the area and assist the Gateway staff in interpreting it. For these reasons the Park Service has funded the printing and distribution of the study.

Francis P. McManamon
Chief, Division of Cultural Resources
2 March 1981

TABLE OF CONTENTS

<u>INTRODUCTION: Scope, Problems, Methods, Sources</u>	1
<u>I. JAMAICA BAY, 1600-1865</u>	4
<u>Early Seventeenth-Century Indian Life</u>	4
<u>Flatlands</u>	9
<u>Bergen and Mill Islands</u>	11
<u>Barren Island</u>	14
<u>Flatbush, New Lots and Jamaica</u>	17
<u>Agriculture</u>	19
<u>Jamaica Bay Fisheries</u>	21
<u>Shipping</u>	22
<u>II JAMAICA BAY AFTER 1865: ISLANDS, LANDINGS, AND MAINLAND</u>	25
<u>Barren Island</u>	25
<u>Canarsie</u>	43
<u>New Lots</u>	48
<u>Howard and Hamilton Beaches</u>	51
<u>The Islands</u>	56
<u>III JAMAICA BAY AFTER 1865: FISHING, SHIPPING, TRANSPORTATION,</u> <u>TOPOGRAPHICAL CHANGE</u>	61
<u>Fishing</u>	61
<u>Shipping</u>	65
<u>Transportation</u>	68
<u>Topographical Changes</u>	71
<u>CONCLUSIONS AND RECOMMENDATIONS</u>	80
<u>FOOTNOTES</u>	83
<u>Chapter I. Jamaica Bay, 1600-1865</u>	83
<u>Chapter II. Jamaica Bay After 1865: Islands, Landings, and Mainland</u>	87
<u>Chapter III. Jamaica Bay After 1865: Fishing, Transportation, Topographical Change</u>	91
<u>ANNOTATED BIBLIOGRAPHY</u>	95
<u>I. Published Historical Sources</u>	95
<u>II. Census Reports</u>	96
<u>III. Town and Municipal Records and Reports</u>	96
<u>IV. New York State Reports and Publications</u>	97
<u>V. Cartographic Sources</u>	98
<u>VI. Newspapers</u>	99
<u>VII. Secondary</u>	99
<u>VIII. Directories</u>	102
<u>IX. Miscellaneous</u>	103

LISTS OF FIGURES and TABLES

Figure 1 Jamaica Bay: General Reference	3
Figure 2 Indian Sites	5
Figure 3 Flatlands and New Lots, 1700	13
Figure 4 Barren Island, 1850-1911	16
Figure 5 Flatlands and New Lots, 1873	28
Figure 6 Barren Island and Flatlands Bay, 1911	34
Figure 7 Barren Island and Flatlands Bay, 1926	35
Figure 8 Barren Island and Flatlands Bay, 1940	36
Figure 9 Mill Island and Bergen Island, 1911.....	40
Figure 10 Mill Basin and Bergen Beach, 1926.....	41
Figure 11 Mill Basin and Bergen Beach, 1940.....	42
Figure 12 Canarsie Shoreline, 1911-1940	46
Figure 13 North Shore, 1911	53
Figure 14 North Shore, 1926	54
Figure 15 North Shore, 1940	55
Figure 16 Central Islands, 1911.....	76
Figure 17 Central Islands, 1926.....	77
Figure 18 Central Islands, 1940.....	78
Figure 19 Central Islands, 1977.....	79
Table 1 Flatlands Agriculture 1865 and 1875	20
Table 2 Barren Island Industries.....	29
Table 3 Flatlands Occupations: Agriculturists And Bay Related Workers.....	62
Table 4 Powered Oyster Boats Five Tons or Over Active in Jamaica Bay	63
Table 5 Ferry Service, Jamaica Bay	66

INTRODUCTION: Scope, Problems, Methods, Sources

This history covers that portion of Jamaica Bay within the confines of the Jamaica Bay Unit of the Gateway National Recreation Area. That unit includes essentially the shore front east and south of the Belt or Shore Parkway from Plum Beach to Spring Creek Park, the waters of the bay itself, and the islands and marshes therein. Not within the Jamaica Bay Unit are the communities of Broad Channel, nearly all of the mainland on the Queens side of the bay, or any part of Rockaway peninsula. Chronologically, the study begins with the arrival of the Dutch in the seventeenth century and ends with the middle of the twentieth century. Topically, the focus falls on the historic "uses" of the bay and its periphery. Generally, those uses consist of residential settlement; agriculture, industry, fishing, shipping, other forms of transportation, and recreation. Some of these activities required alteration in the topography of the bay, and a description of the major alterations is contained in this study.

Although the foregoing paragraph defines the broad perimeters of this history, they have not been rigidly observed. A number of considerations has dictated departures from strict boundaries in time, space and topic. For example, more than likely, before the early nineteenth century, no one actual resided in any part of the area now within the Jamaica Bay Unit. And yet during that time, inhabitants of the larger vicinity used the bay. To understand that usage requires investigation into the communities within the vicinity. On the other hand, certain activities clearly within the formal boundaries of the Jamaica Bay Unit are poorly covered in the surviving record. For almost three hundred years, Jamaica Bay constituted a fisherman's paradise. Yet little can be determined about fishing in the bay prior to the middle of the nineteenth century.

Other topics have been adequately covered in the existing secondary works, including those produced for the National Park Service. The history of Floyd Bennett Field is well enough known, yet for a longer time than that field was an active airport, there had existed almost in the same area a strange industrial complex, the Barren Island fish oil and fertilizer factories about which little has been written. Thus logic, the availability of sources the existing secondary literature, and the preferences and competence of the writer have occasioned flexibility in the scope of the present study.

Some of the problems encountered in the preparation of this history have been already hinted at, such as the failure of early sources to comment at length about commonplace matters. For example, what kinds of boats eighteenth-century fishermen used is far from clear. Reflections upon the inadequacies of sources is doubtless all too common among historians. However Jamaica Bay presents special problems. Primary is the wide dispersal of the record of the bay. Until the twentieth century, few regarded Jamaica Bay as a whole unit. Politically, its waters and adjacent lands fell with numerous jurisdictions—the towns of Gravesend, Flatlands, Flatbush, New Lots, Jamaica and Hempstead; the counties of Kings and Queens; and later the municipalities of Brooklyn and of Greater New York. This means that extant records are scattered among numerous depositories. Some apparently have been lost, such as the papers of the Canarsie Chamber of Commerce.

Methodologically, this history is conventional, and the chief effort has been to piece together information from primary sources where possible and from secondary authorities where need be so as to achieve an understanding of Jamaica Bay's past. Some simple quantification analyses have been employed requiring no prefatory elaboration.

Among the more rewarding primary sources used in this study are nineteenth-century federal and state censuses for the Town of Flatlands. Beginning with the year 1850, those reports list occupations and thus provide important information about economic activities in the vicinity of the bay. The records of the town government of Flatlands have also been explored. Especially the annual assessment rolls proved invaluable in identifying the companies engaged in manufacturing at Barren Island. When Flatlands ceased existence as an independent town and joined Greater New York, its common lands, including most of the marshlands along the western side of the bay, became the property of New York City, administered for over three decades by the Department of Docks and Ferries. The annual reports of that department are infuriatingly general with respect to many matters, but the rent rolls they contain list all leases of land under water and of other sites in Jamaica Bay. Such lists are an index to use of the bay for purposes of vacation-type buildings. A variety of maps have been consulted. Most accurate and useful are the maps of the United States Coast and Geodetic Survey, now known as the National Oceanic and Atmospheric Administration. Comparison of the Jamaica Bay charts for the years 1878, 1911, 1926, 1940, and 1977 provides a means of tracing the changes in the bay's topography. In the bibliography of this study, particular sources will receive further comment.

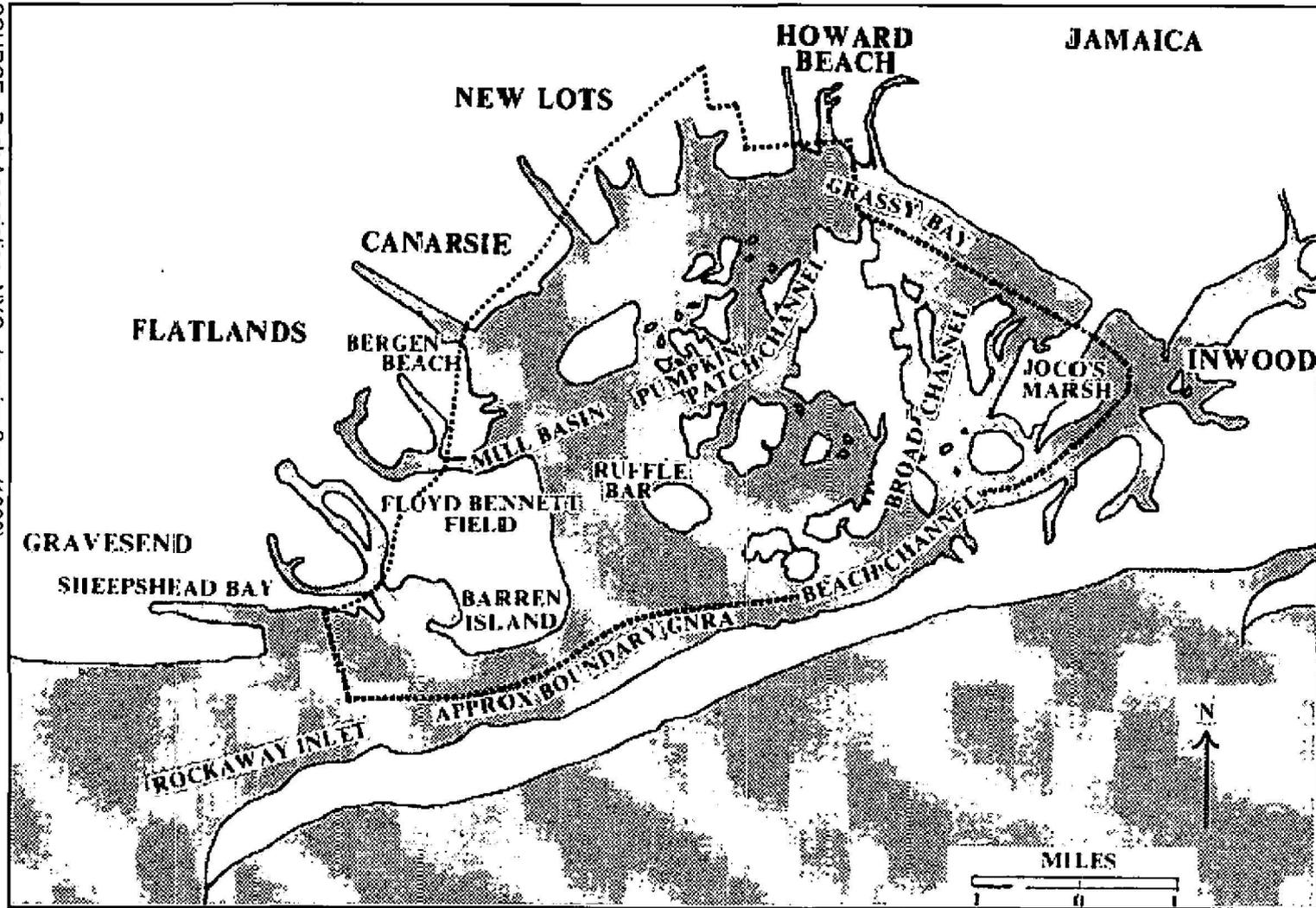


Figure 1 Jamaica Bay: General Reference

SOURCE: Park Association, NYC, Jamaica Bay, (1968)

I. JAMAICA BAY, 1600-1865

The waters of Jamaica Bay did not serve as an avenue for settlement of the southwestern segment of Long Island. European settlers arrived in the seventeenth and eighteenth centuries by way of land routes. Those settlers were not the first human inhabitants of the area, since several important villages of the Canarsie Indians were in the general vicinity of the bay. From 1624 to 1664, western Long Island, Manhattan and other parts of the Hudson Valley were included in the province of New Netherlands, administered by the Dutch West India Company.

Settlement or other permanent use of Long Island was delayed until 1636, when the Dutch began activity in what became Kings County. They negotiated for land and started settlements at Amesfort or Flatlands and at Gowanus Bay. Soon the Dutch West India Company secured from the Indians title to virtually all of the land in Kings County.

Conquest of New Netherlands by the English in 1664 was followed by a smooth transition of Long Island's Dutch inhabitants into their new status as subjects of the crown of England. A century later, American colonists embarked on a movement that climaxed in independence from England. During the Revolutionary War, towns in the vicinity of Jamaica Bay, along with the rest of western Long Island, had an experience different from others in America since following their victory in the battle of Brooklyn in 1776; British Forces established an occupation that persisted until 1783 and the end of the war.

Early Seventeenth-Century Indian Life

Historical and archaeological literature refers to numerous Indian sites in the Jamaica Bay vicinity. According to 1934 work by Reginald Bolton thirteen sites existed within two or three miles of the bay. Those in what became Kings County were Narriock (Sheepshead Bay), Massabarkem (Gravesend), Ryders Pond (Gerritsen Creek), Keskaechqueren (Flatlands), Winnipague (Bergen Beach), Canarsie, and Muskyttehool, on the upper reaches of Bedford Creek. The Queens County sites consisted of Jamaica, Aqueduct, and locations on Hawtree, Bergen, Cornell, and Hassock Creek.¹ Several entries on Bolton's list, such as Muskyttehool and Massabarkem, are merely places assigned Indian names in historical documents and suspected of having importance in Indian activities.

Subsequent scholarship tends to limit sites to places known to have contained artifacts, namely Ryders Pond, Bergen Beach and Aqueduct.² All of the sites, both historic and archaeological, have been destroyed by filling and construction, and, prior to that destruction, none was the location of professional archaeological field work.

¹ Reginald Pelham Bolton, *Indian Life Long Ago in the City of New York* (Port Washington, N.Y.: Ira J. Friedman, 1971; originally published 1934), 144-51.

² Carlyle Shreeve Smith, *The Archaeology of Coastal New York* (vol. 45, part 2, *Anthropological Papers of the Museum of Natural History* (New York: American Museum of Natural History, 1950); Lynn Ceci, "The Effect of European Contact and Trade on the Settlement Patterns of Indians in Coastal New York, 1524-1665: The Archaeological and Documentary Evidence," diss. City University of New York, 1977.

SOURCE: Bolton, *Indian Life*, pp. 144, 51

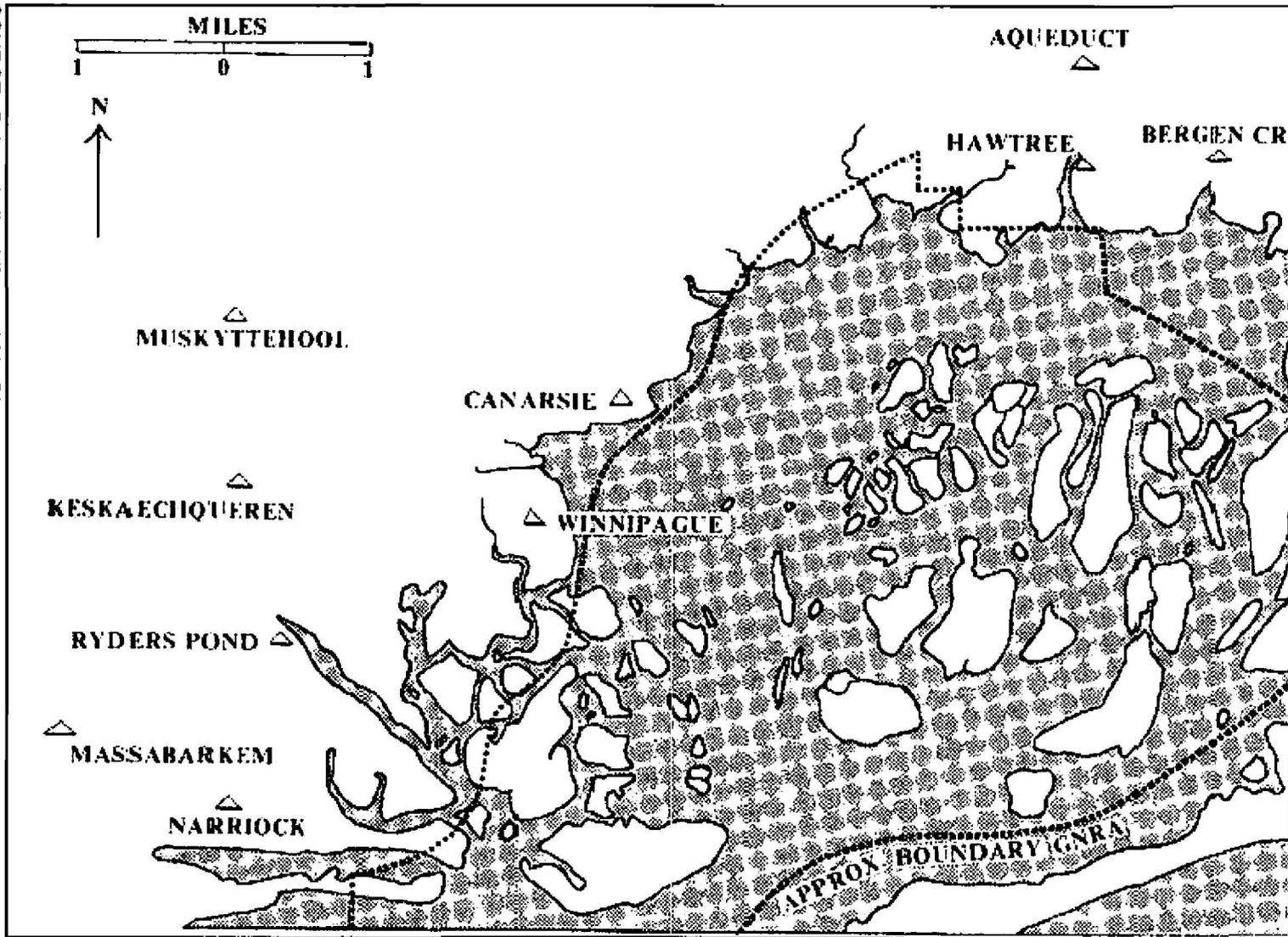


Figure 2 Indian Sites

The best information comes from a collection of Ryders Pond artifacts, originally assembled in the late 1890s without field notes or stratigraphic data and systematically analyzed in 1961.³

Generally speaking, specific archaeological information about aboriginal cultures at Jamaica Bay during the early historic period is slim. Documentary evidence, although frequently lacking in particulars and often uncertain respecting exact locations, provides some insights. Moreover, on the basis of findings for archaeological sites elsewhere in coastal New York, scholars have produced a model of Indian culture at the time of contact. The cultural pattern of Indians of western Long Island at the end of the sixteenth century is classified by archaeologists as Late Woodland, East River Aspect, Clasons Point Phase. Important elements in that cultural pattern include permanent settlements, occupying approximately one acre and located on tidal streams and bays. Profuse remains of marine shellfish and smaller amounts of mammal, bird, amphibian, and fish bones indicate an economy emphasizing fishing and hunting. Fish were captured by nets weighted with stones and by single-piece barbless bone hooks. Shellfishing equipment consisted of dug-out canoes and wooden rakes.⁴

Recently Lynn Ceci has questioned the role of maize cultivation among late pre-contact coastal peoples. Others admit that the evidence for such cultivation is slight, but nevertheless conclude the practice was well established. Clasons Point artifacts include stone hoes, stone pestles, shallow mortars, and wooden grinding gears, all of which suggest the raising of corn. Ceci's claim is that the production of maize became extensive after and as a result of contact with Europeans.⁵

No indications have been discovered that native peoples in the vicinity of Jamaica Bay did not conform to the general culture associated with Clasons Point. Those people, along with others of coastal New York, spoke Algonkian languages. Politically, they were part of the Metoac confederacy, a loose affiliation of the thirteen ethnic groups on Long Island. Among the western Metoac were two closely related groups, the Canarsie and the Rockaway. Lands of the Canarsie included all of modern Kings County and part of the town of Jamaica. The bulk of Queens County, including the remainder of Jamaica, and the southern part of the town of Hempstead were occupied by the Rockaway.⁶ Thus, the western and northern shores of Jamaica Bay fell within the territory of the Canarsie, and the eastern belonged to the Rockaway.

The Canarsie had four important sites near the bay. Earlier authorities and those relying on them assert that the main village of the Canarsie was located in the Canarsie section of the Dutch town originally known as Amesfort and later as Flatlands. Archaeologically, the site is said to have been conspicuous because of "immense shell heaps." Bolton describes Canarsie as "a village site," with "extensive planting fields, extended back from Canarsie Beach Park as far as Avenue J, centered on East 92nd Street."⁷ Documentary evidence substantiates the existence at Canarsie of Indian maize fields.

Another Canarsie site was Winnipague, later known as Bergen Island or Bergen Beach. Bolton, who

3. Julius Lopez and Stanley Wisniewski, "The Ryders Pond Site, Kings County, New York," *The Coastal Archaeological Reader: Selections from the New York State Archaeological Bulletin, 1954-1977: Readings in Long Island Archaeology and Ethnic History*, vol. II (Stony Brook, N.Y.: Suffolk County Archeological Association, 1978), 206-27, 233-47.

4. William A. Ritchie, *The Archaeology of New York State* (Garden City, N.Y.: The Natural History Press, 1965), 269-71; Smith, 101, 158.

5. William A. Ritchie and Robert F. Funk, *Aboriginal Settlement Patterns in the Northeast* (Memoir 20, New York State Museum and Science Service; Albany: University of the State of New York, 1973), 178; Ritchie, 270; Ceci, 1-3, 191.

6. Allen W. Trelease, *Indian Affairs in Colonial New York* (Port Washington, N.Y.: Ira J. Friedman, 1977; originally published 1960), 7-9.

7. F. M. Rutenber, *History of the Indian Tribes of Hudson's River* (Port Washington, N.Y.: Ira J. Friedman, 1971; originally published 1872), 73; William Wallace Tooker, *The Indian Place-Names of Long Island and Islands Adjacent* (Port Washington, N.Y.: Ira J. Friedman, 1962; originally published 1911), 31-33; John O'Halloran, "Canarsie Indian Sites," *Long Island Forum*, vol. XIII, number 4 (April 1950), 63-64, 66, 75; Arthur C. Parker, *The Archeological History of New York* (Albany: University of the State of New York, 1920), 582; Bolton, 148.

categorizes the site as an "important station," writes of "the extensive shell beds on this island, and stone implements." In 1949, another writer actually retrieved prepared conch whorls and a broken arrowhead at Bergen Beach. What kind of activity Indians engaged in at Winnipague is by no means clear, one conjecture being that the island was a large wampum-making center.⁸

Unlike the Canarsie and Winnipague sites, Ryders Pond produced a substantial quantity of artifactual specimens. Those specimens are attributed to the Clasons Point focus, East River aspect. The site was located on Strome Kill, subsequently known as Gerritsen Creek or Gerritsen Basin, and later fell within the confines of Avenue R, East 32nd Street, Avenue W, and Stuart Street. Today the site is part of Brooklyn Marine Park. Bolton designates the village as Shanscomacoke, a name used in the Indian conveyance of Equendito or Barren Island in 1664.⁹

In 1939, the Flushing Historical Society investigated the Aqueduct site, near the head of Hawtree Creek. Shortly thereafter, the location was buried by construction of the Shore Parkway. The chief findings were several bowl-shaped pits containing refuse and one burial pit. Pottery artifacts discovered belong to the East River tradition. Bolton states: "A site of native occupancy was found at Aqueduct Station. . . . Many fragments of pottery indicated that the clay which existed in the vicinity was utilized to make pottery."¹⁰

Canarsie, Bergen Beach, Ryders Pond, and Aqueduct were probably the only sites of significant activity or habitation by the Canarsie Indians within close proximity of Jamaica Bay. Other sites listed by Bolton seem to have produced no verifiable artifactual specimens and enter the historical record because of mention in conveyances from the Indians to Europeans.

Between 1636 and 1667, the Indian title to practically all land in Kings and Queens counties, including the shores of Jamaica Bay, was terminated. In three separate deeds, all dated June 16, 1636; Canarsie Indians assigned to the Dutch a tract called Keskateuw. That tract encompassed almost the entirety of the western side of the bay and came to constitute the land of the Dutch town of Amesfort.¹¹

Canarsie Indians remained in the area, however, not regarding the land transactions as extinguishing all of their rights. Nevertheless, their numbers declined, Native occupancy at Jamaica Bay may have persisted longest in the Canarsie section of Amesfort. Dutch residents in the village of Amesfort rented Indian fields at Canarsie until the mid-1660s.

Then the lands at Canarsie were sold outright to the Dutch, with the condition:

...that the purchasers once for always a fence shall set at Canarissen for the protection of the Indian cultivation..., and the land which becomes inclosed in fence shall by the Indian owners above mentioned all their lives to be used, to wit, by Wametappack, the Sachem, with his two brothers... 12

⁸ Bolton, 146; O'Halloran, 63; Frederick Van Wyck, *Keshachague or the First White Settlement on Long Island* (New York: G. P. Putnam's Sons 1924) 108.

⁹ Lopez and Wisniewski, 209; Bolton, 146; Indian Deed, May 13, 1664, to John Tilton and Samuel Spicer, in *Abstract of the Title of the Southern part of Barren Island. . . .* (unpublished typescript, no date), Long Island Room, Queensborough Public Library (hereafter cited as QPL).

¹⁰ Smith, 170-71; Bolton, 151.

¹¹ Indian Deed for Land on Long Island, Called Sewanhacky (for the middle "flat"); Indian Deed for Land on Long Island (western "flat"); Indian Deed for Land on Long Island (eastern "flat"), in Edmund B. O'Callaghan (ed.), *Documents Relating to the Colonial History of the State of New York* (15 vols., Albany: Weed, Parsons and Company, 1856-87), vol. XIV, 2-4

¹² Indian Deed, April 23, 1665, quoted in Anson DuBois, "History of the Town of Flatlands," in Henry R. Stiles (ed.), *The Civil, Political, Professional and Ecclesiastical History and Commercial and Industrial Record of the County of Kings and City of Brooklyn, N. Y. from 1683 to 1884* (3 vols., New York: W. W. Munsell & Co., 1884), vol. I, 71.

That only three Indian families remained suggests that by the 1660s Native Americans were no longer a significant part of activity at Jamaica Bay. According to the model of late Woodland culture prevalent in western Long Island, Canarsie and Rockaway Indians living adjacent to Jamaica Bay practiced an economy that doubtless involved exploitation of the bay and its shores. Planting fields existed at Canarsie and perhaps at Bergen Island. The model as well as reports of large shell deposits point to the importance of shellfishing. Ryders Pond contained remnants of hard clam, soft clam, oysters, scallops, whelk, and periwinkle.¹³ Shellfish may have been gathered by hand, but canoes were also employed.

Two historical accounts provide information about Indian canoes in the general region of Jamaica Bay. In 1679, two visitors from the Netherlands went to Najack, now Fort Hamilton, where seven or eight Indian families lingered on. Included in the journal of the visitors is an account of Najack methods of fishing:

For fishing, a canoe without mast or sail, and without a nail in any part of it, though it is sometimes full forty feet in length, fishhooks and lines, and scoops to paddle with in place of oars.¹⁴

Najack Indians were a sub-unit of the Canarsie, and there is no reason to suspect that such canoes were not also in use at Jamaica Bay. An earlier account describes a 1643 diplomatic mission by David DeVries from Manhattan to Long Island to meet with Indian chiefs. That meeting took place at "Rechqua Akie," described as being seven miles from Manhattan and "on the seacoast." Of the return trip, DeVries writes:

We went to the canoes for the purpose of going, and to make the journey shorter than we came. . . . When we reached the canoes, we found that the tide had not yet begun to make and that we must wait some time before it would be flood. . . . Finally, twenty of us went in a canoe or hollow tree, which is their boat, and the edge was not more than a hand's breadth above the water.

"Rechqua Akie" is believed to be a version of "Rockaway," and the name of the main village of the Rockaway Indians, located near today's East Rockaway.¹⁵ Again we find use of large dug-out canoes by Indians of western Long Island. Moreover, on this occasion they were employed for transportation purposes including passage from the south shore to Manhattan.

Whether from canoe or otherwise, shell fishing served two purposes during the contact period, being a source of food and also providing material for the production of wampum beads. Wampum making among New York coastal Indians developed after the arrival of white traders and settlers. Ritchie states: "It seems clear that, properly speaking, wampum was a European trade-inspired commodity, developed . . . after metal tools had become available and when for currency arose through extensive trade relationships with white men and other Indian groups."

Ceci argues that early land purchases in coastal New York by the Dutch aimed, not at the acquisition of farmland, but were efforts to control wampum producing areas. She offers the 1636 Keskateuw purchases and a 1646 grant of Winnipague as examples of that practice.¹⁶

In addition to shellfishing, fin fishing and agriculture, New York coastal Indians of the contact period obtained food through hunting. The Ryders Pond site included remains of elk, bear, deer, beaver,

¹³ Ceci, 36-44,

¹⁴ Jaspas Dankers and Peter Sluyter, *Journal of a Voyage to New York and a Tour in Several American Colonies in 1679-80*. Translated and edited by Henry C. Murphy. (Brooklyn: Long Island Historical Society, 1867; reprinted by University Microfilms, Ann Arbor, 1966), 124-26.

¹⁵ David P. DeVries, *Voyages from Holland to America, A.D. 1632 to 1644*, in Cornell Jaray (ed.), *Historic Chronicles of New Amsterdam, Colonial New York and Early Long Island*. First Series (Port Washington, N.Y.; Ira J. Friedman, no date), 117-19; Ruttenger, 73.

¹⁶ Ritchie, 270; Ceci, 230, 242.

raccoon, and woodchuck. It seems probable that Canarsie and Rockaway Indians hunted the shores of Jamaica Bay for animals and also birds. There is no reference to participation by western Long Island tribes in the fur trade with the Dutch. Beaver reportedly inhabited the area, being particularly associated with a pond near the English settlement of Jamaica.

By 1638, the traffic in furs in the general neighborhood of New Amsterdam had diminished to small proportions.¹⁷ Thus it would seem that if Jamaica Bay Indians did engage in the fur trade, that commerce was short-lived. Indeed, all types of exploitation of the Jamaica Bay area by native peoples had only a brief duration following the arrival of Dutch settlers.

Thirty years after the first sale by the Canarsie to the Dutch, there was little room left in western Long Island for the Indians to live the life of their ancestors. Whatever rights of occupancy or use they retained had scant meaning as farmhouses, fields and fences hemmed them in. At Canarsie where once stood the most important and largest village of the Canarsie Indians, only a handful of survivors remained. Writing in 1670, Daniel Denton, one of the founders of the town of Jamaica in the 1650s, noted the rapid decline of the Indians:

It is to be admired how strangely they have decrest by the Hand of God...; for since my time, when there were six towns, they are reduced to two small villages...¹⁸

Quite obviously, after the mid-seventeenth century, the future of Jamaica Bay rested in the hands of European settlers and their descendants.

Flatlands

Much of Jamaica Bay's western shore as well as adjacent islands fell within the jurisdiction of the town generally known after the English conquest in 1664 as Flatlands. The Dutch, who first called their village Achtervelt and then Amesfort originally founded one of the oldest communities in Long Island, Flatlands. The Dutch also referred to the settlement simply as "de Baye."

Several local historians claim Flatlands began as early as 1624, but its origins more accurately should be dated as of 1636, when Andries Huddle and Wolfert Gerretse made a purchase from the Canarsie Indians.¹⁹ A small settlement developed at a point near the later intersection of Flatbush and Flatlands avenues. The records of the 1636 purchase, a patent in the following year from the governor of New Netherlands, and other documents produced during the Dutch period fail to delineate the boundaries of the town in a manner intelligible to the modern reader. A clearer description of Flatlands, at least respecting its bay front, appears in a confirmation granted by the English governor, Dongan, in 1685. That document essentially asserted the town's title to the land between Strome Kill and Creek, now Gerritsen's Creek, on the southwest and Fresh Kill in the northeast.²⁰

The bulk of the contents of the Flatlands patent lay inland, the location of most of the farms and homes. However, parts of the bay front received the residents' early and continued attention. The most important of these, between Bestovers or Befords Creek and Fresh Kill, was generally known as Canarsie, but also called Flatlands Neck, Vischers Hook, and Great Neck. Names were given to specific parcels of land within this area: Canarsie Point; New Utrecht Meadows, located south of Indian Creek; and Varkens Hook Meadows, between Irish and Bedford creeks. South of Canarsie were the Great Meadows, on Bedford Creek; Bergen Island; and the other islands extending to and including Barren Island.

¹⁷ Ceci, 36-44; Bolton, 149; Trelease, 44.

¹⁸ Daniel Denton, *A Brief Description of New York, Formerly Called the New Netherlands*, in Cornell Jaray(ed.), *Historic Chronicles of New Amsterdam, Colonial New York and Early Long Island. Second Series* (Port Washington N. Y.: Ira J. Friedman, no date; originally published 1670), 7.

¹⁹ Dubois, 65; Van Wyck, xiii.

²⁰ Confirmation of Governor Dongan, March 11, 1685, in *Abstract of Title. . . of Barren Island. . .*

Both the towns of Flatlands and Flatbush claimed an area of salt meadow at Canarsie and immediately west of Fresh Kill. Known as Flatbush Meadows at Canarsie, it appears not to have been included in Governor Dongan's confirmation to Flatlands of 1685. Indeed that official in the same year recognized the meadow in question in a patent issued New Lots, a sub-unit within the town of Flatbush. New Lots' most recent history assigns the meadows to the new settlement.²¹ Maps of 1797 and 1873 draw the boundary of Flatlands so as to exclude the western side of Fresh Creek.²² The controversy over this rather small parcel demonstrates the value attached to the bay's meadowlands.

Like Flatbush Meadows, much of Flatlands adjacent to the bay consisted of low-lying marshlands. This included all the areas designated as "meadows" and all or parts of the islands south of Bedford's Creek. Only at Canarsie was there any sizable stretch of upland adjacent to the bay. Smaller parcels of solid ground existed at Bergen Island and the southern and eastern shore of Barren Island. Minute patches of uplands were in the northwest corner and in the center of Mill Island.

A visitor to Flatlands describes both uplands and meadows in October of 1679:

We . . . found the land, in general, not so good as that at Najack (fort Hamilton). There is toward the sea (the bay), a large piece of low flat which is overflown at every tide, like the schoor (marsh) with us, mirry at the bottom, and which produces a species of hard salt grass or reed grass. Such a place they call valey and mow it for hay, which cattle would rather eat than fresh hay or grass. . . . Their adjoining corn lands are dry and barren for the most part. Behind the village, inland are their meadows, but they also were now arid. All the land from the bay to 't Vlacke Bos (Flatbush) is low and level without the least elevation. There is also a tract that is somewhat large, of a kind of heath, on which sheep could graze, though we saw none upon it. This meadow (schoor), like all the others, is well provided with good creeks which are navigable and very serviceable for fisheries.²³

This writer makes a distinction between upland meadows, such as those "behind the village, inland" and the meadows or schoor along the bay. Both had value, the salt meadows as a source of fodder for livestock. Flatlands' population grew slowly but steadily, and in 1698 the town had 256 residents.²⁴ By that time all lands but those at Canarsie and the marshes and meadows of the bay had been assigned to individual owners. Prior to the English conquest, title to Canarsie remained with the Indians, who rented portions to Dutch farmers. A deed in 1665 extinguished the Indian claim, except for a small area. Within fifty years, increasing population led to the partition of the lands at Canarsie into individual holdings.²⁵ Each of those participating in the division received lots in three separate areas. Subsequently, at Canarsie and elsewhere, some consolidation of landholding apparently occurred, producing farms with contiguous fields.

In 1790, the Flatlands population stood at 997.²⁶ A list of inhabitants and their property made four years earlier shows that only a few residents held land lying on the bay. Johannes H. Lott had a house measuring thirty feet by twenty-eight feet, a forty by fifty foot barn and 133 acres located adjacent to the bay. Hendrick J. Lott owned similar property, also situated on the bay. David Stoothoof and Joseph

21 R. G. Strong, "History of the Town of Flatbush," in Stiles, vol. 1, 216-17; Alter F. Landesman, *A History of New Lots, Brooklyn to 1887 Including, the Villages of East New York, Cyprus Hills, and Brownsville* (Port Washington, N.Y.: Kennikat Press, 1977), 14-15.

22 Map of the Town of Flatbush, November 10, 1797, by Jeremiah Lott, in Landesman, 42; Map of New Lots, in F. W. Beers, *Atlas of Long Island* (New York: F. W. Beers, 1873).

23 Dankers, 130-31.

24 Census of Kings County about 1698, in E. B. O'Callaghan (ed.), *The Documentary History of the State of New York*. (4 vols., Albany: Weed, Parsons & Co., 1850), vol. III, 88.

25 Dubois, p. 71.

26 Bureau of the Census, *A Century of Population Growth: From the First Census of the United States to the Twelfth, 1790-1900* (Washington, D. C.: Government Printing Office, 1909), 194-95.

White had 6_ acre and three-quarter acre plots near the bay and marsh.²⁷ All of these men were farmers, as were the vast majority of Flatlands' residents whose lands were elsewhere in the town.

That Flatlands retained its agricultural character into the nineteenth century is suggested by Dripps' map of 1852. Fields, woodlands and meadows dominate the area. Roads are few and far between, especially as compared to the dense street pattern found in "New Brooklyn" and East New York. Only at Canarsie was there a road, the future Rockaway Parkway, leading to Jamaica Bay. The two landowners at Canarsie Point, Jeremiah Schenck and James Schenck, both had fifty-acre farms. The only other Flatlands farmer with land close to Jamaica Bay was Cornelius Bergen on Bergen Island.²⁸

Bergen and Mill Islands

Among the numerous islands on the western side of Jamaica Bay and within the jurisdiction of Flatlands, three were inhabited or utilized by Europeans during the colonial period. One of these was Barren Island, the other two being Bergen and Mill Islands. All three of these islands at one time or another belonged to Elbert Elbertse, an early settler at Flatlands. Sixty acres of upland and ample meadows constituted the attraction of Bergen Island, and a mill site and a small parcel of arable land were the chief assets of Mill Island.

Bergen Island remained known into the eighteenth century by its Indian name of Winnipague. Europeans took title to the island in 1646, when Governor Keift granted "Meuters" or Bergen Island to John Underhill. Underhill shortly relinquished the property to others, and in 1665 Elbert Elbertse purchased the island. Probably Elbertse made actual use of the island; however, seventeenth-century records make no mention of a house or dwelling located there. In his will, made in 1686, Elbertse assigned to his son Gerrit Stoothoff "my island . . . under the jurisdiction of Amesfort." Gerrit also was bequeathed his father's house and lot "in the town of Amesfort." The testator left to a son-in-law sixty acres on the mainland. ²⁹

What became known as the Bergen House was erected well before 1800, the approximate year in which additions were made to the structure. By that time a complicated, drawn-out legal contest had been resolved concerning rival claims to Bergen Island advanced by two lines of Elbertse's descendants. There is record of an ejectment suit in 1784. At least three men held meadowlands at Bergen Island in the mid-1780s, Wilhemus Stoothoff, Johannis Stoothoff, and Elias Hubbard.³⁰

Two bits of misinformation have circulated about the experience of the Bergen Island vicinity during the American Revolution. One asserts that the Bergen House was hit several times by cannon balls during the Battle of Long Island.³¹ British troops did march from Gravesend to Flatlands and thence to Jamaica Bay on August 26 and 27, using the Kings Highway. That route brought the troops within several miles of Bergen Island. But that the British bombarded the Bergen House finds no documentation and, moreover, defies reason. A recent newspaper account asserts that the patriot spy, Nathan Hale, was executed by hanging in modern Bergen Beach, near Ave. "V" and East 72 Street.³² Legitimate questions do exist as to when and where the British captured and executed Hale. However, no evidence

²⁷ A List of Inhabitants, October 1, 1796, as reprinted in Dubois, 69-70.

²⁸ M. Dripps, Map of Kings County and Part of Queens County, Long Island, New York. (n.d., 1852-3), in QPL.

²⁹ Will of Wilhelmus Stoothoff, February 1, 1781, in William S. Pelletreau (compiler), Abstracts of Wills on File in the Surrogate's Office, City of New York, 1665-1801, in Collections of the New York Historical Society (17 vols., New York: New York Historical Society, 1893-1909), vol. XII, 44-45; Will of Elbert Elbertse, December 18, 1686, in Abstract of Title . . . Barren Island.

³⁰ Will of Wilhelmus Stoothoff, February 1, 1787.

³¹ Harold Donaldson Eberlein, *Manor Houses and Historic Homes of Long Island and Staten Island* (Port Washington, N.Y.: Ira J. Friedman, Inc., 1956; originally published in 1928), 198.

³² Long Island Press, May 10, 1970, in Clipping File ("Bergen Beach"), QPL.

can be located to link any part of Jamaica Bay with Hale, his exploits or death. And the best guess is that he was hanged in New York near Third Avenue and 66 Street.³³

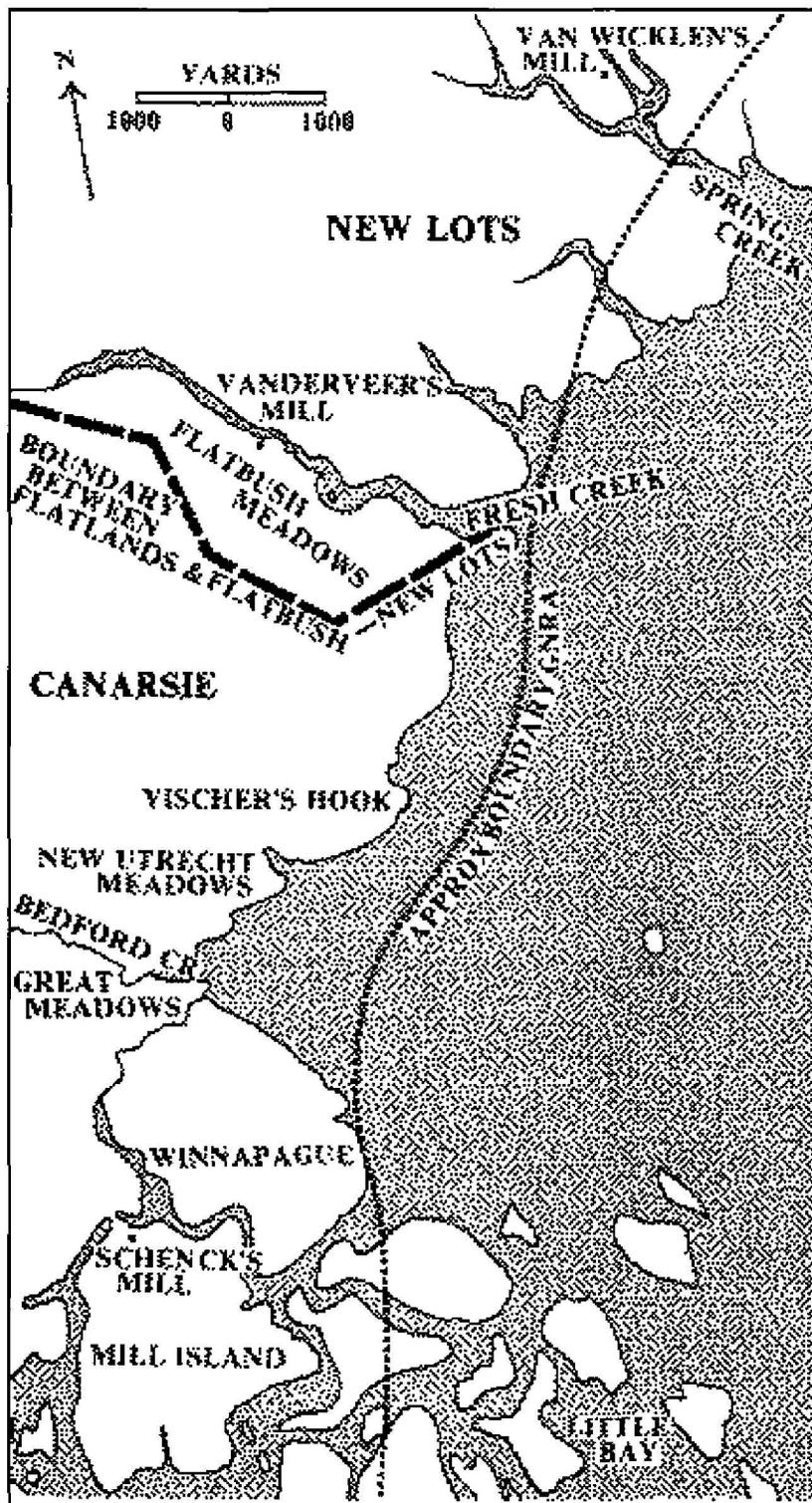
The name "Mill Island" may not have been in formal use until the late nineteenth century and is not found in colonial records. Since a gristmill appeared quite early, the location seems to have been designated simply as "the mill." Sources conflict as to the beginnings of the mill. One asserts that Stephen Schenck built a tide mill and house on the island in 1660.³⁴ More likely, the first European involved with the island was Elbert Elbertse. A mill had been constructed by 1675, when Elbertse sold a half share in that structure and in the island to Jan Martense Schenck.³⁵ In 1676, Schenck paid taxes on five cows, three horses and twenty acres of land.

³³ George Dudley Seymour, *Documentary Life of Nathan Hale* (New Haven: privately published, 1941), pp. 437, 452.

³⁴ Article from unknown newspaper, October 16, 1905, in Clipping File, Jamaica Bay Unit, Gateway National Recreation Area (hereafter cited as JBU).

³⁵ Teunis G. Bergen, *Register in Alphabetical Order of the Early Settlers of Kings County, Long Island, N. Y. From Its First Settlement by Europeans to 1790* (New York: S. W. Green, 1881), 250. A typographical error in Bergen's text results in the date erroneously reading "1657."

Figure 3 Flatlands and New Lots, 1700



SOURCE: Van Wyck, 1934, Frontpiece

Schenck's operation enlarged within the next seven years, and in 1683 his taxable property included a Negro, three horses, eleven cows, and fifty-six acres.³⁶ The increased acreage probably consisted of holdings on the mainland at Canarsie. Apparently after his acquisition of the property in 1675, Schenck built a home on the island. When making his will in 1688, he bequeathed the mill, the small island and the "old house."³⁷ In addition to his milling and farming activities, Schenck allegedly had a ship which he commanded on voyages from Jamaica Bay to New York and other ports.

Following the death of Jan Martense Schenck, the mill passed to Martin Johnson and then to Nicholas Schenck. In 1784, Joris Martense of Flatbush purchased the mill, sixty-six acres of uplands, six of woodlands, and a piece of salt meadow. A 1794 listing of Flatlands property holders assigns to John Schenck a house measuring forty-one by twenty-two feet, in good condition; a forty-four by forty-two foot mill; and 121 acres, the value of the land and mill being \$5,600. John Schenck apparently rented the property from Jane Martense, widow of Joris, who is given as the owner.³⁸ Accordingly, in the 1790s, the mill was known as "the mill of Martensen." Subsequently, it was called Crooke's Mill, since its owner between 1818 and 1870 was the wife of General Philip S. Crooke.

Barren Island

One of the largest of the islands in Jamaica Bay was Barren Island. Throughout its history, it has been called by other names: Equendito (the Indian name), Broken lands, Bearn Island, Barn Island, and Bear's Island.³⁹ Whatever called, the island received greater attention during the period before 1865 than others in the Bay. It contained approximately thirty acres of upland as well as seventy of salt meadow.⁴⁰ Since at low tide only shallow streams separated it from the mainland, Men and livestock could approach it on foot. Small craft had access to its northern shore, and larger vessels could come near its southern edge. These considerations perhaps explain why Barren Island was one of the first of the bay's islands to be utilized and inhabited by Europeans and why during the eighteenth and early nineteenth century it was the subject of mild speculative interest.

In 1679, Elbert Elbertse, who apparently leased the island from its then owners, complained that others trespassed on the property for the purposes of grazing horses.⁴¹ Possibly during the remainder of the seventeenth century and in the century following, providing pasturage and salt hay proved the island's main function. In 1762, William Moore described Barren Island as vacant and unoccupied. Moore's activity there since the mid- 1740s had been digging sand from a nearby beach, which he shipped to New York. At that time Pelican Beach was attached to Barren Island, and this may have been the source of Moore's sand.⁴²

The island remained uninhabited until the end of the eighteenth century. During the next sixty years, it acquired a minuscule permanent population, consisting of three or four families, an ordinary, and its first factories. According to an 1884 source, the earliest Barren Island resident was a man by the name of Dooley, who around 1800 built a house on the east end which he kept open for the entertainment of sportsmen and fishermen. That establishment seems to have enjoyed a continuous existence. John Johnson and family took up residence on the northwest shore, and in 1830 Johnson reportedly became the operator of the Dooley house. Ruffle Bar, an island approximately one mile northeast of Barren Island, was the first home of Jacob Skidmore. In 1842, Skidmore is said to have taken down his house and moved it and his family to Barren Island. A man whose last name was Cherry reputedly lived in a

36 Amesfort Rate Lists for 1676 and 1683, in *Documentary History*. . . New York, vol. 11, 283-286, 288-89.

37 Will of John Martense Schenck, January 28, 1689, in *Abstract of Wills*, vol. 11, 239.'

38 List of Inhabitants of Flatlands, 1796, in Dubois, 69.

39 Deed from Indians to Samuel Spicer and John Tilton, Senior, May 13, 1664, in *Abstract of Title . . . of Barren Island*. . . ; Dankers, 119.

40 Van Wyck, 207-8.

41 Van Wyck, 711.

42 Van Wyck, 207-8.

dugout on the western end of the island and at some time before 1860 succeeded Johnson in the maintenance of the ordinary. Dripps' map of 1852 designates that establishment as a hotel. No other structure is indicated on Barren Island.⁴³

Census reports before the Civil War list numerous Flatlands residents bearing the names of Johnson, Dooley, and Skidmore. However, entries in the census do not indicate specific locations in the community. One family listed in 1850 was headed by a John Johnson and included his wife; six children; an elderly woman, Catherine Anderson; Cornelius F. Dooley and wife, both thirty-six; and two Dooley children. Both John Johnson and Cornelius Dooley engaged in the occupation of fishermen. This thirteen-person group might well be the household of the Barren Island "hotel." The census specifically lists only one hotelkeeper in Flatlands and that was doubtless on the mainland.⁴⁴

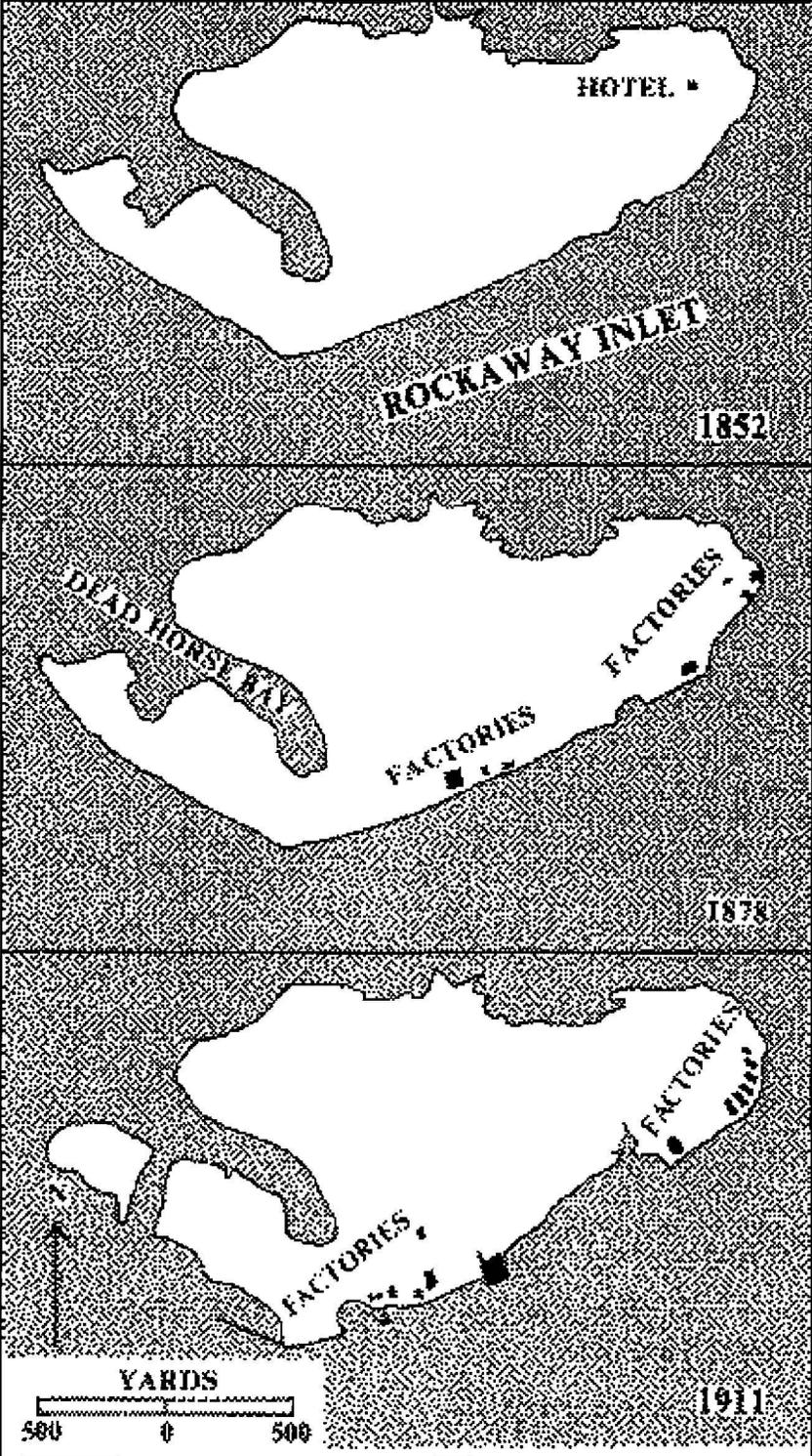
In the late 1850s, Barren Island became the site of two fertilizer plants. One, built in 1859 by Lefferts R. Cornell, processed dead horses and other animals shipped from New York. A second plant, possibly built by William B. Reynolds, appeared at about the same time. Both plants sent their products to Europe. The Cornell works was destroyed by fire, and the Reynolds operation did not long remain.⁴⁵ Nevertheless, the existence of the two factories on Barren Island in 1859 suggests a somewhat larger population than three or four families.

⁴³ Dubois, 78; Map, Dripps, 1852-3.

⁴⁴ Federal Census 1850, Flatlands.

⁴⁵ L. B. Brockett, "The Manufacturing Interests of Kings County," in Stiles, II, 756-57.

Figure 4 Barren Island, 1850-1911



SOURCE: M. Dripps, 1852; USCS, Chart 540, 1878; USC & GS, Chart 542, 1911

Who owned Barren Island at any given time, especially in the eighteenth and the nineteenth centuries, is difficult to determine. And such an effort would not shed much light on its uses. The island constituted the southernmost part of the town of Flatlands, and it was with Flatlands that William Moore, the sand dealer, negotiated a lease. However, in 1762 Moore's counsel advised him that town had no right to the island. As early as 1664, individuals laid claim to Barren Island or parts thereof. An effort to construct an abstract tracing individual ownership of the southern portion of the island to 1839 was made by an unknown party at some unknown time, probably in the early twentieth century. That effort shows that in the eighteenth century ownership became private and passed in common to various hands; that in the 1770s Rutger Van Brunt, variously described as from New Utrecht and Gravesend, acquired three hitherto separate shares at a total cost of £56; and that in 1835 there were five owners who at that time divided the property into five particular and individual parcels.

No suggestion is found that any of these owners lived on the island. None of the patents, conveyances or wills included in the abstract alludes to any specific buildings, fences or other structures or to cultivated fields.⁴⁶ The thrust of the documents in the abstract is that beginning in the 1770s, Barren Island was regarded as of sufficient potential value to merit modest investment by some and recognition in the wills of others.

Flatbush, New Lots and Jamaica

Northeast of Amesfort emerged another Dutch town, Midwout or Flatbush. Flatbush, founded in 1652, appeared to include the shore of Jamaica Bay between Flatbush Meadows and Spring Creek. Some of the doubts existing about Flatbush's title to this area were removed by a deed with the Rockaway Indians in 1670.

Seven years later, the Fresh Creek-Spring Creek region and the adjacent uplands to the north became partitioned from Flatbush proper by a patent from Governor Andross, thus creating a subordinate community, called New Lots, within the town of Flatbush. That grant permanently separated settlers in original Flatbush from Jamaica Bay.⁴⁷

Like their neighbors in Flatbush, Flatlands and other communities in the vicinity, the New Lots inhabitants engaged in farming. The thirty odd original settlers located their homes approximately one and a half miles north of Jamaica Bay. At the same time as the uplands were assigned to individuals, the salt meadow was partitioned. To protect the meadow against the livestock of others, a later generation of New Lots farmers built a fence between Fresh and Betts creeks.

The only structures in the meadows were two mills, one on Fresh Creek and the other near Spring Creek. The Dutch inhabitants of colonial New Lots and their descendants of the early nineteenth century remained agriculturalists, not directly participating in the industrial and commercial expansion of the United States.

In 1835, however, a newcomer, John R. Pitkin, conceived the creation at New Lots of a manufacturing and commercial center, rivaling Manhattan. According to a New Lots historian:

Looking over the section of New Lots he had named East New York, Pitkin saw great visions. Instead of farms and quiet villages, he saw a vast transportation center along the shore of Jamaica Bay.⁴⁸

Pitkin purchased land in the northwestern part of New Lots and aggressively promoted his enterprise, but his dreams had little impact. Certainly Jamaica Bay remained unaffected by his speculative efforts. Until the end of the nineteenth century, the town of Jamaica claimed title to roughly two-thirds of Jamaica Bay,

⁴⁶ Abstract of Title . . . of Barren Island. . . .

⁴⁷ Strong, "History of the Town of Flatbush," 215-16.

⁴⁸ Landesman, 92.

its waters, islands, and the mainland shore between Spring Creek on the west and Hook Creek, which flowed into the Hook or the Head of the Bay. East and south of Hook Creek lay land included in the town of Hempstead, established by English settlers in 1644.

Ten years after the founding of Hempstead, a number of residents made successful efforts to form a new community. They negotiated a purchase from the Indians in September of 1655, and in March of the following year they received authorization from the West India Company to organize a town half way between Canarsie and the village of Hempstead.⁴⁹ A settlement began near a beaver pond commonly called "Jemico". During the remainder of the Dutch period, the new town's official name was Rusdorp.

The first village as well as settlements that followed was located well north and east of the bay, and soon the nomenclature "Jamaica South" came to be used for the area bordering the bay. That area included a wide stretch of meadow on the perimeter of the bay. Initially, these meadows appear to have been held in common.

In March 1659, a town meeting decided to continue the practice of previous years of organizing the townsmen into teams or "squadrons". The men were appointed to a particular squadron by lot, and each squadron assigned the task of mowing one of the four meadows. Three of these communal meadows bordered Jamaica Bay and were known as East Neck, Long Neck, and Haw Trees Neck. Later, the meadows fell into private hands. Among owners of bayfront property during the eighteenth century were William Whitehead, Hawtree Neck; John Hagaman, Old Town Neck; Samuel Smith, Old Town Neck; and Ezekiel Everit, Far East Neck.⁵⁰

A twentieth-century map depicting property ownership at approximately 1800 indicates four tracts on the bay, ranging from thirty to 475 acres and belonging to Amos Denton, John Duryea, Rensaleer Fleet, and Abraham Ditmas. Dripps' 1852 map shows no property owners directly on the bay. A considerable width of marsh and meadow separated the bay from the uplands, except for an area between Otter and Bergen creeks. However, that area appears as unowned and unoccupied.⁵¹

The creeks emptying into Jamaica Bay became the sites of numerous mills. Unlike the mills of the Dutch, which were all used to grind grains, those of the English included saw and fulling mills as well as grist mills. The first mill was probably one in the Plunderer's Neck area, adjacent to New Lots, and built in 1670 to grind flour. Five years later, a saw and gristmill was authorized by the town meeting to be located "where the old mill stood." The town government gave permission for two fulling mills, one in 1685 on Foster's River and another in 1704, probably at Thurston's Creek. There were seven other mills, all of which were located well away from the bay.⁵²

None of the islands in the bay and within the limits of the town of Jamaica appear to have been inhabited, during the period before the Civil War. Like other farmers in the area, those of the town of Jamaica were concerned with the bay because of the meadowlands on its borders. Also, however, the town of Jamaica sought to assert its claim to the waters of the bay because of the shell and fin fish contained therein.

49 Petition of Robert Jackson, Daniel Denton and Others of Hempstead, March 10, 1656, in Documents Relating . . . New York, vol. XIV, 339-40.

50 History of Queens County, New York, with Illustrations, Portraits, and Sketches of Prominent Families and Individuals (New York: W. W. Munsell & Co., 1882), 196; Leland Fiedler (copier), Records of the Town of Jamaica 1749-1897 (4 volume typescript; WPA, 1939), vol. IV, 59-62, 93-95. The WPA volumes are in QPL and are a continuation of the publication of the earlier records, Josephine Frost (ed.), Records of the Town of Jamaica, Long Island, 1658-1751 (3 vols., Brooklyn: Long Island Historical Society, 1914).

51 Map of the Borough of Queens, City of New York, Office of the President, Topographical Bureau, Showing Ownership as of the Year 1800, dated August 19, 1935 (QPL); Map, Dripps, 1852-3.

52 History of Queens, 201; Map, Dripps, 1852-3.

Agriculture

Prior to 1865, nearly all those living in the communities surrounding Jamaica Bay pursued farming. A diversity of crops and livestock was raised on small farms for subsistence and for sale. Farmers frequently had secondary skills, and each town had a small number of merchants and craftsmen. But before the Civil War, the land and its products dominated life in the vicinity of Jamaica Bay.

A 1650 Dutch observer commented on the attractions of the general area for farmers—level land of good quality, suitable for grains and livestock, and numerous “valleys” along the rivers containing fresh and salt meadows. Dankers, visiting Flatlands in October of 1679, found the land inferior to that at Fort Hamilton and Flatbush, but spoke well of its meadows.⁵³

The Dutch practiced small farming. Rate lists for the years 1675, 1676 and 1683 indicate that the twenty-five farmers of Flatlands held on the average of forty-five acres of “land and valley.” Despite the emergence of a slave population constituting fifteen percent of all people in Flatlands in 1698, farming remained throughout the period on a small scale. No farmer had more than three slaves. In 1796, the average size of the fifty farms in Flatlands was sixty-nine acres.⁵⁴

Given the small acreage and limited labor, agriculture did not create great personal wealth. The aim was to produce food for one's family and a surplus for sale elsewhere. During Danker's visit to Flatlands in 1679, an acquaintance of his living in that town made two trips to Manhattan within a matter of days. A useful source of information on early nineteenth-century Flatlands is the diary of John Baxter. That journal indicates a continuation of the basic marketing pattern.

His diary reads:

10/1806--The farmers took their produce to various markets, especially in New York. . . .
4/9/1826--Went to New York market with 556 eggs and a calf. . . . 12/14/1826--Went to
Brooklyn with a load of salt hay. . . . 8/7/1828--Went to New York with potatoes and
butter. . . . 5/15/1829--Went to New York . . . 435 eggs and 2 quarter veal. . . .
12/2/1829--Went to Brooklyn with 35 bushels of oats and two cowhides. . . .⁵⁵

Early farmers in the area did not specialize, but practiced a general type of agriculture, producing a diversity of foodstuffs. One writer has conjectured that tobacco was cultivated during the Dutch period.⁵⁶ If true, the tobacco culture did not persist nor did it ever become the major agricultural activity. Extant records as well as the presence of gristmills in the area indicate the early cultivation of grains. Orchard fruit and garden vegetables were also grown. Baxter, owner of a ninety-one acre farm located on the road to Mill Island, mentions wheat, rye, barley, oats, and corn; beans and potatoes; apples and pears. He also refers to butter, eggs, milk, and flax.⁵⁷

That journal and earlier writings indicate the importance of livestock in the activities of Jamaica Bay farmers. Rate lists of the last quarter of the seventeenth century inform us that the Dutch raised sheep, hogs, oxen, horses, and cattle. Those lists also provide a means of determining the proportion of each kind of livestock held. Dankers noted, during his 1679 visit, suitable grazing land for sheep, although he

53 Cornelis Van Tienhoven, "Information Relative to Taking up Land in New Netherlands . . . , 1650," in *Documentary History . . . New York*, vol. IV, 31; Dankers, 130, 133.

54 Amesfort Rate Lists for 1675, 1676, 1683, in *Documentary History . . . New York*, vol. IV, 100-2; vol. II, 283-86, 288-89; *Census of Kings County about 1698*, in *Documentary History . . . New York*, vol. III, 87-88.

55 As quoted in Landesman, 79.

56 Thomas M. Strong, *The History of Flatbush in Kings County, Long Island* (New York: Thomas R. Merceen, Jr., 1842), p. 17.

57 Landesman, 79.

saw none. Indeed, in 1675 Flatlands taxpayers reported a total of only six sheep and eight in 1683. Neighboring Flatbush had only seven in 1676. Other Dutch towns, such as Bushwick, and English communities, such as Jamaica, Flushing and those at the eastern end of Long Island, had much larger herds of sheep than the Dutch settlements of the bay. In Flatlands, swine were almost as equally scarce, there being twenty-one in 1676; Flatbush at that time had fifty-two. Eleven oxen were to be found at Flatlands in 1676 and twenty-five at Flatbush. The main draft animals were horses, both Flatlands and Flatbush having each approximately one hundred horses in 1676. The most important livestock were cattle. Flatlands reported 209 cows in 1676, and Flatbush 275.⁵⁸

It would appear that Jamaica Bay farmers were as much dairy farmers as growers of crops. This gives special importance to the meadows bordering the bay, since it provided forage for numerous cattle as well as horses. Dankers informs us that the Dutch mowed the salt meadows and moved the hay presumably to their barns. In the same year as the Danker's visit, 1679, horses were grazing on Barren Island. That salt hay was mowed and sold in Brooklyn in 1826 is reported in Baxter's journal.⁵⁹ Thus the bay's meadows for two hundred years provided grazing for livestock and cut hay for use at farms in the area and also for sale to others.

It would appear that the pattern of agriculture established in the colonial period persisted. In the 1860s and 1870, Flatlands farmers produced foodstuffs of the same general character as earlier—grains, vegetables, dairy goods. However, comparison of statistics for Flatlands farming for the years 1865 and 1875 indicate that agriculture had entered into a decline.⁶⁰ In several important areas, activity and productivity decreased between these years. Less and less land was being used for farming purposes, and more for residential and industrial purposes. Although parts of Flatlands continued to have rural characteristics, agriculture no longer dominated as it had in the past.

Table 1 Flatlands Agriculture 1865 and 1875

	<u>1865</u>	<u>1875</u>
Acres Improved	3,034_	2,146
Acres Unimproved	2,971	
Acres Mowed		323
Hay Produced, Tons		414
Winter Wheat, Bushels	3,719	573
Oats, Bushels	2,055	
Winter Rye, Bushels	1,043	320
Potatoes, Bushels	112,890	110,925
Indian Corn, Bushels	11,156	10,510
Peas, Bushels	1,108	00
Turnips, Bushels	21,880	
Butter, Pounds	5,720	
Pork, Pounds Made	44,120	33,000
Eggs Sold, Value	\$ 1,448	\$ 50
Horses, 3 years & older	364	266

Source: Census of the State of New York for 1865 (Albany: Charles Van Benthuysen & Sons, 1867), p. 322; Census of the State of New York for 1875 (Albany: Weed, Paison & Co., 1877), p. 325.

⁵⁸ Dankers, 131; Amesfort Rate Lists for 1675, 1676, 1683; Midwout Rate List for 1676, in Documentory History . . . New York, vol. IV, 100-2; vol. II, 269-72, 283-86, 288-89, 293-94.

⁵⁹ Dankers, 130-31; Van Wyck, 711; Landesman, 79.

⁶⁰ See Table No. 1.

Jamaica Bay Fisheries

For almost three centuries, Jamaica Bay was renowned for the abundance, variety and quality of its fin and shellfish. Although primary sources consulted establish that there were some men who can be described as following the livelihood of fishermen, the number or proportion of such individuals is difficult to estimate prior to the mid-nineteenth century. The conclusion seems warranted, however, that before 1865 the bulk of the population on or near the shores of the bay engaged primarily in farming and fished only occasionally and as recreation or for the purpose of supplementing the food supply of their families.

Seventeenth-century documents report the diversity and quantity of fish in the waters of the bay or its tributaries.⁶¹ And as early as 1660, what later became known as Canarsie Point was designated as Vischers (fishers) Hook, after a Dutch fisherman by the name of Hoorn, who built a home there.⁶² In the early eighteenth century, the town of Jamaica began to assert its title to the bay and to take action against outsiders who trespassed for the purpose of fishing. In May 1704 three "fishermen of Flatlands" were arrested and brought as prisoners to Jamaica for fishing with nets and without authorization. Sixty years later, in July 1763, the Jamaica town government decided that:

Whereas divers persons, without any right or license so to do, have of late, with sloops, boats and other craft, presumed to come into Jamaica Bay and taken, destroyed and carried away quantities of clams, mussels and other fish to the great damage of the said town, this is to give warning to all persons who have no right or liberty that they do forbear to limit any such trespass in the bay for the future. . . .⁶³

This notice and the threat of prosecution that accompanied it apparently produced a challenge to Jamaica's claim of title to the bay, and the following month a special town meeting took up the matter of trespassers into "the Bay belonging to this town." Several men were designated to prepare a legal defense of the town's title.⁶⁴ By the end of the century, Jamaica was giving special attention to shellfishing and in 1791 resolved "that all persons be precluded from coming with boats and pettiaugers in the bay of this town for the purpose of getting clams or oysters without paying the sum of one shilling for every thousand so taken. . . ."⁶⁵ On several occasions in the years following, the town reenacted this provision.

An account in the *New York Mercury* of January 27, 1754, furnishes additional insight into the colonial uses of the bay for fishing. Because of unusually warm and pleasant weather one morning earlier that month, "many people were induced to go into Jamaica Bay for oysters, clams, etc. . . ." Oystering and clamming thus appear as year-round activities, not restricted to the warmer months, as some of the earlier cited evidence might seem to suggest. A sudden storm brought freezing temperatures, and the high winds forced "all the small craft" to seek shore. Some of these were "canoes and pettyaugers." The crews of two canoes were from Newtown, indicating the inability of Jamaica to keep non-townsmen off the bay and also revealing that parties from communities not immediately adjacent to the bay fished the bay. The Newtown men received attention in the *Mercury*, article because they failed to reach shore safely and were discovered several days later frozen to death.⁶⁶

A survey of seventeenth and eighteenth-century wills of men in communities near the bay provides some information about shell and fin fishing. William Van Dyn of Newtown, making a will in 1769, referred to his property and other possessions at "Jamaica South" and mentioned two canoes, one large and one small. The smaller craft was bequeathed "with all rigging and fish car," perhaps "fish gear." The estates of two

61 Van Tienhoven, "Information Relative to Taking up Land in New Netherlands . . . , 1650."

62 Nicasius de Sille, "Description of the Founding or the Beginning of New Utrecht, for the Information of Our Successors . . . 1657, 1658, 1659, 1660, in *Documentary History . . . New York*, vol. I, 413-25.

63 As quoted in *History of Queens*, 199.

64 *Records of . . . Jamaica*, vol. IV, 8.

65 As quoted in *History of Queens*, 199.

66 The *Mercury* article is reprinted in *History of Queens*, 199.

Gravesend testators of the 1770s, Daniel Lake and Abraham Emans, included fishing nets, and, in the case of Emans, a canoe.⁶⁷ Of the 221 wills in the survey, only these three mentioned any possessions connected with fishing. Moreover, all three of these men, according to explicit or implicit information in their wills, were essentially farmers. Early American wills frequently give the occupation of the testators, and none of the wills consulted indicate anyone in the period before 1801 living in Gravesend, Flatlands, Flatbush, New Lots, or Jamaica whose occupation was fishing.

That fishing constituted only an occasional and recreational activity is the thrust of a Flatlands diarist writing in the early national period. John Baxter recorded:

7/16/1792--Went a Drum fishing. . . . 8/4/1792--Went for eels had 150 very large. . . . 9/9/1792--I fished along the meadows at the Island got 9 bars and one Drum Fish. Went to Rockaway along with R. Voorhees and Peter Voorhees had 900 eels and 200 large snipes. . . . 4/13/1801--Went out afishing with Peter G. Wyckoff and Joseph White--Garret Wychoff and Elias Hubbard--got 36 shad . . . the same day was caught 613 shads in Lots Creek. . . . 9/11/1821--Garret went a sein fishing with John Voorhees. . . .⁶⁸

Hunting received similar treatment by the same writer. Earlier visitors to the bay described large numbers of geese and snipe.⁶⁹ But, even more so than fishing, hunting did not have a full-time or commercial character. One establishment in the early nineteenth-century catered to the bay's hunters and fishermen. A man by the name of Dooley, one of the few known residents of bay proper in 1800, ran his home on Barren Island as an ordinary and open to sportsmen. The appearance of numerous businesses serving the needs of both commercial and occasional fishermen came with the general development of the Jamaica Bay fisheries. In 1840, sixty men engaged in occupations centering on the bay, its waters and fish life. That number steadily mounted, and fishing emerges as an important industry after the Civil War.⁷⁰

Shipping

Several secondary works assert that in approximately 1675 Jan Martense Schenck constructed a large home on Mill Island as well as a dock at which his ship loaded and unloaded cargoes destined for New Amsterdam or the Netherlands. Such assertions have produced the conclusion that in the colonial period a lively trade was conducted between Jamaica Bay and other ports in the New and Old Worlds.⁷¹ This conclusion appears dubious and, moreover, no documentation has been discovered to support the statements concerning Schenck. Indeed, few indications can be found of significant inward or outward-bound ship traffic.

During the colonial period, royal governors were required by authorities in London to prepare lengthy descriptions of conditions within their provinces, including such matters as commerce and shipping. In 1678, Governor Andross reported on the waterways of New York, but made no mention of Jamaica Bay. Nine years later a successor stated that there were no harbors on any part of the south shore of Long Island. Governor Tryon, writing in 1774, catalogued the navigable rivers and harbors in the province without including Jamaica Bay.⁷² These gubernatorial surveys implicitly or explicitly deny shipping of any consequence to and from Jamaica Bay.

67 Abstract of Wills, vol. VII, 257-59; vol. IX, 19, 104-5.

68 As quoted in Landesman, 87.

69 Dankers, 131.

70 Federal Census 1850, Flatlands.

71 Eberlein, 247; Rosalie Fellows Bailey, *Pre-Revolutionary Dutch Houses and Families in Northern New Jersey and Southern New York* (New York: William Morrow and Company, 1936), 66-67; Charles J. Werner, *Historical Miscellanies Relating to Long Island* (Huntington, N.Y.: Privately published, 1917), 12.

72 "Answers of Gov. Andross to Enquiries About New York, 1678"; Governor Dongan, "To the Committee of Trade on the Province of New York," 22 February 1687; William Tryon, "Report of His Excellency William Tryon . . . 11 June 1774," all in *Documentary History* . . . New York, vol. 1, 60-62, 102, 509-10.

This is not to claim that goods from Jamaica Bay were not sent to New York or elsewhere or that no vessels plied the waters of the bay. Literary evidence as well as cartographic sources indicate the means of transportation between Jamaica Bay and Manhattan consisted of overland routes to Brooklyn ferry and thence by water to Manhattan. In 1679 and 1680, Jaspas Dankers and Peter Sluyter made a tour of parts of North America. During the voyage from the Netherlands to New York, they made the acquaintance of Jan Theunissen, a resident of "the baye" or Flatlands, who invited them to visit him at his home. Admittedly, Dankers and Sluyter were tourists but their route to Flatlands is instructive. They crossed at the ferry to Long Island and proceeded by road to Brooklyn Village, Gowanus, Najack (Fort Hamilton) and then to Flatlands. Their return to New York was through Flatbush, over the heights to Brooklyn Village, and thence to the ferry.

During the several days encompassed by their jaunt, Theunissen twice went to Manhattan both times by way of road and the ferry near Brooklyn. One of these occasions is described as his having "driven to the city to bring his goods." Six months after Dankers and Sluyter traveled a second time from Manhattan to Flatlands and again used the ferry and road route, both coming and going.⁷³

Maps of the eighteenth century enforce the conclusion that transportation between New York and Jamaica Bay was ordinarily not by vessel. A nautical chart of the Revolutionary period gives soundings for New York Bay, the East and Hudson rivers, and Raritan Bay, but not for Jamaica Bay. Moreover, maps of that era depict no roads running to a landing on the bay or roads even near the bay. Such roadways would have been necessary for the movement of sufficient goods to constitute ship cargoes. A large highly detailed map of the 1850s shows no docks at Jamaica Bay, no ship landings, and no roads to the bay except for a small one stretching to Canarsie Point.⁷⁴

Many of the vessels navigating within Jamaica Bay in the colonial period were employed in oystering and fishing. Town records refer to canoes, pettiaguers, and sloops. A 1639 inventory of an estate at early Flatlands includes a "yawls with all appurtenances."⁷⁵ All of these kinds of vessels have shallow drafts and thus were suitable for the meager waters of the bay. Whether some larger ones also had the capacity and crews sufficiently skilled to negotiate Rockaway Inlet is far from certain.

One apparently regular voyage from Jamaica Bay to New York was made in connection with the activities of William Moore, who leased Barren Island from Flatlands. For sixteen years prior to 1762, Moore had mined sand from a beach near Barren Island and transported it, apparently by water to New York, being that city's only supplier of sand. A century later, two fertilizer plants were constructed on Barren Island. One of them used dead horses and other animals collected from the streets of Manhattan and Brooklyn, and both exported their products to Europe.⁷⁶ Given the bulk of materials received by and sent from these two factories of the late 1850s, it is probably that they made use of ship transportation.

However, the rest of the bay relied on wagons, not shipping, for conveyance of even bulk materials. John Baxter of Flatlands, described hauling manure from Brooklyn ferry: "May 3, 1827--Unloaded the schooner Leader Cape Lonely. . . 50 cart loads of manure. . . 8/11/1828--Unloaded the schooner Florida Captain Butler . . . 81 cart loads street manure . . . a tedious job."⁷⁷

Local historians and those relying on such writers report incidents in Jamaica Bay during the American Revolution. Two authors describe a raid in July 1779 upon the bay made by five or six patriot whaleboats fitted but in Saybrook, Connecticut. According to one source, the rebel boats entered the bay, "seizing, burning and capturing every vessel in sight." According to the other, the Hempstead militia captured the

⁷³ Dankers, 120-33, 333-36.

⁷⁴ Claude Sauthier, "A Chronological Map of the Province of New York . . . 1779," in *Documentary History* . . . New York, vol. 1, 526; George Taylor and Andrew Skinner, "Map of New York and Staten Island and Part of Long Island . . . 1781," in Van Wyck, 120; Dripps, 1852.

⁷⁵ "Inventory of the Effects and Goods at Achtervelt belonging to Andries Hudde and Wolfert Gerritsen," in *Documents Relating* . . . New York, vol. XIV, 10.

⁷⁶ Brockett, 756-57; DuBois, 78.

⁷⁷ As quoted in Landesman, 78.

raiders.⁷⁸ Patriot whaleboaters, operating from the American held Connecticut shore, did conduct raids against Long Island's north shore, which was within the British area of occupation. Without documentation, however, and none has been found, the assertion cannot be easily accepted that five or six crews rowed east on the Sound, around Montauk Point, and then west to Jamaica Bay. A portage across Long Island also strains credulity. Moreover, the purpose of such a raid is unclear, since it is probable that the bay's volume of ship traffic was too inconsequential to merit such a risky and strenuous effort.

Somewhat more credible is a report in the Hartford Courant of April 25, 1776, that "the James pilot boat, one of the piratical tenders that infest the coast," made its way into Rockaway Inlet. Carrying only four guns, the vessel still proved too large for the bay and went aground. The approach of the local militia causes the crew to flee in the long boat.⁷⁹

⁷⁸ Jeanette Edwards Rattray, *Perils of the Port of New York: Maritime Disasters from Sandy Hook to Execution Rocks* (New York: Dodd, Mead & Company, 1973) p. 242; Alfred H. Bellot, *History of the Rockaways from the Year 1685 1917* (Far Rockaway, N. Y.: Bellot's Histories, Inc., 1917), 30.

⁷⁹ The Courant article is reprinted in *History of Queens*, 197-98.

II JAMAICA BAY AFTER 1865: ISLANDS, LANDINGS, AND MAINLAND

By several standards, Jamaica Bay experienced no great changes in the two centuries after arrival of the first European settlers. Doubtless had a visitation been made in the middle of the nineteenth century by the ghost of Elbert Elbertse, Jan Martense Schenck or another of the earliest residents, that spirit might have been impressed, if not startled by such alterations as the increased population to be found inland, especially northwest of the bay, and by the elimination of Dutch as a common language. However, the bay itself would have been familiar geography, except for the further westward migration of Rockaway peninsula. No bridges spanned the inlet or any of the channels. The depth of the bay's waters remained essentially the same. No piers or bulkheads had yet appeared, and meadows and marshes still constituted the bay front. No railroads or significant thoroughfares ran along the shores of the bay or connected it with inland areas. Low-lying islands within the bay continued unused and undisturbed.

The late nineteenth century and first half of the twentieth century did not completely transform Jamaica Bay, but, as to be expected in an era of industrialization and modernization, changes came much more rapidly than in the first 200 years. The present chapter and that which follows look at some of those changes. Chapter II studies the important sections of the bay, starting with Barren Island and moving clockwise around the bay to the Queens shore and then to the islands in the center of the bay. Chapter III investigates topics important to the general area.

Barren Island

From the middle of the nineteenth century to the early decades of the twentieth, Barren Island was the location of a succession of manufacturing establishments. Prior to dredging operations in Jamaica Bay, the island had the shape of a crude triangle, its base to the north. The industries fronted on Rockaway Inlet and clustered near the eastern and southern points of the island. Between 1959 and 1934, perhaps as many as twenty-six companies had facilities on the island, although no more than seven or eight at any one time. Fertilizers and fish oil constituted the main products during the island's industrial heyday. Later, the disposition of refuse from New York became the principal activity. Ships from the menhaden fishing fleet, barges, scows, and schooners transported goods to and from the island. As factories appeared, so did a group of residents, who gradually came to form a community, which at its height included 1500 people. Barren Island's industrial economy reached a peak shortly after the turn of the century. Thereafter a decline set in, and by 1920 only two refuse processing plants remained. In 1934, the last of these survivors terminated its operations.

The first plants on the island and roughly half of those which followed manufactured fertilizers, using a variety of raw material, particularly dead animals from New York and Brooklyn, the waste from sugar manufacturing, and bunker fish scraps. Fish oil factories appeared shortly after the fertilizer works. Menhaden or bunker fishing developed into a large industry on Long Island in the 1860s. Bunker fish migrated in huge schools up and down the Atlantic coast and were taken by fishermen using large seines. Initially sailing vessels were employed and later steamers. At the menhaden factories, the fish were boiled and pressed to produce oil used in tanning leather, in the mixing of paints as a substitute for linseed oil, and in the making of ship cordage. The remaining scraps of fish were dried and sold as fertilizer or to fertilizer factories for further processing. ¹

Prior to the late 1850s, the town of Flatlands, which had jurisdiction over Barren Island, imposed no real estate taxes on any holding on the island except for meadows and unimproved uplands. However, in 1859 an assessment was imposed on two factories, the "east factory" of Lefferts Cornell and a "west end factory." ² The Cornell works converted dead horses and other animals from New York into a fertilizer

¹ Brooklyn Daily Eagle, August 6, 1905, Clipping File ("Fishing Industry," Folder No. 2), QPL; Dubois, 78-79; Clarence Ashton Woods, "Try Pots and Fish Factories," in Long Island Forum (February 1946), 23-24, 37; (March 1946), 49, 52-53.

² Flatlands Town Records, Assessment Rolls, 1849-1872, 62.

component that was shipped to a nitro-phosphate works in London. Perhaps the "west end factory" belonged to William B. Reynolds, who, according to an 1884 source, opened a plant similar to Cornell's and shipped his product to Europe for use by Rhine valley grape rowers. Neither company long remained on the island. The Cornell factory was burned in 1859 and the operations moved to Flatbush.

Supposedly, the Reynolds property passed to Francis or Frank Swift. Swift did acquire a tract of land on Barren Island in 1861, but for the time being did not develop it. ³ No industrial facilities receive mention in the Flatlands records for the years 1861 to 1868.

The seven-year hiatus was broken with the construction and operation several fish oil and fertilizer factories. During 1869, 1870 and possibly 1871, Smith & Co. processed bunker fish in a factory located on a forty-five acre tract, the whole facility being assessed at \$8710. Somewhat smaller, being valued at \$1260, but more durable was the factory of Steinfield and Company, in operation from 1869 to 1873. What Steinfield manufactured cannot be determined. ⁴ Francis Swift teamed up with P. White to start a fertilizer factory in 1870. The White interests in Barren Island, eventually expanded to include several parcels of land, lasted until the 1930s. A manufacturer with a briefer stay was the Simpson factory, started in 1870 and remaining for only one or two years.

The 1870 census for Flatlands lists four workers at an unnamed bone-boiling establishment somewhere in the town. It also gives the occupation for one Flatland's resident as guano factory worker. Twenty-four others, all living in the same residence and without wives or children, labored in an oil works, more than likely the Smith factory on Barren Island. Of these twenty-four laborers, all but five had been born in Germany, the rest in Switzerland, England and Ireland.⁵

The employment of immigrants who were without families and housing them in a single residence is a striking feature of Barren Island's industries. By 1872, the Simpson works and the large Smith factory had closed, but Goodkind Brothers, Jones & Co., Valentine Koon, and Hawkins Brothers opened new menhaden factories. All four as well as the older Swift and White plant and the Steinfield works were each assessed at \$1260. ⁶ Hawkins Brothers fish Oil and Guano Company was the largest bunker fish firm on Long Island, with several factories in Suffolk County as well as its plant on Barren Island. During the remainder of the 1870s, several additional factories were open: Barren Island Manufacturing; Thomas A. Shae, a small operation; Read & Co.; and E. F. Coe, a large fish oil processor. ⁷ Discontinued were the activities of Steinfield and Co., Valentine Koon, and Goodkind Brothers. Swift and White apparently experienced intermittent close downs.

The census of 1880 as well as contemporary descriptions written in 1883 affords insights into Barren Island's industrial activity. According to the census, six "households" on the island consisted entirely or almost entirely of large groups of single men. Apparently these were dormitory facilities or some other sort of company housing for the laborers of each of the island's factories. Two plants were specifically identified in the census. Under "Coe's Fertilizer Company" were listed thirty-one white male laborers, nineteen born in Germany, five in Ireland and seven in New York. At John E. Jones' factory, a fish oil works, there resided forty-five laborers, all male, single, black and born in Virginia. Also at Jones' were ten white engineers, foremen, bookkeepers and cooks. Another household was a "fish and guano factory," with forty black laborers, half born in Delaware and half in Virginia, plus eight white men born in New York. For the three remaining large households, the census contains no explicit information as to the names of the factories or their operations. One of these residences included twenty-five laborers born in Germany, Ireland or New York. Another was composed of thirty-three white laborers, mainly born in Germany, plus an engineer and foreman, both from Prussia, and William Wimpfheimer, the twenty-nine year old superintendent, also born in Prussia and the only one with a family. The sixth large household

3 DuBois, 78.

4 Flatlands Town Records, Assessment Rolls, 1849-1872, 270.

5 Federal Census 1870, Flatlands, M-593, Roll 963.

6 Flatlands Town Records, Assessment Rolls, 1849-1872, 270.

7 Flatlands Town Records, Assessment Rolls, 1873-1879, 100-101, 172, 251, 350-51.

was composed of twenty-two black Virginians. In addition to these six large households of laborers, there were seventeen family-size units.⁸

The census report essentially conforms to information in the Flatlands tax records, which indicate seven factories on Barren Island, one of which, the Shae plant, was quite small, being assessed at half the value of the others.⁹ Conceivably, the Shae workers may have lived in the smaller, family-sized residences. A pattern reinforced by information for subsequent years seems apparent in 1880, namely that white workers provided the labor for the fertilizer works and black Americans were employed in the fish oil factories. E. F. Coe is stipulated as a fertilizer company in the census. According to information for a later period, Wimpfheimer, the superintendent of an unnamed plant, using white labor, was involved in the manufacture of fertilizers. Jones and Company processed bunker fish. Probably in 1880 there were three fish oil factories, Jones, Hawkins, and one other, and four fertilizer works, Swift & White, Coe, Shae, and one other. The two establishments whose operations cannot be identified were the Barren Island Manufacturing Company and Read & Co.

Two contributors to Stiles 1884 history of Kings County mention Barren Island. According to one of them, the factory of P. White and Company was destroyed by fire in 1878. When rebuilt the plant included five buildings and several docks, all located on four acres. The factory daily received thirty dead animals and annually produced about 2,000 tons of fertilizers. Coe's fertilizer factory consisted of a single large building measuring 360 by 224 feet, work yards, docks, and a 160-horse power engine. Eighty men were allegedly employed at Coe's making fertilizers from Peruvian guano, bone dust, Charleston stone, and menhaden scraps. Forty to fifty tons of phosphates were produced daily. The Barren Island Menhaden Company included three buildings, each 100 by 70 feet in size, and employed a forty horsepower steam engine, three steamers, and fifty men. Collectively the fish oil plants in operation in 1883 employed 350 men and a fleet of ten steamers.¹⁰

During the last two decades of the nineteenth century there continued a turnover in Barren Island industries, as some plants shut down or sold out to others. Hawkins Brothers Fish Oil and Guano Company closed its Barren Island works in 1888. Barren Island Manufacturing also operated until 1888, when it was taken over by P. White and Co. The small Shae establishment lasted from 1875 to no later than 1883; Read and Co. from 1879 to 1883; and the Menhaden Company from 1881 to 1883. An unnamed factory existed for two or three years in the mid-1880s on land belonging to John Robinson. In 1895 the last year of the Flatlands assessment records, there existed at Barren Island five industrial establishments: Barren Island Oil and Bone, valued at \$2500; White and Sons, \$18,000; Barren Island Fertilizer and Oil, formerly Barren Island Bone, \$2500; E. F. Coe, \$20,000; and a new facility, Andrew Wessell, \$4,000.¹¹

All of the factories were located on long plots, fronting on the south shore of the Island. For example, the Swift-White and later the P. White Co. fertilizer works was located on a plot, known as lot number one, western division, which stretched north from Rockaway Inlet to an extent of 1825 feet on the east side and 1940 feet on the west, being 495 feet wide and containing 21.6 acres. E. F. Coe occupied lot number five, western division, containing 10,857 acres, and the Wessel works the 1.45 acre number one lot of the eastern division.

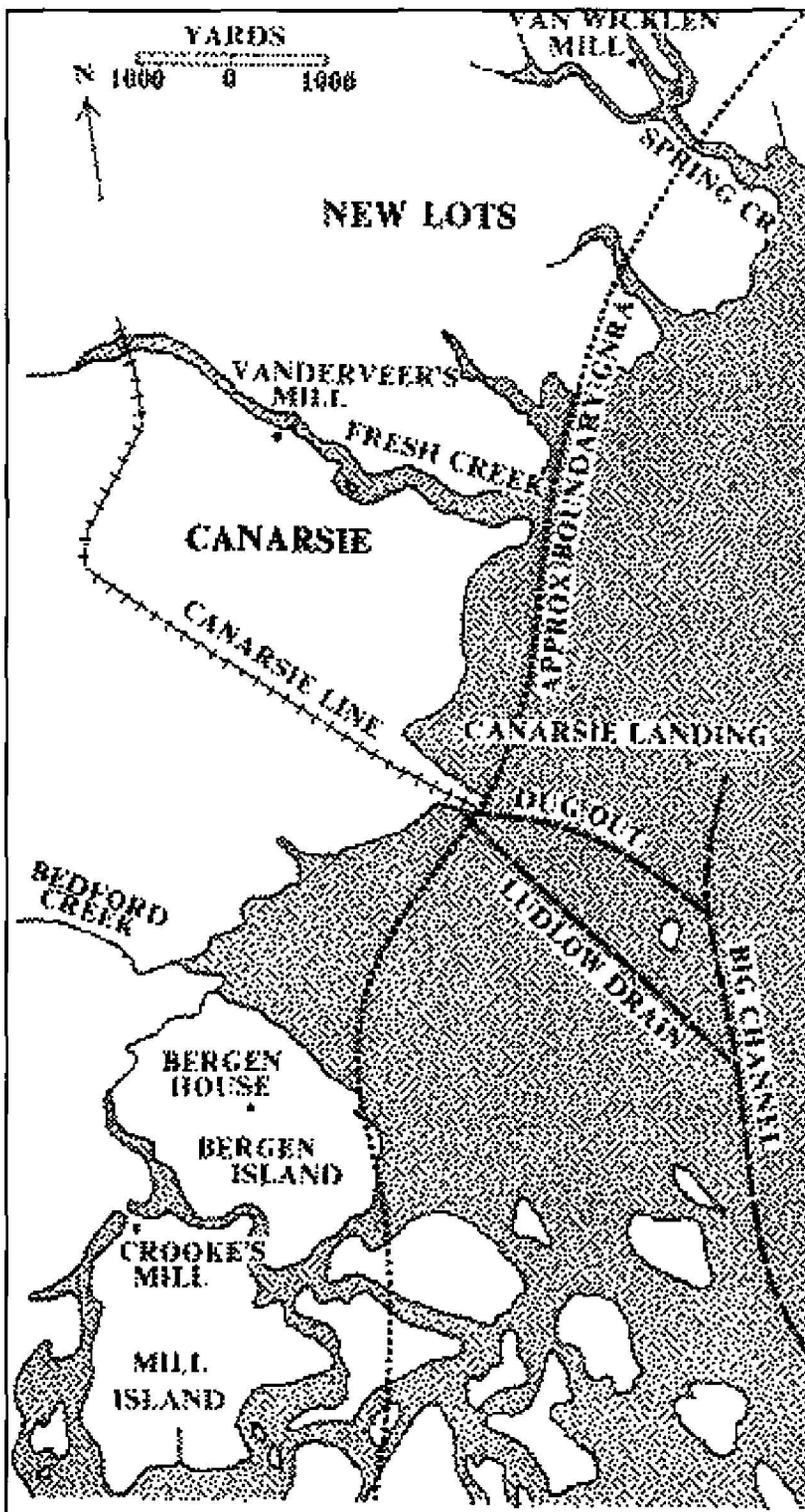
8 Federal Census 1880, Flatlands, T-9, Roll 917.

9 Flatlands Town Records, Assessment Roll, 1880, 46.

10 Dubois, 79.

11 Flatlands Town Records, Assessment Roll, 1880, 46, 110-11; Assessment Roll 1881, 55-56, 122-23; Assessment Roll, 1884, 75, 136, 140; Assessment Roll, 1886, 30-32; Assessment, 1887, 30-32; Assessment Roll, 1888, 36-37; Assessment Roll, 1889, 34; Assessment Roll, 1890, 36; Assessment Roll, 1894, 32; Assessment Roll, 1895, 34, 37.

Figure 5 Flatlands and New Lots, 1873



SOURCE: F.W. Beers, 1873

Table 2 Barren Island Industries

<u>Name</u>	<u>Activity</u>	<u>Dates</u>	<u>Location</u>	<u>Comments</u>
Cornell East	Fertilizer	1859	(unknown)	Destroyed by fire; moved to Flatbush Owner may have been William Reynolds
West Factory	Fertilizer	1859-60	(unknown)	
Smith & Company	Menhaden	1868-71	(unknown)	
Steinfeld & Company	(unknown)	1869-73	(unknown)	
Simpson	(unknown)	1869	(unknown)	
Goodkind Brothers	Menhaden	1872-77	(unknown)	Closed 1873-74; taken over by P. White
Swift & White	Fertilizer	1870-81	(unknown)	
Hawkins Brothers	Menhaden	1872-88	Lot #4, West.Div	
Jones & Company	Menhaden	1872-81	(unknown)	
Valentine Koon	Menhaden	1872-74	(unknown)	
Barren Island Manufacturing	Fertilizer	1875-88	Lot #4, West.Div	Taken over by White and then by Barren Island Oil and Bone
Thomas A. Shae	Fertilizer	1875-81	(unknown)	
E. F. Cole	Fertilizer	1878-95	Lot #5, West.Div	
Barren Island Bone	Fertilizer	1884-93	Lot #4, West.Div.	
P. White & Sons	Fertilizer	1884-	South Shore	
Robinson	(unknown)	1886-87	(unknown)	Destroyed in land slide
Barren Island Fertilizer & Oil	(unknown)	1890-95	Lot #4, West.Div.	
Andrew Wessel	(unknown)	1895	Lot #1, West.Div.	
Read & Company	(unknown)	1879-83	(unknown)	
Wimpfeimer	Fertilizer	-90	East Shore	
R. Recknagle	(unknown)	unknown	(unknown)	
Louis C. De Homage	(unknown)	unknown	(unknown)	
Barren Island Oil & Bone	(unknown)	1889-	(unknown)	
Menhaden Company	Menhaden	1881-	(unknown)	
N.Y. Sanitary Utilization Co.	Disposal	1905-19	East Shore	
Products Manufacturing	Disposal	1934	(unknown)	
Vaniderstine & Sons	Hides	1910	South Shore	
Cove Chemical	(unknown)	1911	South Shore	

Sources: Flatlands Town Records; Dubois; Brockett; Department of Docks and Ferries.

By the end of the nineteenth century, several changes had occurred in Barren Island's industrial activity. Between 1890 and 1894, menhaden became very scarce. That and the nation-wide economic depression forced the Barren Island fish oil factories to close.¹²

Two fertilizer and rendering factories came to constitute the island's major industries, Thomas F. White and Company on the south end and the New York Sanitary Utilization Company at the east, near the site of the plant associated with William Wimpfeimer. Two other firms receive brief mention in the records for the early twentieth century of the New York City Department of Docks and Ferries. These were Vaniderstine & Sons, a horsehide firm, and Cove Chemical Company, both located on the south side of the island.¹³ Although still producing fertilizers and other products, the main function of the island's industries now was providing a means for disposing of New York's dead animals and garbage. A 1912

¹² Woods, "Try Pots and Fish Factories"; "Landed Catches of Principal Species by Region, 1876 to 1970, Middle Atlantic States," in Bureau of Census, Historical Statistics of the United States: Colonial Times to 1970 (Washington, D. C.: Government Printing Office, 1975), 556-57.

¹³ Department of Docks and Ferries, New York City, Thirty-Ninth Annual Report of the Department of Docks and Ferries for the Year Ending December 31, 1910. (New York: n.p., 1911), 152, 334, 339, 344, 380, 477; 493, 676, 764. The docks department published an annual accounting of its activities. In years before 1910, frequently two reports were issued, the Annual Report and another volume entitled Minutes, Transactions, or Proceedings. Starting in 1910, only the Annual Report was published. In subsequent citation of these documents, a shorter form has been used.

newspaper article refers to three refuse disposal plants on the island, describing them as among the largest of their kind in the world.¹⁴

In the early twentieth century, despite the demise of the fish oil industry, Barren Island seems to have been a place of considerable activity. During the busiest seasons, seven or eight compactly packed garbage scows, carrying refuse totaling between 500 and 1,000 tons, arrived daily. Brought along side the disposal plants, the refuse was lifted by endless chain elevators from the scows into receiving rooms. Five hundred men labored in the garbage works. Also arriving at 10:00 each weekday morning was the horse boat from the city, sometimes carrying as many as fifty dead horses, not to mention cows, cats and dogs. The "horse factories" were regarded as the island's pride; the work required being more skilled and thus better paid.¹⁵

During the heyday of the fish oil, fertilizer and refuse disposal industries, a modest volume of ship traffic focused on Barren Island. The garbage and horse rendering establishments depended on the daily arrivals of scows from New York. From early May to mid-November, the menhaden season, thirty steamers moved back and forth between the bunker fish schools in the Atlantic and the fish oil plants on the island. Other vessels carried away fertilizers, fish oil and other products. Beginning in 1906, the island was a stop on two ferry routes, one originating at Canarsie and terminating at Rockaway Beach and the other running from Sheepshead Bay to Rockaway Point.¹⁶ The difficult passage through Rockaway Inlet took its toll on Barren Island shipping. In August 1897, the **Franklin**, one of several scows bound for the Island from New York City, was completely wrecked in the Inlet. The same body of water was the site of another wreck two years later, when the schooner **Robert A. Snow**, carrying a cargo of fertilizer, was totally destroyed.¹⁷

In 1906, some commercial statistics were presented to Congress as part of an effort to win federal funds for the economic development of Jamaica Bay. Because of the political purpose, these statistics may be inflated. However; they are useful in showing that Barren Island was the only industrially productive part of the area, with the exception of Mill Creek. Moreover, they indicate the nature of the activity at Barren Island. Annually the island produced goods valued at over seven and a half million dollars. The bulk of these goods consisted of a million tons of fertilizers, worth four million dollars, and 50,000 tons of oils, worth two and a half million. Other products included grease, bone black, hides, iron, and tin. Annually the island received over \$100, 000 worth of ice, lumber, brick, lime, cement, and coal.¹⁸

One view of the economic history of Barren Island is afforded through a study of maps for the area. The only structure on the island in 1852 was the Dooley-Johnson-Skidmore house or "hotel" near the eastern extremity. By 1878, six large structures had appeared, the fertilizer and fish oil factories, three clustered about one fourth of a mile east of the southernmost tip and the others stretching along the eastern end. All six had piers reaching into Rockaway Inlet. Smaller buildings, doubtless residences, were in the upland areas adjacent to the plants. A 1900 map shows five large structures with piers on the east end and one large and several smaller buildings on the south shore. During the next decade, the plants increased in size. The largest was the westernmost of the two on the south side, probably the Thomas White factory. Immediately to the north was another industrial building. The shore near the southern point appears bulkheaded and a breakwater ran west-northwest from that point. On the eastern shore were two manufacturing complexes; one consisting of a single large structure and the other of six closely clustered buildings. The years 1911 to 1926 saw little change in the number and location of the plants, although the extension of Flatbush Avenue across the island to the bay eliminated the structure north of the large White plant. Of course, by 1926 Barren Island was on its last legs as an industrial site and as a residential community, a fact borne out by a 1940 map, which shows traces of the piers and pilings and

14 Brooklyn Daily Eagle, November 10, 1921, Clipping File, JBU.

15 Article, unknown newspaper, December 7, 1904, Clipping File ("Barren Island"), QPL.

16 See Table No. 5, 70; Department of Docks, Annual Report, 1906, 145 46, 155.

17 Rattray, 262.

18 Charles B. Law, Speech of Hon. Charles B. Law of New York in the House of Representatives, June 29, 1906 (Washington, D. C.: 1906), 7.

indicates the site of the plants on the southern shore with the word "ruins."¹⁹ Alterations in the number and location of Barren Island industrial facilities resulted from general economic, political and social forces, but also from some local mishaps. Fire damaged or destroyed three plants: the Cornell works in 1859; the White factory in 1878; and the New York Sanitary Utilization Company in 1904. In the early 1860s, high winds leveled the Swift facility.²⁰ During the decades before and after the turn of the century, the island's shore fronting Rockaway Inlet proved unstable, and perhaps as many as five land falls occurred. Around 1890, the land occupied by the Wimpfheimer fertilizer plant on the eastern tip of the island broke off and disappeared into the inlet taking the buildings with it. Another landfall came in 1902, although the damage caused is unknown. Nineteen hundred and five saw two incidents. In the summer, land along the shore suddenly sank five feet. And then in late November and early December, the New York Sanitary Utilization Company, on the east shore, lost an acre of land and a number of buildings. First three structures went and then several days later the office and pump house. The company started rebuilding, a process not yet completed in April 1907, when the eastern corner of the island sank into Jamaica Bay, together with buildings and piers.²¹

The explanation given in the press for the 1905 and 1907 incidents centered on increasingly strong tidal action. As Rockaway Point extended further westward, the inlet became narrower, making currents of "fearful force," especially during unusually high tides. Such conditions in 1907 caused strong eddies which undermined the concrete foundations on which the new factory was being built. Whatever their cause, the landfalls did not cause abandonment of the Barren Island operations. Indeed as evident in the 1911 map and other documents, the Thomas F. White Company and the New York Sanitary Utilization Company rebuilt or enlarged their plants.²²

More important than the currents of Rockaway Inlet, the tides of economic and social change operated against the continuation of the garbage and horse rendering plants on Barren Island. The island's industries always had a peculiarly noisome quality. A writer in the sedate *Harpers Monthly* of October 1878 mentioned the "disgusting fish oil factories." That odors emanating from Barren Island constituted a nuisance was even acknowledged by writers boosting the commercial and industrial accomplishments of late nineteenth-century Kings County.²³ Complaints became more numerous and shrill as communities around the bay increased in population. In 1899, both the state legislature and the city government made efforts to eliminate the Barren Island nuisance. These efforts failed because of the opposition of the governor and the mayor and because of the inability to devise some other means for disposing of the city's refuse. In addition to complaints arising from the stench, the horse factories had to contend with a decline in the number of animal carcasses. During the year 1918, the island received 600 dead horses, certainly no inconsiderable number, but a far cry from the heyday when fifty animals arrived every day.²⁴

In the late years of the second decade of the twentieth century, municipal authorities faced a dilemma in the mounting protest by groups and citizens of the Rockaway peninsula and the mainland and the absence of some alternative method to dispose of the city's refuse. The Barren Island garbage plants

19 Map, Dripps, 1852; U.S. Coast Survey, Chart 540, "Rockaway Inlet and Western Park of Jamaica Bay," 1878; U.S. Geological Survey, Brooklyn Quad, 1900; U.S. Coast and Geodetic Survey (USC&GS), Chart 542, "Jamaica Bay and Rockaway Inlet," 1911; 1926; 1940.

20 DuBois, 78; Brooklyn Daily Eagle, April 29, 1907, Clipping File ("Barren Island"), QPL.

21 Brooklyn Daily Eagle, December 3, 1905; December 12, 1905; April 29, 1907, all in Clipping File ("Barren Island"), QPL; Article, Unknown newspaper, December ?, 1905, Clipping File, JBU.

22 Brooklyn Daily Eagle, December 12, 1905; April 29, 1907; USC&GS, Chart-No. 542, 1911; Department of Docks, Annual Report, 1910, 334, 477, 676.

23 "Around the Peconics," Harpers New Monthly Magazine (October 1878), excerpts in John Beard (ed.), Blue Water Views of Old New York; Including Long Island and the Jersey Shore (Barre, Mass.: Scrimshaw Press, 1970), 83; Dubois, 78.

24 Article, unknown newspaper, April 28, 1899, Clipping File, JBU; Brooklyn Daily Eagle, May 8, 1899; May 26, 1899, Clipping File ("Barren Island"), QPL; Brooklyn Daily Eagle, January 16, 1919, Clipping File, JBU.

were periodically closed down, usually in the summer, only to be opened later.²⁵ It would appear that in 1919 authorities substantially reduced the volume of refuse being sent to Barren Island. This coupled with the decline in the horse rendering business to produce an exodus of the island's population. In 1933, the garbage plant, now known as the Products Manufacturing Company, surrendered its facility to the city, which ran the operation for a year and a half. In July 1935 the plant was closed permanently, and relief workers shortly began to dismantle that factory and one other still standing.²⁶

In the early twentieth century, Barren Island had a residential community of 1500 people. That community originated with the work force required by the fertilizer and fish oil factories. The 1855 census describes Barren Island as consisting of 1000 unimproved acres and gives no indication that the island was inhabited. That census and those of the state and federal governments before 1880 do not designate Barren Island or any other particular place in the town of Flatlands. However, it is clear from the 1870 census that Barren Island was acquiring permanent residents. Four men, between the ages of thirty and thirty-five, three from Germany and one from Switzerland, lived at the same residence without any families. All four worked in a bone-boiling establishment. Twenty-four others, also single males born in Europe, most frequently Germany, worked in an oil works, doubtless on Barren Island. ²⁷

In 1880, the island had a population of 309, living in twenty-three residences. As already mentioned, six of these residences appear as factory dormitories, barracks or some sort of congregate company housing. Whatever the specific nature of these dwellings, they housed between twenty-two and fifty-five workers. All six groups were ethnic enclaves, being either composed of European immigrants, mainly from Germany, or black Americans from the upper South. The black unskilled labor was employed in the three fish oil factories. In two of these works, whites born in New York, lived in the same residence and performed the supervisory and skilled tasks, such as those of foreman, engineer, fireman, carpenter, bookkeeper, and cook. In the third, the residence consisted entirely of twenty-two black laborers, all from Virginia. Preceding this residence in the census listing was a household with four white men, one from Virginia, whose occupation was superintendent of a fish factory. The three men he lived with were an engineer, from, Virginia, and foreman and fireman, both born in New York. ²⁸

European immigrants provided the unskilled labor for the fertilizer factories. The Coe Company employed thirty-one laborers, thirteen from Prussia, six from other parts of Germany, five from Ireland, and seven born in New York. The two other fertilizer factories had work forces of similar ethnic composition. In addition to the six large units, the 1880 census lists seventeen other households. Thirteen of these were the residences of single families, the head of the house most frequently being employed as a laborer. Two, however, gave their occupation as hotelkeeper. The four remaining households were small groups of single adult men, one being four Irish laborers; another five white laborers from Germany, England or New York; the third a father and son, both laborers and born in Wurtenburg; and the last consisted of the white supervisory staff for one of the fish oil plants.

The 1892 state census does not specifically set the Barren Island returns apart from the rest of Flatlands, but that section of the census dealing with the Island is conspicuous because of the clustering of large groups of laborers in the same households. Four such clusters appear consisting of from forty-eight to sixty-five names. Race was not stipulated but each of the four clusters included men born in Germany, Poland, England, Ireland, and the United States. Since it is unlikely that Barren Island industrialists experimented with desegregation it seems likely that the collapse of the bunker fish industry had

²⁵ Article, unknown newspaper, April 28, 1899, Clipping File, JBU; Brooklyn Daily Eagle, May 8, 1899; May 26, 1899, Clipping File ("Barren Island"), QPL; Brooklyn Daily Eagle, January 16, 1919, Clipping File, JBU.

²⁶ World Telegram, September 17, 1935, Clipping File, JBU.

²⁷ New York State Census, 1855, "Flatlands," in Office of County Clerk, Kings County Supreme Court; Federal Census, 1870, Flatlands.

²⁸ Federal Census, 1870, Flatlands.

eliminated black workers, at least temporarily, from the payrolls of the island's factories. Interspersed among the four large clusters were smaller units, in many cases *bona fide* families.²⁹

Sociologically, Barren Island experienced a revolution in the 1890s. By 1900, at which time the population was 520, the large households of single men had completely disappeared. Now the island's residents occupied 103 households, frequently consisting of parents, children and a small number of boarders. Also, there was greater occupational diversity. Half of the island's inhabitants were day laborers the main force in the fertilizer and refuse factories. Also employed in these works were small numbers of skimmers, engineers, coopers, blacksmiths, machinists, pipefitters and bricklayers. However, some men had occupations unconnected to the island's industries. There were a number of barbers butchers, grocers, dry goods merchants, and bartenders. Five men managed hotels, and fifteen persons, some of them women ran boarding houses. The island's population also demonstrated increased ethnic heterogeneity. Whatever their whereabouts in 1892, black Americans now constituted one fifth of the inhabitants. Included in their numbers were women and children. The so-called "new immigrants" made their appearance at Barren Island in the form of sixty-eight Poles and forty-five Italians.³⁰

During the early twentieth century, two churches served Barren Island's residential community, a public school (PS 120) with as many as six teachers, a police force, four saloons, and drug, butcher, bakery and grocery stores. Ferry service was available to Rockaway, Sheepshead Bay and Canarsie.³¹ As the operations of the horse rendering plants contracted and as the city of New York devised other means for disposal of its refuse, the community on Barrens Island began to suffer an exodus. After 1919 the decline became pronounced and by 1930, the population had been reduced to 400. Doubtless some of those still on the island remained because the great depression left them unable to move elsewhere. In 1936, the Parks Department, which had obtained jurisdiction over city property at Jamaica Bay, gave notice to vacate. Some left, and others moved to a fifty-one acre tract on the southern shore still in private hands, namely Thomas White. These bitter-enders finally departed in 1942, when the federal government purchased the White tract. ³²

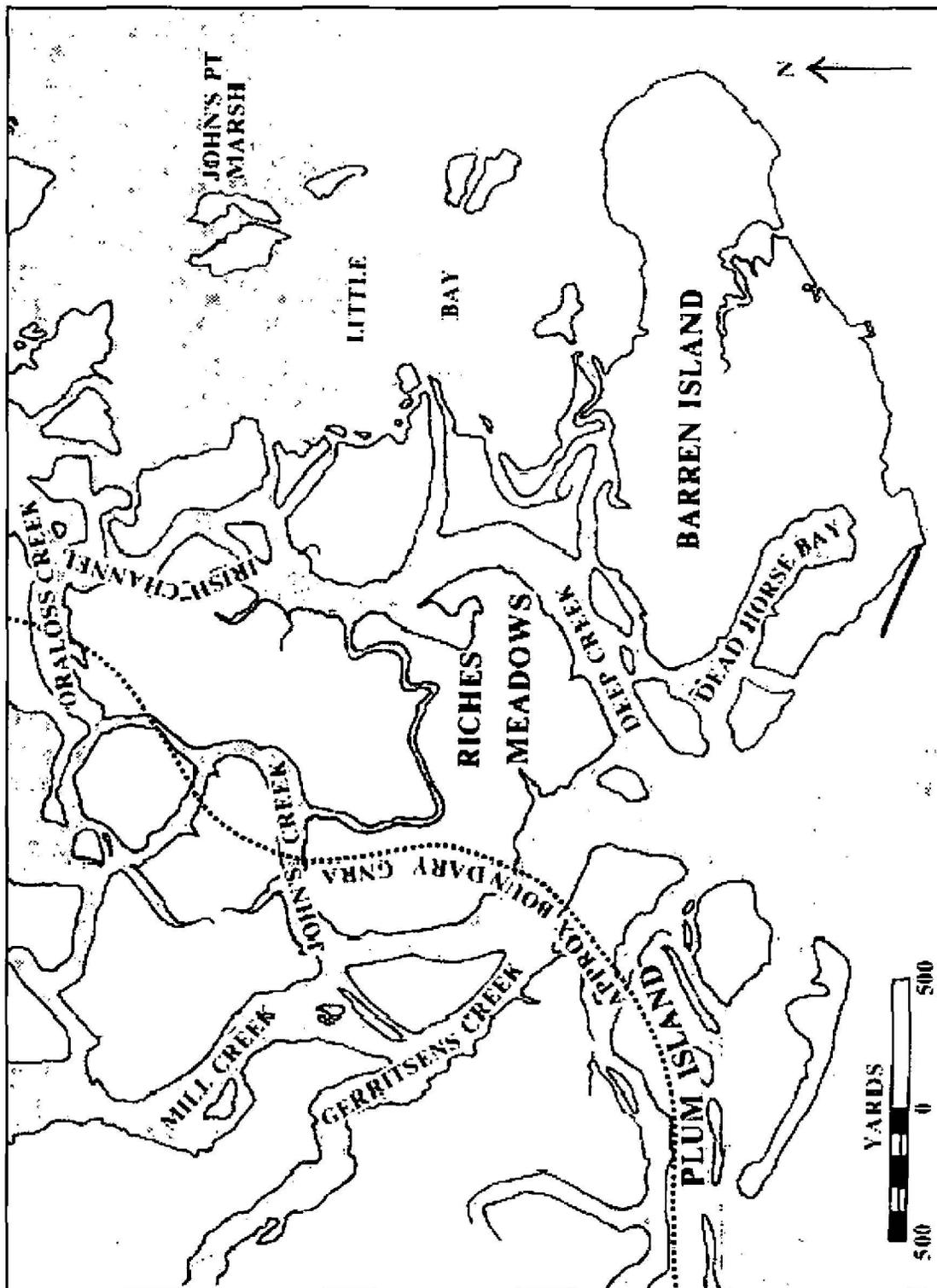
²⁹ New York State Census, 1892, "Flatlands," in Office of County Clerk, Kings County Supreme Court. The manuscript returns for the 1890 federal census for Kings and Queens Counties were destroyed by fire.

³⁰ Federal Census 1900, Flatlands, T-623, Roll 1069.

³¹ Brooklyn Daily Eagle, November 3, 1912, Clipping File ("Barren Island"), QPL; Article, unknown newspaper, December ??, 1904, Clipping File ("Barren Island"), QPL.

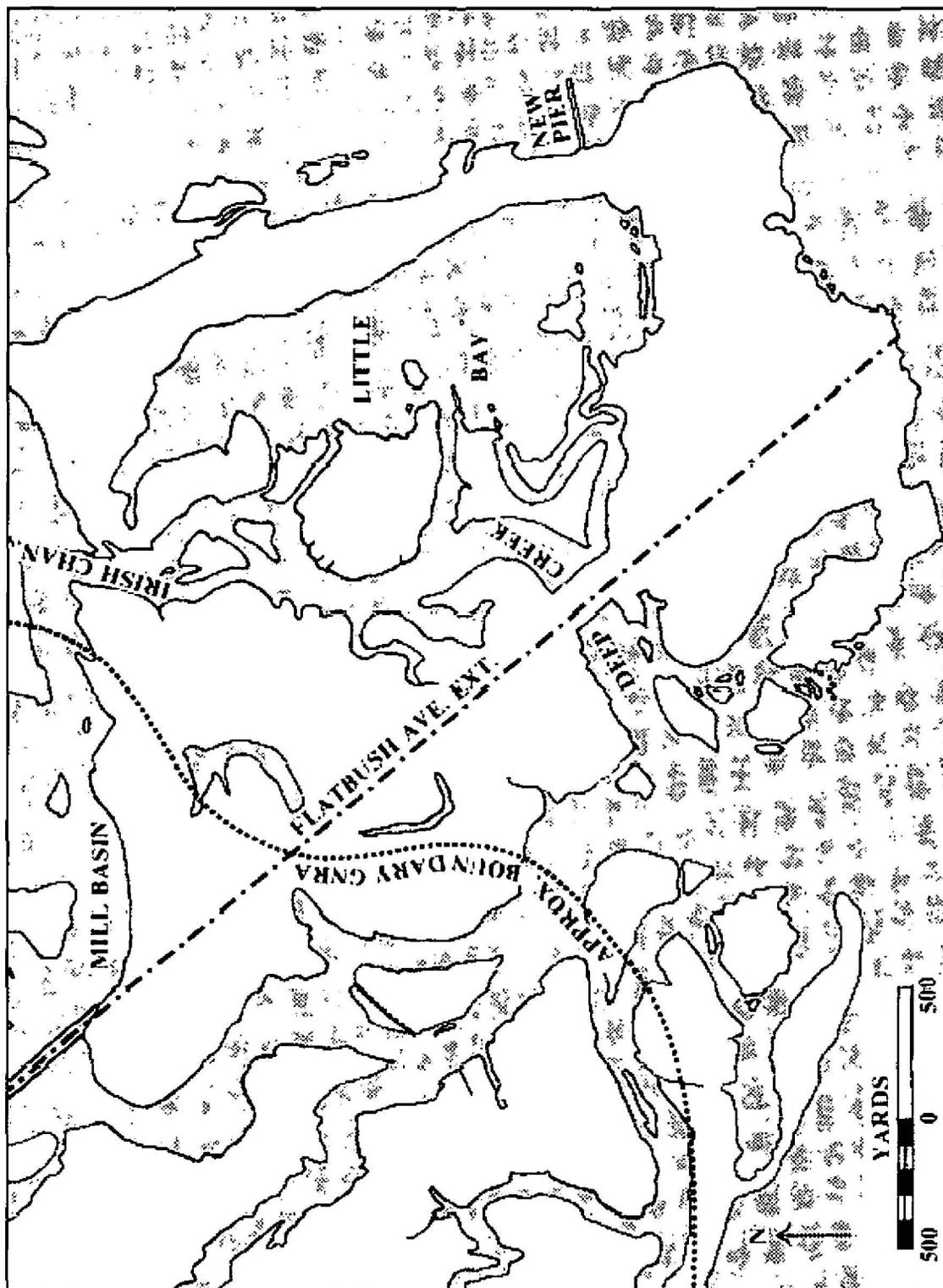
³² New York Sunday News, March 3, 1957; Article, unknown newspaper, February 19, 1939; Article, unknown newspaper, 1936; New York Times, January 18, 1942; Brooklyn Daily Eagle, March 13, 1936; New York Daily News, November 7, 1940, all in Clipping File ("Barren Island"), QPL.

Figure 6 Barren Island and Flatlands Bay, 1911



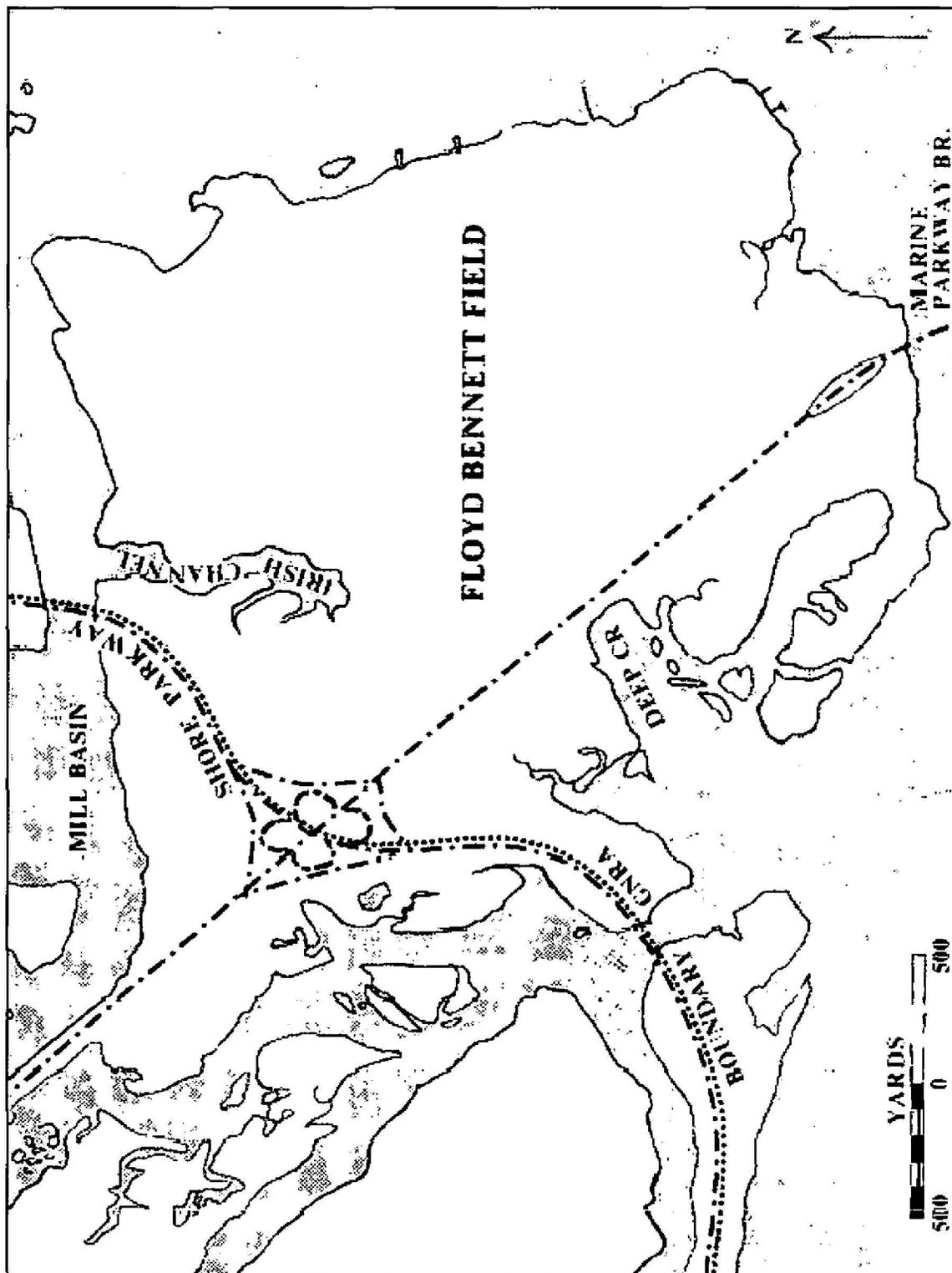
Source: USC & GS, Chart 542, 1911

Figure 7 Barren Island and Flatlands Bay, 1926



SOURCE: USC & GS, Chart 542, 1926

Figure 8 Barren Island and Flatlands Bay, 1940



SOURCE: USC & GS, Chart 542, 1940

Mill Island, Bergen Island, and Flatlands Bay

As a separate and distinct landform in Jamaica Bay, Barren Island disappeared during dredging and filling operations of the 1920s and 1930s. Second only to the creation of an airfield on the eastern reaches of the bay, the southwest portion experienced great topographical alteration. Today's bay front from Rockaway Inlet to Paerdegat Basin in only certain basic respects resembles that area as it existed in the nineteenth century. During the years the Department of Docks had jurisdiction, 1897-1936, plans emerged for industrial development. Indeed a number of firms did locate in the vicinity of Mill Basin and Flatbush Avenue. Although industrialization constituted the long-range goal, the department allowed that part known as Flatlands Bay to become popular among fishermen, boaters, and summer cottagers. Originally, Flatlands Bay, located between Barren Island in the south and Bergen and Mill Islands in the north, consisted of a number of marshes and creeks. Ultimately all of the marshes were filled and the streams eliminated, except Shellbank Creek, Gerritsen Creek, and parts of the Mill Creek system. And these surviving waterways experienced significant alteration. A number of related projects account for the changes in the southwest section of Jamaica Bay: the dredging of the inlet and of channels to Mill Basin and Canarsie, the extension of Flatbush Avenue to the inlet and the construction of Floyd Bennett Field.

Among the transformations was the conversion of Mill Island and vicinity into an industrial site. Until the last decade of the nineteenth century, the island retained a rural quality. Its four buildings in 1890 consisted of a residence and three structures labeled as "stables."³³ In that year, however, the property passed into the hands of Robert L. Croke, who erected on part of the island a large lead smelting plant. Subsequently, National Lead Company bought out Croke Smelting Company. In 1906, Mill Island reportedly received annually 4,000 tons of ore and produced 3,800 tons of solder, tin and lead, worth \$1,250,000. Access to the island was by way of Rockaway Inlet, Dead Horse Inlet, Gerritsen Creek, and Mill Creek. Croke sold the remainder of the island to McNulty and Fitzgerald, who made plans to erect bulkheads and fill the island's marshes. Those plans were executed by the Atlantic, Gulf and Pacific Company and resulted in the creation of 332 acres of uplands. Atlantic, Gulf and Pacific received title to part of the area as payment for its work.³⁴

Later changes at Mill Island resulted from activities of municipal authorities. In 1915, a channel 100 feet wide and fifteen feet deep was dredged from the main Jamaica Bay channel into what was now known as Mill Basin, a distance of 5400 feet. The department also undertook the construction of a 1400 foot bulkhead and 400 foot warpage platform on the mainland side of Mill Creek. That dredging was required because of the plan to extend Flatbush Avenue to the south shore of Barren Island. That project, when completed, cut off Mill Island from access to Rockaway Inlet via Mill Creek.³⁵

A 1919 account describes Mill Island as the location of five or six manufacturing establishments and commercial concerns. One of these was the Atlantic, Pacific and Gulf Company, the dredging contractor, which was then building three dry docks. At that time the company had a contract with the US Navy for the construction of seven large barges. Some of the fill being used at Mill Basin consisted of materials originating in Europe. Carried as ballast in vessels sailing from France to New York, it was deposited at Staten Island and then brought by barge to the Mill Basin pier.³⁶

In 1913, the municipal government, for the extension of Flatbush Avenue from its then southern terminus, near Avenue "V," to Rockaway Inlet, appropriated moneys. The project included construction of a bulkhead and a concrete city dock as well as the strip of land across the marshes for the roadway. When completed in 1923, 2700 feet was added to the bulkhead and pier facilities in the Mill Basin area. During the remainder of the decade and during the 1930s, the docks department rented space in the basin to a

33 E. Robinson, *E. Robinson's Atlas of Kings County, New York* (New York: E. Robinson, 1890), plate 31.

34 Bailey, 68; Law, 9.

35 Department of Docks, *Annual Report, 1912*, 3; *Annual Report, 1915*, 10, 158.

36 Article, unknown newspaper, February 16, 1919, Pamphlet File ("Jamaica Bay"), Brooklyn Collection, Brooklyn Public Library.

number of firms, such as Briggs Engineering; Mills Brothers (as berths for four steamers); Montrose Construction; Anniston Salvaging; Brooklyn Alcatraz Asphalt; City Sand and Gravel; Valvoline Oil; F. J. Kerner Coal; Knickerbocker Ice; and Locust Building Supply.³⁷ Most of these firms conducted small operations and did not engage in extensive industrial activity. That the Mill Basin-Flatbush Avenue area never flourished as an important metropolitan industrial center resulted from the failure of plans for the establishment of rail service between the area and the rest of Brooklyn.

Until the 1890s, Bergen Beach essentially resembled Mill Island. Maps of the 1870s show two buildings on Bergen Island, with an unimproved road running southeast to Jamaica Bay, the entire property being owned by John C. Bergen. Extensive changes came in the 1890s, but unlike the alterations at Mill Island, those at Bergen Island consisted of residential and recreational developments. In 1892 the Germania Real Estate and Improvement Company purchased the entire island, and rapid development followed. Streets were constructed from Avenue "T" to Avenue "Z" and from East 70th to the Grand Esplanade along the bay front, building lots laid out, and an amusement park opened. During the decade, trolley service was instituted, connecting Bergen Island with the mainland. By 1899, the term "Bergen Beach" was being used to designate the island's shore.³⁸

Since Bergen Island was private property and not part of the common lands of Flatlands, its growth cannot be traced through the records of the New York City Department of Docks, except respecting the use of land under water and ferry franchises. However, other sources provide an insight into the circumstances of the area during the early twentieth century. In 1905, Bergen Beach was a small resort, a lesser Canarsie as it were. Its facilities included a commercial bathing establishment, three boat liveries, and such places of amusement as the Bergen Beach Casino, the Trocadero Theatre, and something known as "Automation." Seven years later, three other amusement places had appeared, one being a scenic railroad.³⁹ Two boat builders were located at Bergen Beach. Buildings were strung along bulkheads on the bay side of the island. Not listed at Bergen Beach in the directories of the period were any hotels.

Several piers were constructed during the first decade of the century, and several of these at one time or another doubtless accommodated ferries. From 1905 to 1921, ferry service linked Bergen Beach with Canarsie, utilizing a pier at the foot of Avenue "V" and later one at Avenue "X." For a brief period, a ferry also ran between Bergen Beach and Rockaway Beach. The ferry business at Bergen Beach never developed into a prosperous enterprise. Receipts were small and navigational problems existed because of the extremely shallow waters and the absence of a reliable channel. Even the dredging of the main channel from Barren Island to Canarsie proved of little direct value to Bergen Beach, since 460 yards separated the new channel from the shoreline.⁴⁰ That dredging, however, may have produced some new uplands suitable for vacationers and businesses catering to a summer trade. Beginning in 1927, the Department of Docks began carrying on its rent rolls yearly leases for lots and bungalow sites at Bergen

37 Other firms renting space at Mill Basin-Flatbush Avenue were N. Ryan Company, Wholesale and Retail Sand, Gravel, and Broken Stone; J. P. Duffy Building Materials; Burns Brothers, apparently a shipping company with a main office in Manhattan; Mahoney and Busch; and J. J. Kehoe. They are listed in the rent rolls of the various annual reports of the Department of Docks. The nature of the business activity of some of them has been identified through city directories, such as *The Brooklyn City Directory*, vol. (1913) (Brooklyn: Brooklyn Directory Co., 1913) and *Polk's Brooklyn (NY) City Directory 1933-4* (vol. 90, Brooklyn: R. L. Polk & Co., 1933).

38 Bailey, 77.

39 *Trow Business Directory of Greater New York (Five Boroughs Combined) 1905* (vol. VIII, New York: Trow Directory, Printing and Bookbinding Co., 1905), 34, 39, 381-82; *Trow Business Directory of Greater New York (five Boroughs Combined) 1912* (vol. XV, New York: Trow Directory, Printing and Bookbinding Co., 1912), 27, 28, 273.

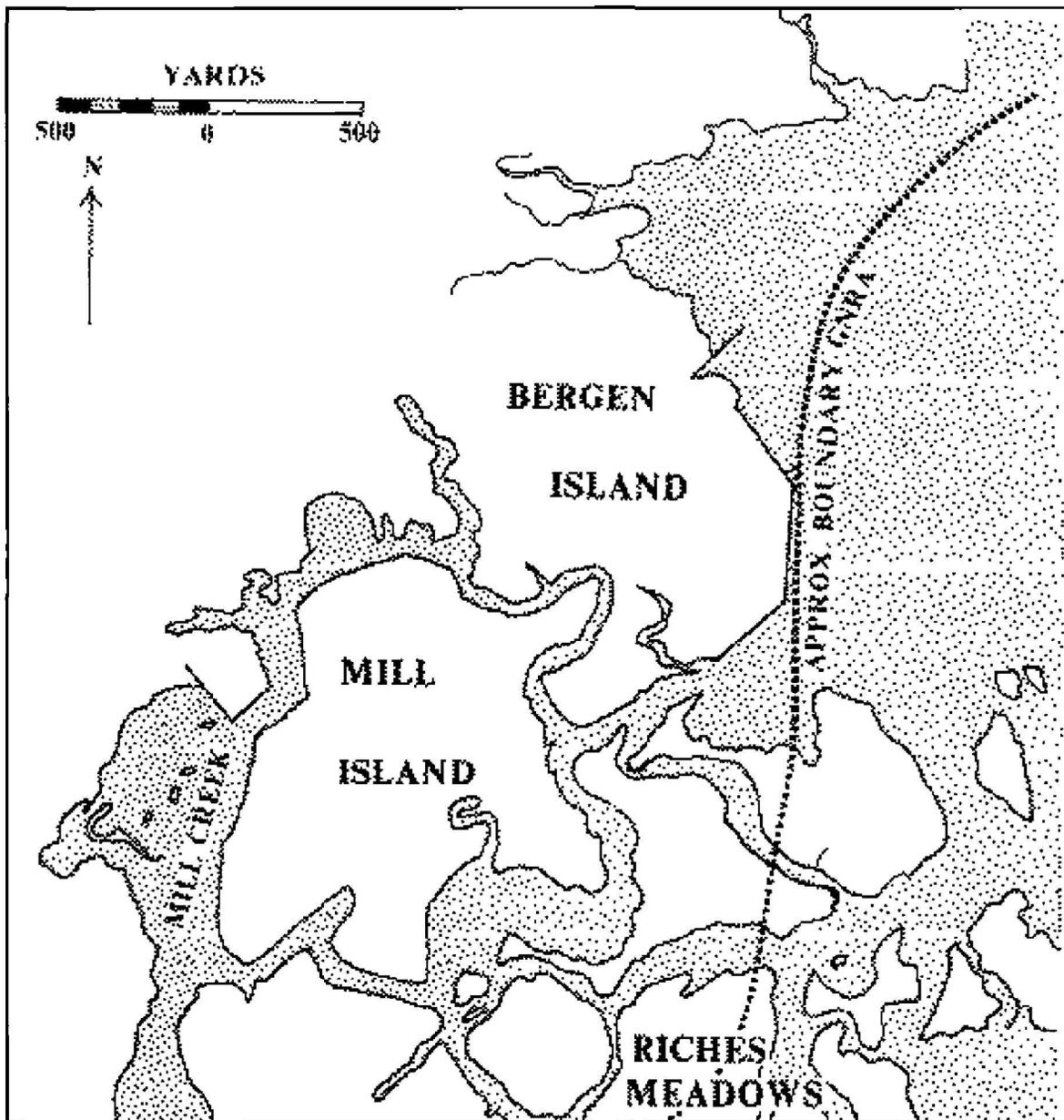
40 See various annual reports of the Department of Docks. Holders of ferry franchises were to pay to the Department of Docks five percent of gross receipts. For 1906, one Bergen Beach ferry operator paid \$25.00 to the department, indicative of only \$500.00 in gross receipts. In 1911, two companies made no payments. Department of Docks, *Annual Report, 1906*, 156; *Annual Report, 1911*, 197-98. USC&GS, *Chart 542, 1926*.

Beach. In 1930, twenty-six lots were leased at annual rates of between \$10.00 and \$240.00. Lessees were individuals, except for the Paul S. Gesswein Boat Company, the Bergen Beach Gun Club, and Powell Welding Company.⁴¹

In the years before World War 1, Flatlands Bay acquired numerous small vacation structures, such as boathouses and bungalows. Their owners and occupants gained permission to use space from the Department of Docks, and the records of that department constitute the basic source for this aspect of Jamaica Bay's history. Unfortunately, those records are rarely specific as to the location of sites covered by the department's leases and permits. From 1909 to 1915, no more precise term than "Flatlands Bay" appears in the records. Thereafter, sections within the bay are named, but lists of those sections sometimes include such places as Jo Co's Marsh and Hell Gate Marsh, located on the other side of Jamaica Bay. Despite these difficulties, it can be said that Flatlands Bay consisted of marshes, meadows and creeks in the area between the original Barren Island in the south and Bergen Beach and Mill islands on the north, Mill Creek and Gerritsen's Creek on the west, and Jamaica Bay on the east. Within that area were Riches Meadows, northwest of Barren Island; Bushes Meadow, north of Barren Island; Oraloss Meadows, near Oraloss Creek; and John's Point Marsh, between Jamaica Bay and Little Bay. Uncertain are the location of Hemlock Meadows and Grainors Hook.

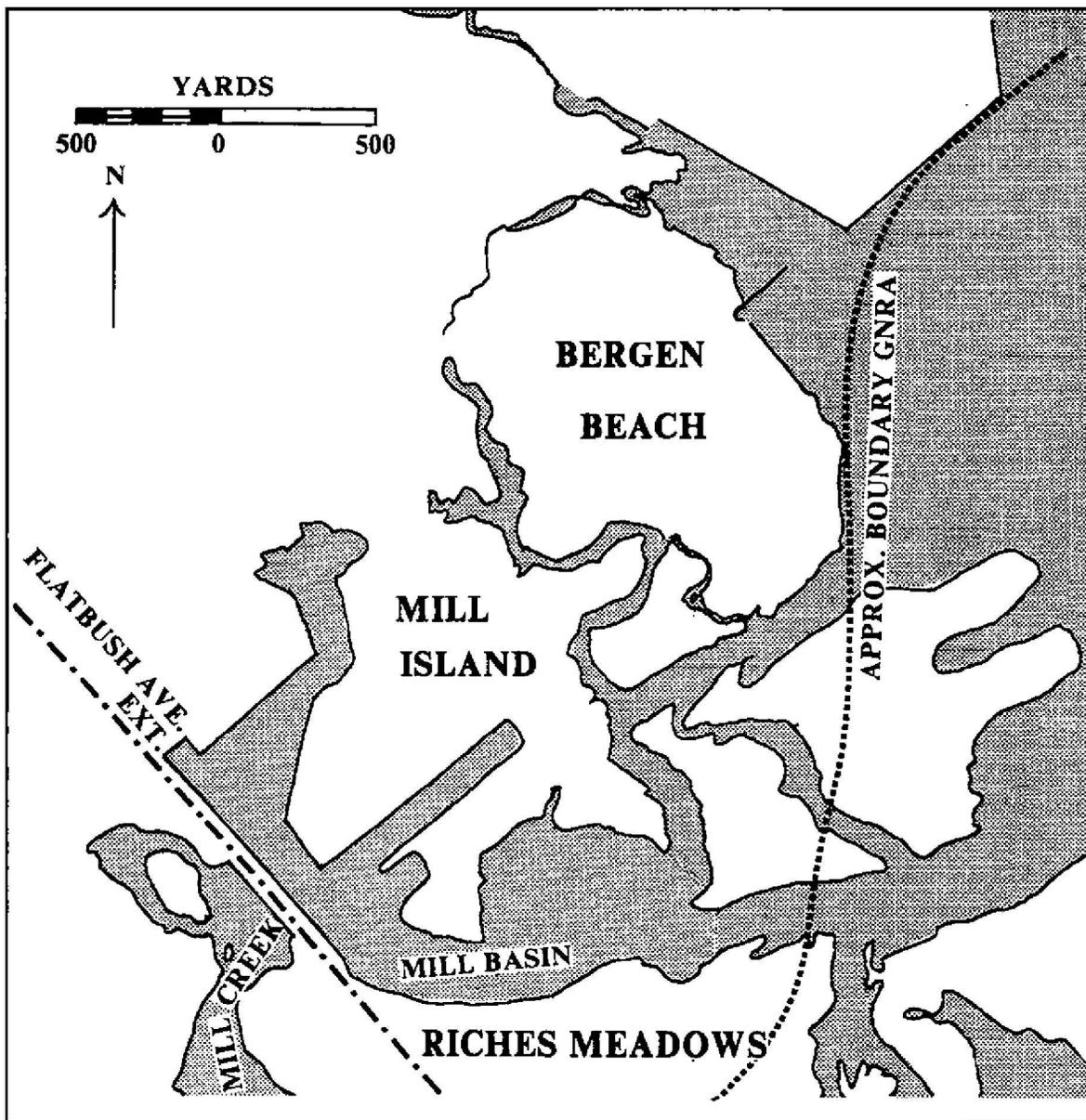
⁴¹ Department of Docks, Annual Report, 1930, 62-66.

Figure 9 Mill Island and Bergen Island, 1911



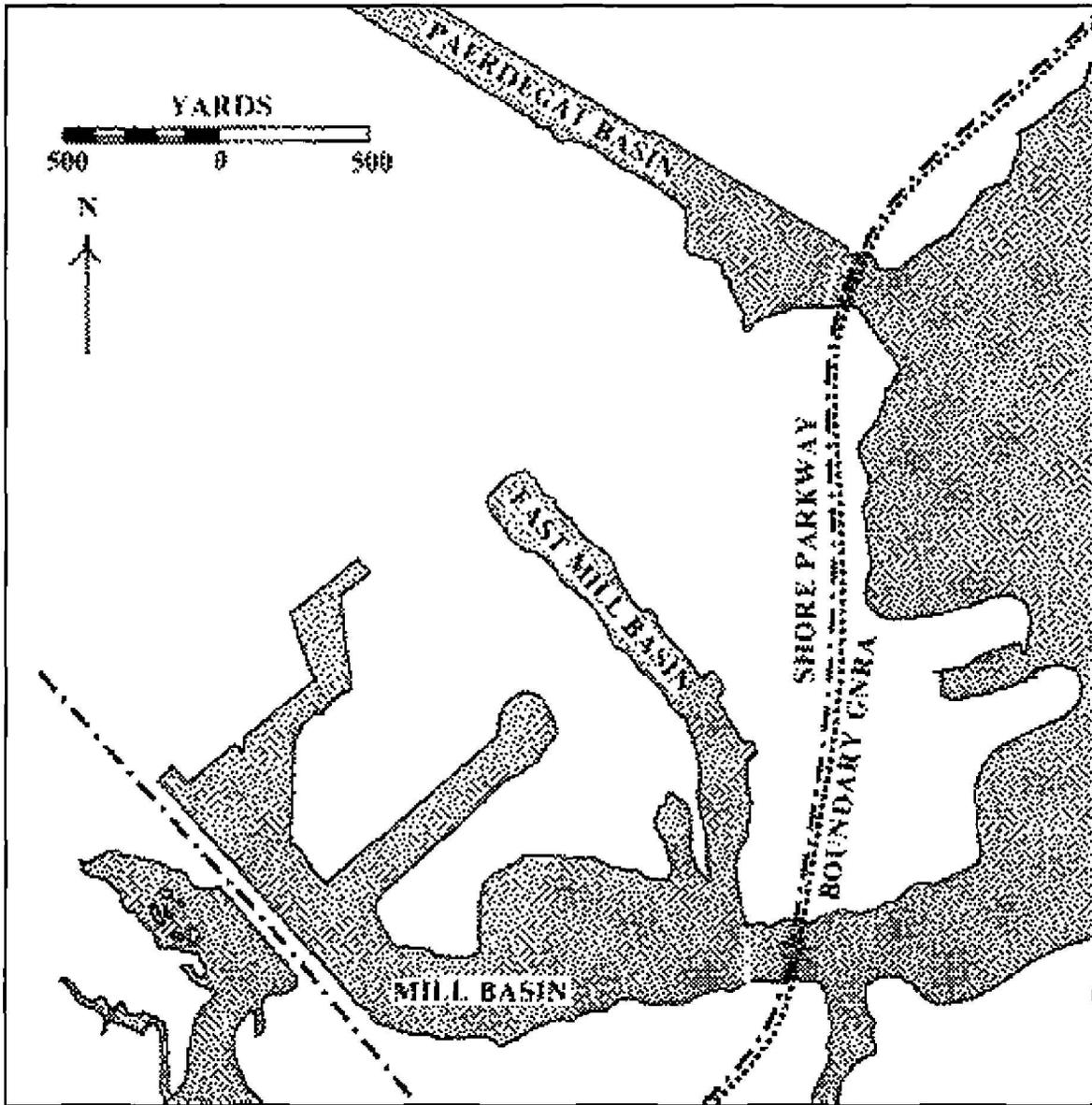
SOURCE: USC & GS, Chart 542, 1911

Figure 10 Mill Basin and Bergen Beach, 1926



SOURCE: USC & GS, Chart 542, 1926

Figure 11 Mill Basin and Bergen Beach, 1940



SOURCE: USC & GS, Chart 542, 1940

No record exists of any kind of use of Flatlands Bay before 1909. Doubtless, however, fishermen, hunters and others frequented the area, and it is conceivable that some fishing shacks or other kinds of structures had been erected there. In 1909, the Department of Docks issued five permits to occupy space in Flatlands Bay, all as sites for "boathouses" and all apparently at Mill Creek. A "boathouse" could be more than one story and thus were not simply shelters for boats. The number of boathouse permits rose to twenty-eight in 1913. During that year, the causeway was started across Flatlands Bay to Rockaway Inlet. Although Flatbush Avenue had not yet been extended over that causeway, it gave the area greater accessibility. Moreover some of the structures may have been on or near the causeway. In 1917, one hundred and fifty parties had permits in Flatlands Bay to maintain boathouses shacks, bungalows, and homes. The occupants were all private individuals, except for several yacht clubs, a fishing club, and a clubhouse for members of a military unit.⁴²

As a location for boathouses, bungalows and the like, Flatlands Bay was affected by improvements, such as the completion of Flatbush Avenue Extension, the filling in of meadows, and the building of Floyd Bennett Field. In the 1920s, the number of permit holders declined somewhat, but a concentration of structures emerged on the north-east bank of Mill Creek, in an area extending northwest from a point 200 yards northwest of the present Belt Parkway bridge across the mouth of Gerritsen Creek. Cottagers and others persisted at Flatlands Bay into the 1930s, but became fewer and fewer. By 1940, except for a few small boat docks, the Mill Creek cluster had disappeared, as had structures elsewhere.⁴³ Flatlands Bay itself vanished, as all of the meadows, marshes, creeks, and waterways, including Little Bay, were filled to become Floyd Bennett Field.

Canarsie

Throughout the nineteenth century, the town of Flatlands continued as an agricultural community, following the two hundred year-old pattern of small farming and production of food stuffs for the urban centers on the Hudson and East rivers. One part of the town, however, had a different experience. Canarsie Landing, approximately one mile east of the village of Canarsie, was affected by the mounting popularity among New Yorkers and Brooklynites of the beaches at Rockaway; by the growth of a significant comical fishery in Jamaica Bay; and by its own natural and man-made attractions, which turned it into something of a summer resort.

Prior to the Civil War, the usual means of transportation from Brooklyn to Rockaway peninsula was by train to Jamaica and then by a long and uncomfortable ride in hired stage over the Jamaica Turnpike. That roadway negotiated the meadows and swamps of the bay's eastern perimeter. In October 1865, an important change occurred with the opening of a small, three and a half mile long Brooklyn and Rockaway Beach Railroad, commonly nicknamed the Canarsie Railroad or Canarsie line. That line linked Canarsie landing with East New York and, via other lines, with Brooklyn. In the summer of 1866, the railroad initiated ferry service from the landing to Rockaway peninsula, and Canarsie landing embarked on a career of catering to the summer throngs bound for a day's outing at the ocean. Previously Canarsie landing featured a few establishments serving the needs of fishermen. Now there occurred a modest proliferation of hotels, restaurants and saloons. In July 1867, A. D. Farling opened his large hotel, the Bay View House. Four others soon followed, including the Oceanus House and King's Hotel. Meals could be obtained in the hotels, in restaurants such as that of William Van Amen, or in more rustic eateries, such as Uncle Sam's Cabin, famous for its chowder. Elbert Abrahams was running a saloon at the landing in 1868 or one could patronize Patrick Kavanaugh, listed in a 1878 directory simply as "liquors."⁴⁴

42 Department of Docks, Annual Report, 1909, 176; Annual Report, 1913, 154; Annual Reports, 1917, 67.

43 USC&GS, Chart 542, 1926, 1940.

44 The best authority on the Canarsie Line and its impact on the landing is William W. Fausser, "The Brooklyn and Rockaway Beach Railroad: The Canarsie Railroad" (typescript with no pagination, 1976, QPL); George T. Lain, *Lain's Directory of Long Island Including a Business Directory of Brooklyn, Long Island City, and the Towns of Kings County . . . for 1878-79* New York Lain and Co., 1878).

Travelers to Rockaway by the railroad-ferry route frequently spent some time at Canarsie, because trains arrived more frequently than did the steamers. During the first summer of operations, train service consisted of ten round trips between 7:30 am and 7:30 pm. However, the ferry Rockaway met trains at Canarsie only at 10:00 am, 2:00 pm and 6:00 pm. In 1867 the train schedule was increased to hourly service during weekdays and half-hourly service on Sunday. Since but one more trip could be squeezed out of the Rockaway, the bottleneck got worse. Still Canarsie Landing was becoming an attractive place to bide one's time till the next ferry arrived. In the 1867 season, the Canarsie Line brought 122,567 passengers to the landing.

The managers of the railroad recognized the existence of the bottleneck and sought to provide relief through such measures as acquiring additional vessels. In 1878, the company proposed to build a trestle from the landing one-mile out into the bay. This would eliminate the costly dredging required to keep open a channel between Canarsie and the main or so-called Big Channel of Jamaica Bay. Furthermore, it would reduce the time needed for ferries to proceed to Rockaway and back. Another proposal made in the same year was to construct a narrow gauge railroad all the way across the bay to Broad Channel. Nothing came of these two schemes, and the Canarsie Line had no effective way to meet a competitor. 45

In 1880, the New York, Woodhaven and Rockaway Railroad started regular service from Brooklyn to the Long Island Railroad Junction at Glendale and thence over a newly built line directly south to Hamels, using a 4.8 mile long trestle across Jamaica Bay. Two years later, both railroads faced a new competitor in the form of White's Iron Steamboats, sailing directly from New York to Rockaway peninsula. For the time being, so great was the rush to the beaches that there was enough business for all carriers. On the last Sunday in August 1883, for example, the Canarsie Railroad carried 30,000 people. Despite its small size, the Canarsie Line persisted, and Canarsie Landing prospered.⁴⁶

That prosperity in part resulted from the landing's own resort facilities. Bathers, timid before the crashing surf of the Atlantic, found enjoyment in the calm, shallow waters of Jamaica Bay, especially at the sandy beach near Canarsie Point. Moreover, Canarsie developed as an amateur fisherman's mecca. Shortly after the Canarsie Line opened, a boat rental station appeared with twenty rowboats. By 1880, there were ten such boat liveries, each with an average of fifty boats. Also forty charter fishing boats and their captains were available for hire by the day at rates between \$5.00 and \$7.00 for week days and between \$7.00 and \$10.00 for Sunday. Later in the same decade, a Canarsie Yacht club was established, E. . Linton commodore and prestigious enough for inclusion in *Lain's Elite Directory*.⁴⁷

The railroad further contributed to the growth of Canarsie Landing as a pleasure spot when, in 1883, it permanently anchored a large barge in the shallows near the edge of Big Channel. The barge's lower deck was equipped with changing rooms for bathers and the upper deck converted into a dance pavilion. A floating stage extended fifty feet from the barge for the use of swimmers. The launch **Edith Peck** journeyed between the landing and the floating pavilion.

Probably by the end of the nineteenth century, a few summer bungalows had been erected at Canarsie Shore, as it was now being called, especially in an area east of the landing known as Sand Bay. Similar to other parts of Jamaica Bay, Sand Bay was barely below water at low tide. Houses, built on stilts and accessible by boat or systems of wooden walkways, became increasingly common.

A significant commercial fishing industry emerged at Jamaica Bay after the Civil War, and Canarsie Landing became the center of that industry. In 1850, seventy-five fishermen lived in the town of flatlands and were outnumbered by the 191 farmers and farm laborers. In the decades following the Civil War, fishermen, baymen and oystermen increased, and a large majority of them resided at Canarsie. For example, almost ninety percent of Flatlands' two hundred fishermen in 1880 made their homes at Canarsie. Of course other fishermen lived elsewhere in the bay, such as Hawtree Creek and Inwood, but

45 Fausser.

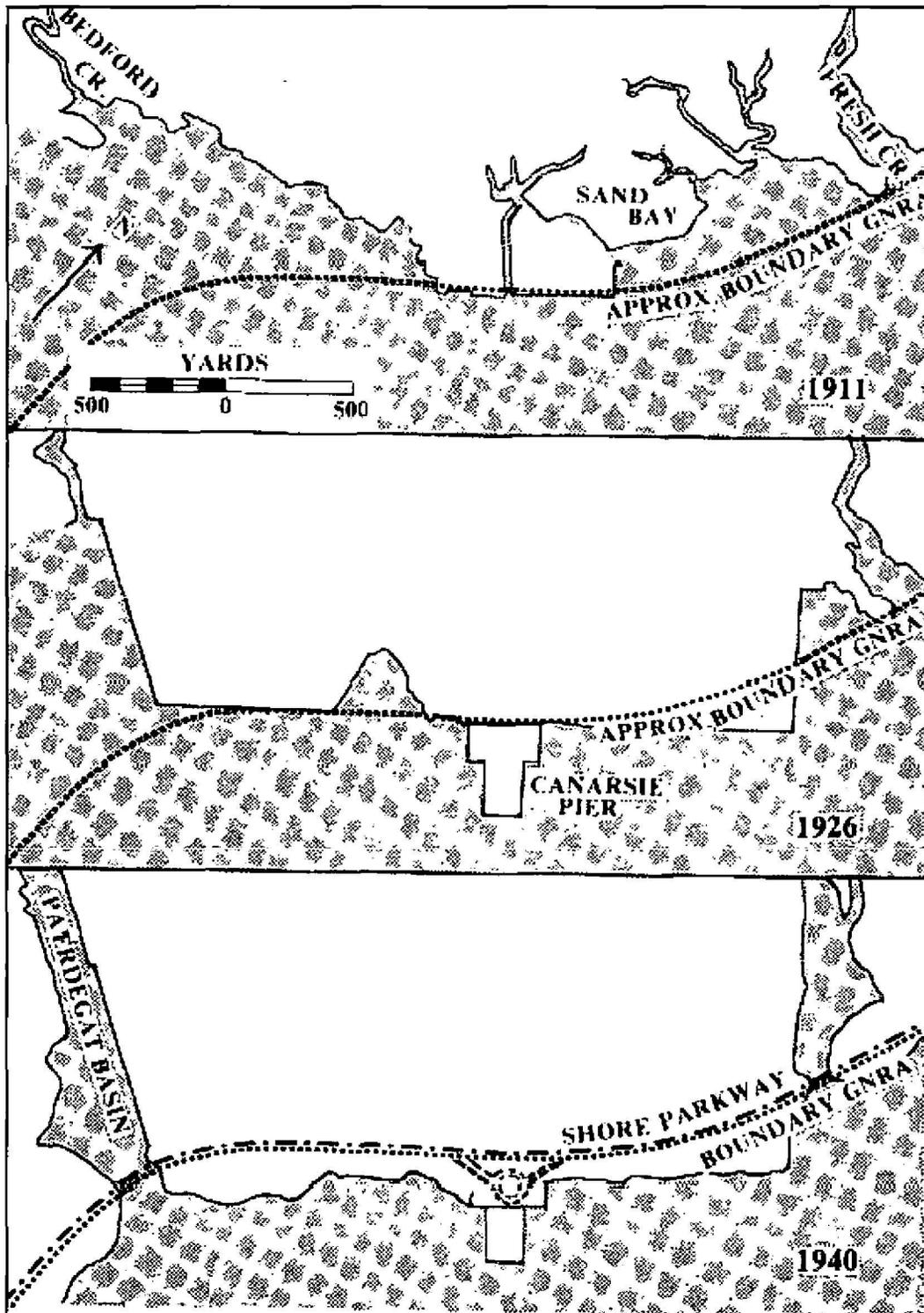
46 Fausser.

47 Fausser; George T. Lain, *Lain's Elite Directory of Brooklyn* (New York: Lain and Co., 1888), 344.

Canarsie was the focal point of a good part of the bay's fishing activity. Quoting from a 1904 report, Congressman Law assigned all of the bay's yield of shellfish to Canarsie.⁴⁸

⁴⁸ Federal Census 1850 Flatlands; Federal Census 1880 Flatlands; Law, 7.

Figure 12 Canarsie Shoreline, 1911-1940



SOURCE: USC & GS, Chart 542, 1911, 1926, 1940

Because of the activity in the bay of sports and commercial fishermen, boat building developed at Canarsie Shore. In 1868, Patrick Cavanaugh may have been the only boat builder, but by 1889, at least eight such craftsmen could be found. Probably, many of the boats constructed at Canarsie were fairly small. However, some were more sizable than mere rowboats. For example, in 1880, the thirty-one foot sloop *Mist* was built at Canarsie.⁴⁹

In the early twentieth century, Canarsie landing in the summer must have been a lively and an attractive place. Near the bay clustered at least fifty buildings, eighteen of which were hotels. Those seeking food, beverage or entertainment could frequent Boegel's Oriental Bar and Dance Hall, the Casino, or any of a score of other such establishments. In May 1907, near Seaview Avenue, opened the Golden City Amusement Park, built to rival Coney Island and eventually including a roller coaster, miniature railroad, skating rink, and dance hall. Fishermen rented rowboats and sought blue fish at Ruffle Bar or other varieties at a number of locally famous fishing holes. More affluent fishermen hired sloops at Max Casey's float and set out for the Atlantic. The less ambitious purchased Jamaica Bay's famous oysters, steamers or finfish from Casey's "Wholesale-Retail Seafood Market" or from any of at least-seven other fish dealers. Since 1892, Canarsie Landing had been equipped with electric lighting, and the approach of evening did not diminish activity. In 1905, the Canarsie Line gave up the struggle and closed down, but the Brooklyn Rapid Transit system brought folks to the landing, and two and later three ferry systems connected Canarsie with Rockaway Beach, Barren Island, Bergen Beach, and other parts of the Bay.⁵⁰

Prior to the twentieth century, changes in the topography of the Canarsie area were not substantial. In the first year of its operation, the Canarsie Railroad constructed a dock, subsequently rebuilt and enlarged, at the tip of Canarsie Point to handle coal and lumber. By 1878 a small rectangular peninsula, bulkheaded on three sides, extended into Jamaica Bay. More difficult for the company than providing dock and shore facilities was maintenance of a channel between Canarsie Landing and Big Channel, one mile to the southeast in Jamaica Bay. The channel from Canarsie was between five and a half and seven feet deep at low tide in 1878, the waters on either side having a depth as little as three inches. It is known that the company dredged the channel from Canarsie in 1880 and doubtless had done so on previous occasions.⁵¹

After 1900, the bay front at Canarsie underwent significant alterations. Over one mile of the shoreline was filled in and bulkheaded with the pier at mid-point. This was accomplished in part by private parties with rights to the bay front and by municipal authorities. In 1926, the city built a municipal dock, still known today as Canarsie Pier. Originally the pier was three hundred yards wide at its base and 250 yards long.⁵²

By the 1920's significant changes had occurred in the activities centering on Canarsie Landing. The resort and entertainment aspects persisted after World War 1, but suffered from the pollution of the bay and the plans of the Department of Docks to realize the industrial development of Jamaica Bay. As early as 1904, the waters of the bay had become sufficiently contaminated so as to infect shellfish and cause serious illnesses to those eating Canarsie oysters or clams. In 1921, the shellfishing industry was closed throughout the bay.

Prior to the completion of the municipal dock in 1926, the Department of Docks had leased city property at Canarsie to private parties as sites for cottages, boathouses, fishing clubs, boardwalks, marine railways, and other uses. One particularly popular area of Canarsie after World War I was Sand Bay, and in 1925 the Docks Department leased space there to over seventy tenants, including six boat clubs.

49 Lain's Directory . . . 1878-79; George T. Lain, *Lain's Business Directory of Brooklyn, Kings County, Long Island City, Jamaica* for 1889-90 (New York: Lain and Co., 1889), 352-54; John M. Kochiss, *Oystering from New York to Boston* (Middletown, Conn.: Wesleyan University Press, 1974), 215.

50 Fausser. Department of Docks, Annual Report, 1906, 155-56. In the picture file, JBU, are photographs of Canarsie in the early twentieth century, including Max Casey's several establishments, fishing boats, and Boegel's Oriental Bar and Dance Hall.

51 Fausser; U.S. Coast Survey, Chart 540, 1878.

52 USC&GS, Chart 542, 1911, 1926.

Other occupants of city property included Golden City amusement park, boat yards and boat builders. As Sand Bay became filled in and more and more cut off from Jamaica Bay, the number of tenants declined.⁵³

New tenants and new types of businesses were appearing on the Canarsie shore front. In the late 1920s, two hundred feet of the bulkhead west of the pier was rented to the Borough Asphalt Company and 6000 feet to the Turecamo Construction Company. In 1933, five hundred tons of scrap metal were loaded from the pier onto a vessel and thus became the pier's first industrial cargo. Coupled with the increase industrial activity went a decline in entertainment facilities. The Golden City Amusement Park had experienced a severe fire in 1909, but had survived and was rebuilt. In 1934, a second fire entirely destroyed the amusement center. This time no rebuilding followed, and the Golden City company finished its days by renting its part of the bulkhead as mooring for boats.⁵⁴

Canarsie continued to be attractive to the growing residential population in the area. One Sunday in July 1937, an estimated 20,000 bathers were at Canarsie Beach. In 1941, the WPA and the city's dock and parks departments constructed a 100-foot recreation building on the pier. However, the area had acquired a run-down and forlorn look. Perhaps the Federal Writers Project description in 1939 is too grim. But it does offer a striking contrast with the image the landing must have projected thirty-five years earlier:

A sparsely settled community laid out on dispiriting flat lands, smoked over by the perpetual reek of fires in the vast refuse dump at its western end. Its residential section of one- and two-family houses and shacks (most of which resemble those in Charles Burchfield's paintings) is broken by weedy lots and small truck farms cultivated by Italians. Along the uninviting waters of the bay is a forlorn beach resort--an amusement park called Golden City, a fishing boat center, a beach backed by a dump and beery dance halls--with an outlandish quality that made Canarsie the butt of many vaudeville jokes.⁵⁵

New Lots

Unlike Canarsie, the town of New Lots was separated from Jamaica Bay by a broad expanse of meadow and marshes in places a mile wide. Consequently the people of New Lots, especially after the Civil War, had no intimate association with the bay. The absence of natural uplands near the bay afforded no landing for ferries or other vessels. Moreover, perhaps because the shallow waters, Fresh Creek, Old Mill Creek or the tributaries of Old Mill Creek (Ralph, Spring and Betts Creeks)- did not prove attractive as a site of a community on stilts, such as emerged at Hawtree Creek to the east or in Sand Bay to the west. The Old Mill Creek region was involved in a cross bay transportation project, which did include some man-made topographic changes. However, that project never saw completion.

New Lots, including its western section known as East New York, experienced a rapid population increase after the middle of the nineteenth century. Its 1845 population of 777 rose during the next two decades to over 5000, owing in part to an influx of Germans, the first of several immigrant groups to arrive. By 1890, New Lots contained 30,000 people. Whatever their origins, new comers and natives congregated in the northern parts of the town. There residential neighborhoods replaced farms, and there also began industries, such as ready-made clothing.⁵⁶

53 Department of Docks, Annual Report, 1925, 60-62.

54 Department of Docks, Annual Report, 1928, 57; Annual Report, 1929, 69; Annual Report, 1936, 105; Leonard Levine, "Canarsie," (unpublished typescript, 1972, Long Island Historical Society).

55 As quoted in Levine,

56 Landesman, 99, 217.

Until the 1880s, New Lots retained a rural character, but the number of farms and farmers declined, and a larger portion of the population took up non-agricultural pursuits. Those pursuits, except in a few instances, did not include occupations associated with the bay. The state census of 1855 listed no fishermen in the town and only five boatmen.

The town may have had a boat-building establishment, since the census reports one boat builder, three ship carpenters, one ship smith, and a caulker. However, if such an establishment did exist, it was clearly exceptional, and the vast bulk of the population gave little attention to Jamaica Bay. Subsequent censuses and other documentation indicate no growth of interest in the bay by significant numbers at New Lots. For example, Curtin's Directory for 1866-9 lists only one fisherman in the community. 57

The marshlands prevented residential or industrial development of the New Lots-East New York bay front, and thus any substantial alterations in topography. Maps for the period 1873 to 1900 show only modest changes. According to Beers map of 1873, there were no buildings, homes, or farms south of New Lots Avenue, except near a road from that Avenue to the Van Wicklen gristmill on Spring Creek. No roadway or structures were in the vicinity of the Van Derveer Mill on Fresh Creek. Both mills were approximately one quarter of a mile from the Bay. Van Derveer's mill was destroyed by fire in 1879 and apparently was not rebuilt. Maps for the remainder of the nineteenth century show little change.⁵⁸ At the very end of the century, work was begun on a cross bay roadway to connect Jamaica Bay's north shore with the Rockaway peninsula. The northern terminus of that roadway was the east bank of Old Mill Creek. Technically that area was not in New Lots, but in Jamaica. However, its closer proximity to New Lots suggests it be discussed at this point.

As true of other developments at this time in the history of Jamaica Bay, the stimulus for the cross bay project was the ever-increasing attraction of the Rockaways. At the end of the century, the Long Island Railroad's trestle gave it a monopoly on cross bay traffic. However, an enterprising trolley car entrepreneur, Patrick H. Flynn, planned to build a roadway across the bay, eighty feet wide and containing a double track trolley line, a bicycle path, and a carriage way.

After considering other routes, Flynn decided to run his line more or less parallel to the LIRR trestle and about 500 yards west of it. The northern end of the Flynn roadway would be a trestle from Black Marsh to a small promontory, known as Long Point, east of the mouth of Old Mill Creek. At Long Point, an embankment was to be built north to Liberty Avenue.

Work began on the project in the summer of 1899, but it was not until the following year that the Long Point area saw activity. A large dredge lifted fill from the bottom of the bay and pumped it onto the marshes. By early 1901, a plateau had been created from Liberty Avenue south to Long Point and 1500 feet into the bay. Thereafter legal complications were encountered which ultimately ended the entire project. 59

The abortive Flynn project explains some features in the Old Mill Creek area in maps of 1911 and 1926. A 1911 map shows the east bank of the mouth of Old Mill Creek with a bulkhead or pier. Behind that structure was an area of upland, and projecting southeast is what appears as an unopened roadway. Those features also appear in the 1926 map, but by 1940 only traces remained. When the present Cross

57 New York State Census 1855, "New Lots," in office of County Clerk Kings County Supreme Court; Curtin's Directory of Long Island . . . 1868-69 (Brooklyn: Curtin Directory Co., 1868).'

58 Beers, Atlas of Long Island; William C. Dripps, Atlas of the Townships of New Utrecht, Gravesend, Flatbush, Flatlands and New Lots, Kings County, New York (New York: W.C. Dripps, 1878); J. B. Beers, "New Map of Kings and Queens Counties," (New York: J. B. Beers & Co., 1886); Robinson, Atlas of Kings County, plate 32; "Guide Map of the Borough of Brooklyn, Kings County, New York Compiled from the Latest Official Maps and Other Sources" (Brooklyn: Eagle Almanac, 1898).

59 Vincent F. Seyfried, The Long Island Rail Road: A Comprehensive History (six parts, Garden City, N. Y.: V. F. Seyfried, 1961-1975) part V, 98-105. Only one map has been found showing the route of the "proposed" road; "Map of Jamaica Bay," (Jamaica Bay Improvement Commission, 1907).

Bay Boulevard was built, much of the Flynn roadway was used, but the new highway connected with the mainland at a point east of Flynn's route.⁶⁰

The bulkhead at the mouth of Old Mill Creek gave the area an advantageous feature, and in 1926 there were structures, possibly fishermen's cabins or summer homes on both sides of the mouth of the creek as well as on the south bank of Spring Creek. Most of those structures had disappeared by, 1940. Only brief mention is made of the New Lots area in the records of the city's department of docks. That department received an inquiry in 1906 concerning a dock at the foot of Crescent Street, described as a "town dock." At that time the department stated it had no plans to rebuild the dock because of the lack of water in the creek. In 1936, the department gave its approval for the maintenance and use of three piers in the Pleasant Point section of Old Mill Creek.⁶¹

⁶⁰ USC&GS, Chart 542, 1911, 1926, 1940.

⁶¹ Department of Docks, Annual Report, 1906, 930; Annual Report, 1936, 117, 204.

The most striking changes in the topography of the New Lots-East New York bay front came in the mid-twentieth century with the appearance of two man-made land forms, the Fountain Avenue landfill and the Pennsylvania Avenue landfill. Both are south of the Shore Parkway. The Fountain Avenue project is a garbage disposal facility, located between Old Mill Creek and Hendrix Creek. When completed, the site is expected to be 110 acres in size and to reach a height of seventy feet.

Between Fresh Creek and Hendrix Creek lies the Pennsylvania Avenue project. It was started in 1959 and within three years 3,000,000 cubic yards of refuse had been deposited to create a peninsula of over 100 acres jutting into Jamaica Bay, its center being thirty feet high. During the next ten years, sludge from the Twenty-Sixth Ward sewage treatment plant was transported by boat to the peninsula, where it was dumped and air-dried. The air-drying of sludge was later discontinued in favor of ocean disposal.

A new pier and access road were built at the southeast end of the Pennsylvania landfill site and a pipeline connected the Twenty-Sixth Ward plant with the pier so that sludge could be pumped directly to the pier and onto sludge boats. This minimized noise and odor. In the summer of 1971 the city resumed landfill operation at the Pennsylvania Avenue location, restricting the fill to construction waste. As soon as the waste arrived it was buried, compacted, covered, graded, and seeded. The ultimate objective is a park on the peninsula, which, like the Fountain Avenue project, will reach a height of eighty feet. 62

Howard and Hamilton Beaches

The earliest permanent inhabitants of the area between Old Mill Creek and the later Bergen Basin were fishermen, who, perhaps shortly after the Civil War, constructed homes on stilts on either bank of the winding Hawtree Creek. This small settlement was known as Ramblersville. Because of the relative isolation of the area, a few fishermen may have long continued to be the main residents had it not been for the construction in the late 1870s of the New York, Woodhaven and Rockaway Railroad. That railroad was built more or less on a straight line south from Glendale in Jamaica to Remsen's Landing on Hawtree Creek and then traversing Jamaica Bay by a trestle. When trains started running in 1880, they stopped at Ramblersville and, as a consequence of its new accessibility, the Hawtree Creek vicinity began to attract new inhabitants. Also contributing to this growth were the activities of William Howard, whose efforts produced a minuscule resort. Thus south of Ramblersville appeared a settlement successively known as Howard's Landing, Howard's Pier, Howard Estates, and finally Howard Beach.⁶³

Twenty years after the railroad arrived, Ramblersville remained a tiny cluster of approximately ten houses, built over the water and linked by boardwalks. Almost all belonged to fishermen, clam diggers and oystermen.

62 Department of City Planning, *From Landfill to Park: An Experiment in Construction Waste Management at the Pennsylvania Avenue Landfill Site* (New York: Department of City Planning, 1974), 5-11.

63 New York Herald Tribune, December 6, 1964, Clipping File ("Howard Beach: General Miscellaneous"), QPL.

In the meantime, William Howard built a hotel out in Jamaica Bay on stilts and about one third of a mile west of the trestle. Connected with the trestle by a boardwalk, the hotel and other buildings became known as Howard's Landing. In 1899, the railroad, now the Long Island Railroad, established a stop for the Howard complex. That stop was near 160th Street and one mile south of the Ramblersville station. Howard's Landing soon included, in addition to the hotel, a dancing pavilion, casino, and eighteen cottages. A fire destroyed Howard's Landing in 1907.⁶⁴ Undismayed, Howard launched a new project.

A 1907 map designates the area west of Hawtree Creek as "Marcella Park," which consisted of small, twenty or forty foot by eighty foot lots. Whether this was Howard's doing or not is undetermined, but in 1909 he obtained permission from the docks department for the use of land under water at Hawtree Creek. Subsequently he created three hundred acres of landfill. Also he dredged a canal 150 feet wide, thirty feet deep and one mile long. Model homes opened and in 1913 the Long Island Railroad moved its stop to Howard Estates. Until the mid-1920s, the Howard Estates Development Company seems to have managed the project. By 1925, it had been replaced by the Howard Beach Association.⁶⁵

In 1923, advertisements appeared promoting a settlement called Hamilton Beach, which featured summer bungalows and year-round homes. Located east of Howard Estates, the development was built, according to one account, on land recently filled. In 1920, Shellbank Basin was dredged in connection with plans briefly entertained by the US Navy to construct a submarine base. Whatever the circumstances of the filling, lots were leased in the development from the city docks department. In 1924, there were five tenants and in 1929, over one hundred. Thereafter, with the onset of the depression, the number of legal tenants declined. Early in the history of Hamilton Bay, a system of canals had been constructed. First two and then three parallel waterways ran from Jamaica Bay northward for approximately three hundred yards. A fourth canal, parallel both to the other canals to the east and the railway to the west ran northward for about one half mile before looping eastward and southward to rejoin itself. Subsequently, with the construction of Bergen Basin and the air field at Idlewild, the canal all but disappeared.⁶⁶

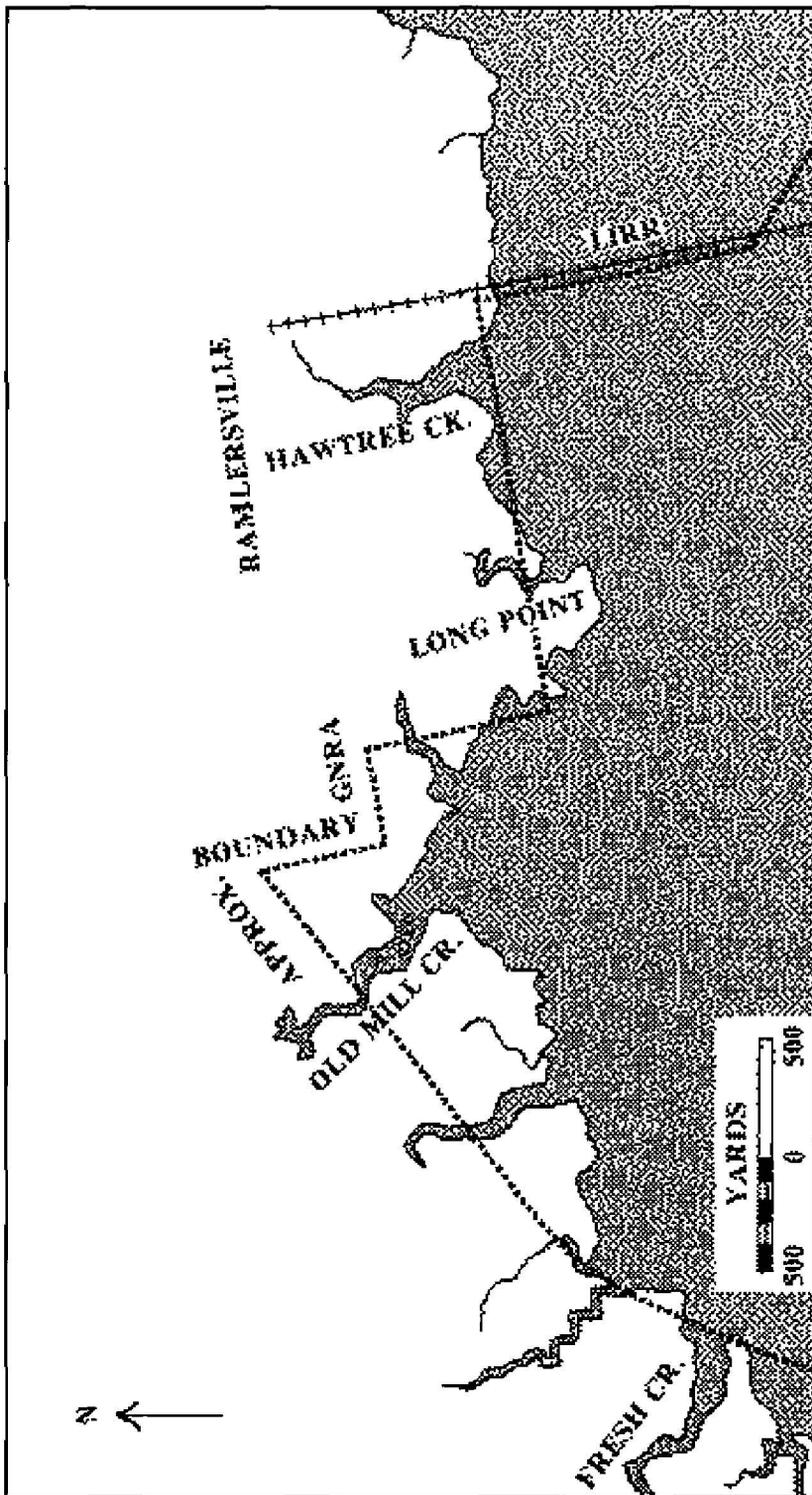
When the municipal subway took over and rebuilt the Long Island Railroad's cross bay operation in the 1950s, it included a stop at Howard Beach. This led to a housing boom. By 1972, the area had a population of approximately 30,000. The origins of the settlement continued to assert themselves. Boating and fishing remained as popular activities, with the fishermen heading their boats for Rockaway inlet.

64 Department of Docks, Annual Report, 1899, 198; Annual Report, 1902, 287; Seyfried, part V, p. 124.

65 E. Belcher Hyde, Atlas of Borough of Queens (New York: Hyde & Co., 1907). Department of Docks, Annual Report, 1923 & 1924, 70-72; 146-48; Annual Report, 1926, 69; Seyfried, part VI, 169-70.

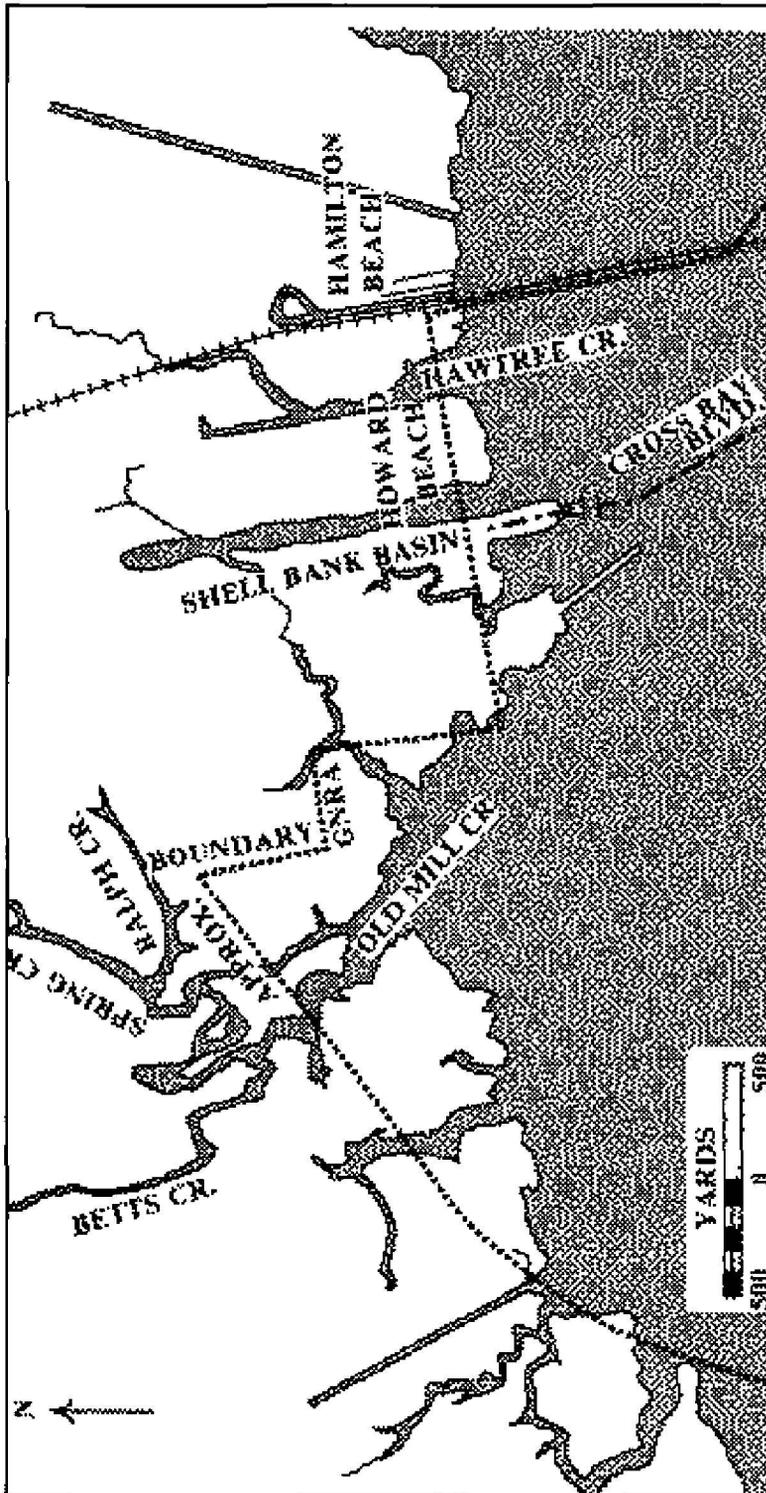
66 Long Island Railroad, Long Island: Sunrise Homeland (1923), in Clipping File ("Hamilton Beach: General, Miscellaneous"), QPL; New York Daily News, March 8, 1979, in Clipping File ("Hamilton Beach: General, Miscellaneous"), QPL; Department of Docks, Annual Report, 1923 & 1924, 146-48; Annual Report, 1929, 69-80. USC&GS, Chart 542, 1926, 1933, 1977.

Figure 13 North Shore, 1911



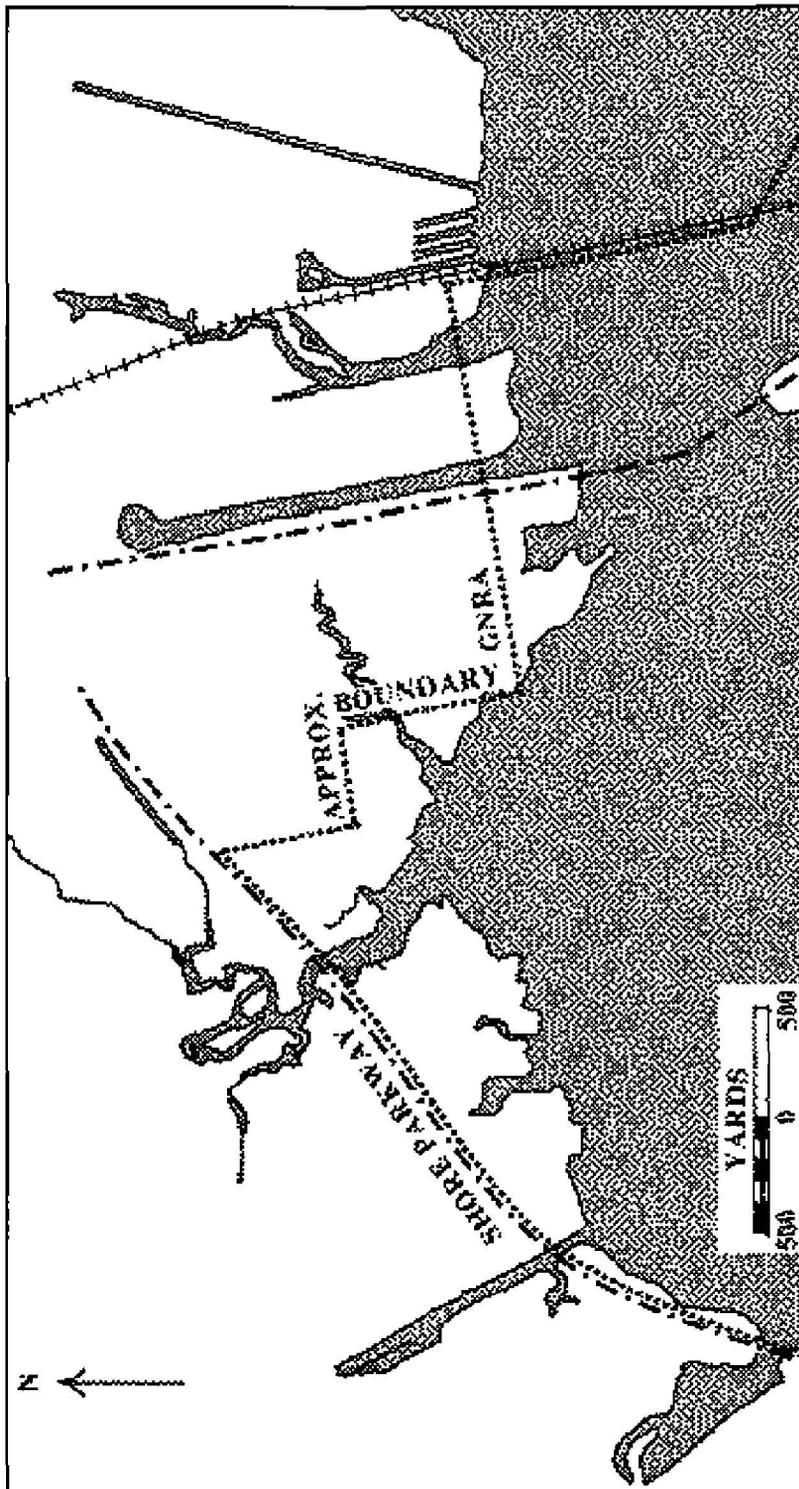
SOURCE: USC & GS, Chart 542, 1911

Figure 14 North Shore, 1926



SOURCE: USC & GS, Chart 542, 1926

Figure 15 North Shore, 1940



SOURCE: USC & GS, Chart 542, 1940

Another aspect of the past also has been encountered in recent years. During the mid-1910s, four houses fell off their stilts, causing concern to the occupants of two hundred residences having similar foundations.⁶⁷

South of Howard Beach is Charles Memorial Park, named after a resident killed in World War I. The park's flagpole is said to be near the site of William L. Howard's Casino of the 1890s.⁶⁸

The Islands

Prior to the Civil War, the islands in Jamaica Bay east of Barren and Bergen Islands remained uninhabited, with the possible exception of Ruffle Bar. After 1865, as the bay's fisheries developed, a few structures began to appear. In the late 1870s, the town government of Jamaica noted the presence in the islands of buildings, for which the town had given no permission. The town records do not indicate the location of these illegal structures. However, probably they were located on the edges of Broad Channel and Raunt Channel. The construction of a railroad across the bay in 1880 stimulated the creation at certain points along the trestle of small clusters of fishing shacks, boathouses, summer residences, and even some commercial establishments. Still later, the Cross Bay Boulevard increased accessibility to these settlements, one of which at Broad Channel, had already acquired a permanent population.

In the building and maintenance of the cross bay railroad and the boulevard as well as the abortive Flynn project, some of the channels and waterways separating the islands were filled. Islands and marshes in the eastern part of the bay were dramatically affected by the creation of the airfield, first known as Idlewild and later John F. Kennedy. The dredging of ship channels eliminated some smaller islands and added to the uplands of others. The net result was a great reduction of the number of islands in Jamaica Bay.

Originally all of the islands in the bay, except Barren, Bergen, Mill Islands, and Ruffle Bar, consisted almost entirely of meadows and marsh with no uplands. They varied greatly in size from no more than a few square yards of marsh to large areas, such as Jo Co's Marsh, which measured one and a half miles across its greatest length with a width of three quarters of a mile. Through Jo Co's Marsh, Duck Point Marshes, Stony Creek Marsh, Ruffle Bar, and many others ran creeks and channels, frequently having tortuous courses. All of the large marshes and a surprising number of small ones bore names, doubtless assigned to them by fishermen, baymen, oystermen, and others who frequented the bay. To these men, the marshes had only secondary importance, and the nomenclature suggests their main interest was in the waters around the marshes. For example, Broad Channel, now the name of a community originally designated a channel within the bay.

Prior to the end of the nineteenth century, political jurisdiction over the bay, its marshes and islands rested with the towns of Flatlands and Jamaica, the division being the boundary, still existing, between Kings and Queens counties. That boundary ran from the east side of Old Mill Creek on the northern shore to Black Bank Marsh, then south to Black Wall marsh, southwest to Beach Channel, and down the center of Rockaway Inlet.

The Flatlands area of the bay belonged to the town in common, except for Ruffle Bar, parts of which were sold into private hands in the early 1890s. When Kings County merged with Queens, Manhattan, and the Bronx to form Greater New York, a consolidation that became effective on January 1, 1898, the title to the common lands of Flatlands passed to the city of New York.

At the time of the consolidation, the Town of Jamaica had sold or leased all of its common property to private hands. This occurred in two series of transactions. In 1877, the Jamaica board of supervisors granted to the New York, Woodhaven and Rockaway Beach Railroad a ninety-nine year lease on a thirty foot right of way across Jamaica Bay for the purpose of building and operating a railroad. The terms of

⁶⁷ Long Island Press, July 10, 1973, Clipping File ("Hamilton Beach: General, Miscellaneous"), QPL.

⁶⁸ New York Herald Tribune, December 6, 1964.

that lease were altered in 1880, when the right of way was widened to 150 feet and the railroad company purchased the property outright.⁶⁹

The remainder of Jamaica's common land passed into private hands through the dubious activities of Frederick W. Dunton, one of the supervisors. At Dunton's urging, the town board decided to lease all of Jamaica's common lands. Bids were solicited in an advertisement that appeared only in the village newspaper. Two bids were received, and in August 1892, the board leased for fifty years all of the lands and meadows to Alonzo E. Smith, a business associate of Dunton. On December 29, 1897, a few days before the merger of Jamaica and the rest of Queens with the other boroughs, the board, with Dunton presiding, leased the entire tract for an additional fifty years, that is from 1942 to 1992, to a clerk in Dunton's employ.⁷⁰

These proceedings subsequently received judicial scrutiny and were invalidated. The matter came to the attention of the court mainly because of the activities of Patrick Flynn, promoter of the cross bay roadway. Dunton's plan was to fill and develop some of the marshes for sale as home sites. To further this scheme he established several companies, one of which, the Cooperative Society of New Jersey, was assigned the original leases. That company subleased plots to individuals. It also leased, for a payment of \$150,000, a strip 150 feet wide from Long Point to Seaside on Rockaway peninsula to Patrick Flynn. Dunton would gain from Flynn's cross bay project since its construction would involve filling in some of the marshes and would also make them more accessible. Flynn set about building his roadway, which was vigorously opposed by the Long Island Railroad, then the owner and operator of the sole cross bay transportation system.

The Long Island Railroad probed into the origins of the Dunton title and sponsored legal action to halt construction of the Flynn project. Such action ultimately met success, and in June of 1902, the New York Court of Appeals invalidated the 1892 lease to Smith. In the following October, the city of New York instituted suit against the Cooperative Society of New Jersey, seeking to have all of the leases from Jamaica declared fraudulent, in this way assuring the city of undisputed claim to the town's lands in the bay. Before those legal proceedings reached completion, Dunton voluntarily surrendered the leases in question.⁷¹

When the City of New York, through its Department of Docks and Ferries, started administering its property in Jamaica Bay, there already were, and in certain cases had been for twenty years, a number of fishing clubs, shacks and other structures built at locations in the bay. Some of these got started with the opening of rail service across the trestle in 1880. Parties who had obtained leases from the New Jersey Society built others. And doubtless, a good many squatters could be found as well. The city decided to honor the leases to private parties and to grant permits to occupy space in Jamaica Bay. Furthermore, the Department of Docks granted such permission to newcomers. By 1907, three hundred and fifty permits had been issued, and by 1912 there were over 600. In 1916, the department adopted as the rate for use of space in the bay one and two-tenths cents per square foot per year. The leases were carried on the department's rent rolls.⁷² Thus the structures erected belonged to the lessees and the space of marsh, upland, or water beneath those structures remained with the city.

With respect to three parts of the bay, the city entered into long-term leases with particular parties, who collected rents, developed the areas, and paid a yearly fee to the city. In 1914, all of Big Egg Marsh was leased to Pierre Noel for a term of ten years at the rate of \$15,000 for the first three years, \$17,500 for the next three and \$20,000 for the remaining four. Noel gained the right to renew the lease for two ten-year terms. A similar arrangement was made with Noel for Goose Creek and with the Buffle Bar Association for the island of that name. Subsequently, Noel sublet his holding to the Broad Channel Corporation. The Broad Channel Corporation exercised the right to renew for two ten-year terms. However, during the

69 Records of the Town of Jamaica, vol. V, 288-94, 429-30; Seyfried, part V, 7-10.

70 Records of the Town of Jamaica, vol. VI, 494-95, 487; vol. VII, 284; Seyfried, part V, 106-7.

71 Seyfried, part V, 109-11.

72 Department of Docks, Annual Report, 1905, 135, 257; Annual Report, 1907, 241; Annual Report, 1912, 209; Annual Report, 1916, 106.

depression, the corporation suffered financial difficulties and in 1939 its lease with the city was canceled. The city then dealt directly with the individual owners of structures at Broad Channel.⁷³

This convoluted tracing of the political and legal title to the bay demonstrates that since 1880 the islands of the bay were developed and managed by a variety of parties--the railroad, Dunton and the New Jersey Society, Patrick Flynn, Pierre Noel and the Broad Channel Corporation, the city of New York, and hundreds individual lessees.

The railroad trestle of the New York, Woodhaven and Rockaway line and, after 1887, the Long Island Railroad, was the initial catalyst in the erection of buildings in the bay. The result was a string of fishing stations near the trestle, namely at Goose Creek, The Raunt, Broad Channel, and Beach Channel. Goose Creek, a waterway on the south side of the northern-most marsh crossed by the trestle, became a stop in the summer of 1888. On the creek's north shore a small cluster of buildings had been created, all built over water. In 1899 the Goose Creek site, noted for its weakfishing, included six fishing clubs, two saloons, a hotel, and a large number of boats for hire. By 1914, the city dock department listed twenty leases on its rent rolls for Goose Creek, ranging from \$14.00 to \$105.84 a year. Pierre Noel entered into a lease with the city for all of Goose Creek in 1915 and sublet to the Broad Channel Corporation in 1919. Maps of 1926 and 1933 depict buildings and small boat docks on both sides of the railroad. Buildings also appear on the south side of the creek. All of these structures were eliminated by 1940 owing to the filling in of the creek.⁷⁴

Three locations in the middle portion of Jamaica Bay have been known as "The Raunt." One of these was a channel north of Goose Pond Marsh.⁷⁵ It was at this location that the railroad established a station in July 1888. In 1897 six structures were to be found at The Raunt. The Cooperative Society of New Jersey issued at least fourteen leases, later acknowledged and continued by the city's department of docks. Fishermen also used Raunt station and vacationers bound for Swift Creek, located somewhat to the west. The area continued to gain popularity and, by 1913, over 100 leases had been issued. Raunt Channel and Swift Creek were only moderately disturbed by the building of Cross Bay Boulevard. Fishing shacks and cottages remained and in fact increased, especially along Swift Creek. However, in the 1930s, the settlement declined. By 1954, there were roughly fifteen structures on the northern bank of The Raunt. Filling eliminated Swift Creek and The Raunt itself has become part of Rulers Bar Hassock.⁷⁶

The largest conglomeration of buildings anywhere in Jamaica Bay developed at Broad Channel. Broad Channel originally was the main channel in the center of the bay, running south from Grassy Bay to join with Beach Channel. The original Broad Channel station, which opened in 1881, was three quarters of a mile south of The Raunt and located on the shore of Big Egg Marsh. At the time trains began stopping at Broad Channel, it had already acquired a hotel. Subsequent growth was no more rapid than elsewhere in the bay until the early twentieth century. In 1900, six buildings existed at the site. However, by 1910 there were hundreds. Moreover, an important conversion occurred, and the seasonal fishing station became a permanent residential community with a population of 3000. The Department of Docks names 382 lessors in its 1914 rent roll, including twenty-seven fishing clubs. Annual rents ranged from \$12.00 a year to \$88.00 for a single lot.⁷⁷ In 1914, the city leased all of Big Egg Marsh to Pierre Noel, who subsequently conveyed the lease to the Broad Channel Corporation.

73 Department of Docks, Annual Report, 1914, 92, 94; Annual Report, 1918, 76; Annual Report, 1919, 106.

74 Seyfried, part VI, 170; Department of Docks, Annual Report, 1914, 93-123; Annual Report, 1915, 94; Annual Report, 1919, 106; USC&GS, Chart 542, 1926, 1933, 1940.

75 Two other channels were also called the Raunt. One was off the east edge of the northern end of Rulers Bar Hassock; the second ran southeast of Ruffle Bar. USC&GS, Chart 542, 1911.

76 Seyfried, part VI, 170; Department of Docks 1913, 100; USC&GS, Chart 542, 1911, 1926, 1940.

77. Seyfried, part VI, 170-71; US Geological Survey, Brooklyn Quad, 1900; Department of Docks, Annual Report, 1914, 92-123. The Wave of Long Island, July 24, 1909, Clipping File ("Broad Channel"), QPL.

Under the corporation, Broad Channel continued to flourish, especially with the construction of the Cross Bay Boulevard in 1923. That construction was accompanied by the filling in of Big Egg Marsh as well as marshes and islands to the north. Streets were laid out and a series of eight slips was built west of the Boulevard. Subsequent filling connected Big Egg Marsh, Goose Pond Marsh, Rulers Bar Hassock, and Goose Creek Marsh, creating one contiguous island where previously there had been four separate marshes. Building, however, remained south of Goose Pond. In 1946, Broad Channel had a population of 5,200, served by two churches and two schools, one public and the other parochial.⁷⁸

One other fishing station developed in the late nineteenth century along the railroad trestle. This was Beach Channel, located just north of the drawbridge and a half-mile north of Hammels Station, the first stop on Rockaway peninsula. On an over-water site leased from the railroad, two hotels were built, one on each side of the track, with a clubhouse also on the west side. Between 1886 and 1903, the complex provided fishermen with rooms, meals, tackle, and boats. In June of 1903 a fire destroyed the hotel on the east side, as well as 300 feet of trestle. Shortly thereafter, the railroad discontinued service, and the two remaining buildings were moved to the mainland.⁷⁹

In addition to Goose Creek, The Raunt, Swift Creek, Broad Channel, and Beach Channel, all sites along or near the trestle, fishing huts and vacation cottages appeared elsewhere in the bay during the late nineteenth and early twentieth centuries. These were accessible only by boat. Some were single shacks in remote parts of the bay, such as Straight Creek Marsh, Duck Creek, Stony Creek Marsh, and Broad Creek Marsh. Jo Co's Marsh, East High Meadow, Old Swale Marsh, Yellow Bar Hassock, and Great Bar Marsh had two to five structures. In 1926, there were approximately nine buildings on Duck Point Marshes.⁸⁰

Ruffle Bar, located west of Big Egg Marsh, had been inhabited, if only temporarily prior to the Civil War. Along its southern shore was a natural parcel of upland that provided footing for early buildings. After ferry service began from Canarsie to Rockaway Beach in 1866, steamers occasionally stopped at Ruffle Bar. The island fell within the limits of the town of Flatlands and until the 1890s constituted part of that town's common land. During the years 1891 to 1893, the town sold lots at Ruffle Bar to twenty-four purchasers.⁸¹ In 1914, the Department of Docks entered into a ten-year lease for the city-owned parts of Ruffle Bar with the Ruffle Bar Association at an annual rent of \$500.00 for the first year, \$2,000 for the second and \$10,000 for each subsequent year. Apparently the Association met its obligation, which testifies to the readiness of a number of parties to pay for the use of property at Ruffle Bar. A commercial firm, the Certified Oyster Company, rented space on the eastern side of the island for the erection of tanks and other structures. In 1926, there were over forty buildings on the island, most closely grouped along the southern shore. Fill from time to time was deposited along the northern shore and in the center of the island. A map of 1940 indicates the number of structures was declining, there being approximately

78 USC&GS, Chart 542, 1926, 1940; Rockaway Review, June 1946, Clipping File ("Broad Channel"), QPL.

79 Seyfried, part VI, 171.

80 Leases for some of these sites were issued by the Department of Docks. For example, see Annual Report, 1909, 126-52. At others, structures are indicated on maps. US Coast and Geodetic Survey, Chart 542, 1926, 1933, 1940.

81 Fausser; Flatlands Town Records, Oyster Board License Board Minutes, 1891-1894, 48-59.

twenty-five. Some of these may have been abandoned. At least one fisherman continued to reside on Ruffie Bar in 1944.⁸²

⁸² Department of Docks, Annual Report, 1914, p. 92; Annual Report, 1917, 55; USC&GS, Chart 542, 1926, 1940. Picture File, JBU.

III JAMAICA BAY AFTER 1865: FISHING, SHIPPING, TRANSPORTATION, TOPOGRAPHICAL CHANGE

After the Civil War, the perceptions entertained of Jamaica Bay became more varied and complex. No longer did the bay appear mainly as a waterway whose borders provided farmers with food for their livestock. Agriculture declined in importance, and increasingly larger numbers in the communities of the area turned to non-agrarian callings. Some of them looked to the bay for their livelihoods and undertook commercial utilization of the shellfish that abounded or could be made to abound in the shallow waters.

For others the bay had significance only as an obstacle in the approach to Rockaway peninsula. Whereas previously the beaches had been the resort of the fashionable few, the post-war era saw the democratization of the peninsula as a pleasure spot. Ocean bathing achieved sudden popularity, and in the summers tens of thousands of residents of the congested cities of New York and Brooklyn sought a day's relaxation at the ocean. Jamaica Bay, then, constituted a transportation problem.

Finally, twentieth-century promoters revived the image of the bay first held by John R. Pitkin in the 1830s. The bay could be transformed into a large ocean port and industrial center, rivaling New York for the commerce of the world. To become reality, that image required substantial alterations in the bay, especially digging out its channels and bringing the new deep water into close proximity with solid land suitable for industrial sites. Dredging was undertaken and, together with transportation developments, accounts for much of the significant changes in the bay's topography.

This chapter deals with some of these matters, namely fishing, shipping and other forms of transportation, and topographical change.

Fishing

With the improvements in transportation to its shores and across its waters, Jamaica Bay became a highly popular fishing area. Fishermen were served by boat liveries and other facilities at Canarsie, Bergen Beach and the various stations that grew along the railroad trestle from the mainland to Rockaway. On the bay's periphery and islands, hundreds of bungalows, boathouses, and other vacation structures appeared, many of whose occupants and owners came to the bay because of its fish. In 1892 it was estimated that a summer Sunday would find fishermen in over one thousand small boats anchored between Canarsie and Rockaway, especially at Broad Channel. The more venturesome and affluent sportsmen could hire larger vessels and their captains for a day's fishing in the Atlantic. Numerous oystermen and other commercial fishermen made their boats available for a day's rental, particularly in poor seasons and slack times. All of this activity centered on the fin fish of the bay or the Atlantic.

Table 3 Flatlands Occupations: Agriculturists And Bay Related Workers

Year	1840	1850	1855	1860	1870	1880	1892	1900
TOTAL Population	810	1155	1603	1652	2287	3127	3951	*
Farmers	190	92	67	149	110	88	242	*
Farm Laborers	*	99	106	162	184	257		*
TOTAL Agriculturists	190	191	173	311	294	345	242	*
Unspecified Laborers	*	*	*	*	*	*	491	*
Fishermen	*	75	56	115	196	207	16	55
Baymen	*	*	*	*	*	*	121	90
Oystermen	*	*	*	*	2	*	73	121
Boatmen	*	3	3	*	4	*	4	*
Other Bay Related	60	*	*	*	9	*	24	*
TOTAL Bay Related	60	78	59	115	211	207	238	266

* Data unfurnished in reports.

Sources: Federal Census 1840, 1850, 1860, 1870, 1880, 1900;
New York State Census 1855 and 1892.

Although ideal for sports fishermen, conditions within Jamaica Bay have never been inviting to substantial commercial fin fishing. Doubtless, some fishermen did sell catches to local restaurants, hotels or wholesale and retail fish dealers, such as Max Casey of Canarsie Landing. Available sources are generally silent on this aspect of Jamaica Bay fishing. And they are not any more informative respecting commercial fishing in the Atlantic by fishermen working out of the bay. With the creation of commodious piers and improvements in the channels, large fishing vessels could use Jamaica Bay as a home port. In 1956, seven trawlers daily left the municipal dock at Mill Basin for the ocean. The largest of these, the **Phyllis J.**, was a 110 foot converted submarine. Catches were delivered to a fish packing company at Flatbush Avenue, which trucked the fish to the Fulton market.¹ The best known of Jamaica Bay's commercial fishing activity centered not on fin fish, but shellfish.

During much of its history, Jamaica Bay gained fame because of the number and quality of its oysters and clams. However, not until after the mid-nineteenth century did oystering and clamming provide employment for significant numbers of men or did they constitute major industries. Commercial oystering became feasible after the introduction of techniques of planting seed oysters.² Those techniques appeared in the 1860s. Thereafter, oystering expanded rapidly. The industry is said to have increased between ten and twenty-fold during the ten years before 1882. Probably it reached a peak in the first decade of the twentieth century. The industry continued to employ large numbers for a while longer, before disappearing in the 1920s, owing to the mounting pollution of the bay.

Reinforced by legislation passed by the state government in 1868 and 1871, the towns of Flatlands and Jamaica leased underwater lands in their parts of the bay to town residents. In Jamaica, the board of supervisors itself granted leases for oystering, whereas Flatlands established a special oyster board.³

1 New York Daily News, April 1, 1956, Clipping File ("Fishing"), QPL.

2 One authority suggests that Jamaica Bay may never have had beds of natural oysters. However, abundant references in seventeenth and eighteenth century documents refute that conclusion. Kochiss, 29-30.

3 Report of the Commissioner of Fisheries of the State of New York in Charge of the Oyster Investigation (Assembly Document No. 85, February 26, 1885), 29-30. Flatlands Town Records, Oyster Board License Board Minutes, 1891-1894.

After the consolidation of Greater New York in 1898, oyster beds in Jamaica Bay were managed by the state commissioner of fisheries and briefly by the New York City Department of Docks.

The town of Jamaica's first lease was issued in 1863 and authorized use of 100 square yards at Hell Gate Marsh for a fee of six cents. Subsequently the town decided on a rate of \$5.00 per year per acre, and leases were granted for beds ranging from one half to three acres. At times, only a few residents applied for oyster rights. The largest number granted was forty-three, issued in 1897.⁴ Although the town of Flatlands had a special unit within its government to administer its oyster regulations, its practices closely resembled those of Jamaica. Leases were issued at the rate of \$5.00 an acre, and oyster beds were two acres in size. According to the state Commissioner of Fisheries in 1885, Flatlands leased 656 acres. Apparently much activity was located at Big Channel and at Pumpkin Patch Channel.⁵

In conjunction with the state forest, fish and game department, the New York City Department of Docks briefly handled leasing of Jamaica Bay oyster beds. Although it continued the basic system earlier followed by the independent towns, the-docks department issued leases for terms up to ten years and for beds up to twenty-seven acres in size. Most oystermen took shorter leases and for smaller beds. However, that sizable beds could be obtained invited planting on a larger scale by those who could afford the necessary equipment. Both the state and the docks department charged a rent of 25¢ per acre per year, a drastic reduction from the \$5.00 rate of the former towns.⁶

Rental of beds did not constitute a major expenditure for Jamaica Bay oystermen. Other costs involved more substantial funds. Seed oysters varied considerably in price from one season to the next. Prior to 1899, the price was generally 40¢ a bushel. For at least five years thereafter, the price ranged between 80¢ and \$1.00. Seed oyster was generally obtained from the Great South Bay, Long Island's north shore, or Connecticut. Small quantities were produced in Jamaica Bay. The larger oystermen had a considerable investment in equipment, which might include a scow-type planting boat, floats for "drinking" oysters, a skiff or tow, and a gasoline or steam-powered boat, furnished with a dredge. During the first decade of the twentieth century, sailing sloops continued to be more common than powered oyster boats. With the availability of large beds and the emergence of powered vessels, dredging appeared as a method of harvesting among larger planters. Other baymen continued the nineteenth-century practice of tonging.⁷

A recent study of oystering in the New York-New England region identified a few of the powered boats used in the Jamaica Bay oyster industry around 1900. That work lists the following vessels: In his report of 1904, the state superintendent of shellfisheries stated that twelve gas and steam vessels were employed in the bay, having a total tonnage of 294 and a total value of \$58,000. The average size and value of these twelve boats works out to be 24.3 tons and \$4,833.00. Also used on the bay were eighteen sail vessels, whose average tonnage was 11.4 and average value was \$733.00. In addition, forty-four "other boats" engaged in oystering.⁸

Table 4 Powered Oyster Boats Five Tons or Over Active in Jamaica Bay

<u>Name</u>	<u>Gross Tons</u>	<u>Net Tons</u>	<u>Length Feet</u>	<u>Beam Feet</u>	<u>Depth Feet</u>	<u>When Built</u>	<u>Where Built</u>
Mist	6	5	31.3	11.1	3.3	1880	Canarsie

4 Records of the Town of Jamaica, vol. VI, 40 348, 438, 442; vol. VII, 204-5, 207.

5 Flatlands Town Records, Oyster Board License Board Minutes, 1891-1894, 2-4, 29-30, 33, 35-36; Commissioner of Fisheries (1885), 29.

6 Department of Docks, Annual Report, 1905, 186, 539-40, 766-68; B Frank Wood, New York State Shellfisheries Superintendent, "Shellfish Culture in New York State," in Annual Reports of the Forest, Fish and Game Commissioners of the State of New York for 1904-1905-1906 (Albany: J. B. Lyon Company, 1907), 119.

7 Wood, 115, 127, 131-33; Jenny L. Hopkins, "An Oyster Village," Cosmopolitan, (October 1891), 720.

8 Wood, 131-33.

Oysterette	12	10	42.0	12.0	2.5	1910	Inwood
Sadie M.	15	12	44.3	15.2	4.2	1894	Patchogue
Mabel & Ray	26	18	44.4	15.9	5.7	1899	Conn.
Columbia	9	8	42.4	13.0	3.0	1902	Amityville

Source: John M. Kochiss, **Oystering from New York to Boston** (Middletown, Conn.; Wesleyan University Press, 1974), pp. 195-222,

Writing about the state's oyster industry at large, the superintendent observed that there were essentially two types of oyster planters--the poor bayman with little capital, who relied on his own labor and perhaps that of a relative or partner; and the larger oysterman with sufficient funds for a steam dredge and a number of hands. The less well-equipped oystermen seemed to be on the increase. These types doubtless were to be found at Jamaica Bay. In 1905, the department of docks made leases to some oystermen for beds as small as one or two acres, whereas a few rented between twenty and twenty-seven acres.⁹

The best season for planting oysters was from the middle of March to the middle of April, although planting could be extended until June. Harvesting began in September and lasted until December. During those months, oystermen with their own sloops made weekly trips to New York, carrying their harvested mature oysters. According to an 1891 source, those weekly jaunts were highlights in the life of Jamaica Bay oystermen.¹⁰

Informative and reliable statistics on the Jamaica Bay oyster industry are scarce. Those that do exist seem to conflict one with another, although this might result from the significant variations in activity and productivity from one season to the next. In 1882, it was reported that the "Rockaway district," made up of both Jamaica and Hempstead bays, harvested 100,000 bushels annually. That harvest had a sale price of \$400,000. Eight hundred planters and shippers and 400 other men were employed in the industry as were 120 vessels.¹¹ The @904 state report indicates that 27,500 bushels of seed oyster produced 350,000 bushels of market oysters, having a value of \$301,800 and sold mainly in New York. One hundred and fifty-one men were engaged in oystering in the bay. Congressman Law estimated that in 1906 the combined oyster and clam fisheries in Jamaica Bay produced 450,000 tons of shell fish, having a value of \$2,000,000. A report a decade later states that from 750,000 to 1,000,000 bushels of seed oysters were planted annually, representing an investment of a half million dollars. A total of 1500 persons were employed in oystering and clamming in the bay.¹²

Clamming in Jamaica Bay was apparently a somewhat smaller industry than oystering. Soft shell clams or steamers grew naturally in the bay, and hard shells were produced through planting techniques. In 1917, it was estimated that baymen invested \$1,000,000 in 300,000 bushels of hard clam seed, and that 350 men engaged in the clam fishery. The typical clam boat resembled in its basic design the flat bottom craft still in use in parts of Long Island today.¹³ Doubtless many of the baymen in Jamaica Bay mixed clamming and oystering.

Nature endowed Jamaica Bay shellfisheries with a mixture of advantageous and disadvantageous conditions. In the 1880s, the beds were described as whimsical. Areas of clean ocean sand suitable for oysters one year might be covered by six inches of mud in the next. The bay's shallow waters experienced a wide range of temperatures. Oysters had to be harvested from beds only slightly covered by water lest they freeze during the winter. On the other hand, the warmer waters of summer enabled oysters to mature quite rapidly. Starfish and drill, the bane of oystermen, generally were rare in Jamaica

⁹ Wood, 118; Department of Docks, Annual Report, 1915, 539-40.

¹⁰ Hopkins, 720.

¹¹ S. M. Ostrander, "Long Island Fisheries, Past and Present," Brooklyn Advance (August 1882), 238, in Clipping File ("Fishing"), QPL.

¹² Wood, 131-33; Law, 7; New York City, Board of Estimate and Apportionment, Report on the Main Drainage and Sewage Disposal of the Area Tributary to Jamaica Bay (New York: Parsons, 1917), 14-15.

¹³ Report on the Main Drainage, 14-15; photograph of clam fishing boats in Picture File, JBU.

Bay. Favorable conditions outweighed adverse features, and one authority described shellfishing in Jamaica Bay as the best in New York state, if not in the nation as a whole.¹⁴ Whatever its relative merits, Jamaica Bay lost its fisheries in the 1920s.

The collapse of oystering and clamming had local causes, but also was consistent with a regional decline in shellfish production. The peak year in the history of oyster yields in the middle Atlantic states was 1887, when 9,000,000 pounds were produced. After a precipitous drop in 1889, harvests during the next fourteen years were generally near the 30,000,000 pounds. In 1904, a twentieth-century high of 33,000,000 pounds was realized. Production decreased by 10,000,000 pounds in 1908. A slight recovery took place thereafter, but harvests steadily dropped following 1929, so that in 1939 only 12,000,000 pounds of oysters were harvested.¹⁵ Jamaica Bay's yields of shellfish essentially followed these trends, except for the years after 1921.

The end of the bay's shellfishing industry did not result from a disappearance of oysters and clams, but from the mounting contamination of the water. In 1904 oysters from Inwood caused twenty-one cases of typhoid. Seven years later, twenty-seven cases of typhoid and almost 100 of gastroenteritis resulted from the consumption of Canarsie shellfish. By 1917, 50,000,000 gallons of sewage were being daily discharged into the bay from Rockaway, Jamaica, the Twenty-Sixth Ward, and Paerdegat. This polluted an estimated twenty-seven square miles of the bay and led to the closing of the shellfishing beds in 1921 by health officials.¹⁶

Shipping

In addition to boats engaged in fishing, other vessels have navigated the waters of Jamaica Bay. The largest numbers have been privately owned recreational craft. The remainder, for the years following the Civil War, can be grouped in three categories: ferries and excursion boats; cargo carriers; and vessels temporarily inactive and being anchored, docked or otherwise stored.

Ferries and excursion boats navigated Jamaica Bay between the 1860s and 1930s, primarily to carry passengers to Rockaway peninsula from Hudson and East River piers, from Sheepshead Bay, and from other points in Jamaica Bay, especially Canarsie. The history of Jamaica Bay ferries began in 1866, then the Brooklyn and Rockaway Beach Railroad initiated steamer service from Canarsie Landing to Seaside Park, on the north side of Rockaway peninsula. The railroad's first vessel, the **Rockaway** required roughly two hours to make a round trip. Many of the ferries used by the Canarsie Line were steam launches and of sufficiently light draft to permit navigation of the bay's shallow waters, especially between Canarsie and the main channel. This meant the vessels carried relatively small numbers of passengers. The **Hazel Kirke**, for example, had a capacity of 250 people. Other vessels, especially those employed in later years, had greater size. The **Peter Crary**, brought into service in 1878, carried 600 passengers, and the **Golden Star**, placed in operation in 1890, carried one thousand. At least ten different vessels were employed at various times by the Canarsie Line before it closed in 1905.¹⁷

When the Canarsie Line stopped its rail and steamer service, several different parties obtained franchises for ferry service from Canarsie. Arthur McAvoy continued runs from Canarsie to Rockaway, adding a stop

14 Commissioner of Fisheries(1885), 26-27.

15 "Landed Catches of Principal Species by Region 1876 to 1970, Middle Atlantic States," in Bureau of Census, Historical Statistics of the United States: Colonial Times to 1970 (Washington, D.C.: Government Printing Office, 1975), 556-57.

16 Report on the Main Drainage, 14-15; Long Island Daily Press, November 14, 1954, in Clipping File (Shellfish Industry"), QPL.

17 Fausser.

at Barren Island, before proceeding to the Roxbury Hotel. Later, he added another Rockaway stop to his route. Except for the years 1921-1923, McAvoy ferries remained in operation into the 1930s.¹⁸

Table 5 Ferry Service, Jamaica Bay

Operator/Owner	From	To	With Stops At	Years in Service
Brooklyn & Rockaway Beach Railroad	Canarsie	Rockaway		1866-1905
McAvoy, Arthur	Canarsie Landing	Roxbury Hotel, Rockaway Point	Barren Island	1905-1930s
Warner, William	Canarsie Landing	Bergen Beach, Ave. X		1905-1915
Boegle, Frederick	Canarsie Landing, Rockaway Ave.	Bergen Beach		1911-1921
Bergeson, John	Bergen Beach	Rockaway, Lewis Dock		1905-1907
Reid, P. Howard	Sheepshead Bay	Rockaway, various points	Plum Beach, Barren Island, points in Jamaica Bay	1906-1916
Steinhaus, Archie	Sheepshead Bay	Rockaway Point	Various Places	1914-1918
Steinhaus, Archie	Sheepshead Bay	Rockaway Beach	Plum Island, Barren Island	1915
Langston, Frederick	Canarsie, Rockaway Avenue	Rockaway Park	Barren Island	1915-1918
New York City	Flatbush Avenue	Beach 169 th St.	Barren Island	1927-1937
Steele, William F.	Sheepshead Bay	Points in Jamaica Bay		1909
Riparian Land & Improvement Company	Rockaway Beach, various points	Barren Island		1906

Sources: Department of Docks and Ferries; Brooklyn Eagle Almanac

Several other lines with terminals at Canarsie had briefer careers. Frederick Langston operated a ferry from Canarsie to Rockaway Park, via Barren Island and Ruffle Bar, between 1915 and 1918. Two ferries connected Canarsie and Bergen Beach, one owned by William Warner and the other by Frederick Boegle. Both encountered financial difficulties and were out of business by 1921, by which time service had been restricted to Sundays and only in the summer. Briefly, a ferry connected Bergen Beach with Lewis Dock, Rockaway Point. The only other private ferry solely within Jamaica Bay was that of the Riparian land and Improvement Company, which in 1906 obtained a franchise for a line between Barren Island and Rockaway Beach.¹⁹ This line may never have been placed in operation.

For a dozen years during the first and second decades of the twentieth century, there was ferry service from Sheepshead Bay, through the inlet, to various points on Rockaway Beach. That service began in 1906, when P. Howard Reid received a franchise for a ferry from Ocean Avenue, Sheepshead Bay to a number of Rockaway locations. The Reid ferries stopped at Plum Beach, Barren Island, and several unspecified places in Jamaica Bay, one of which was probably Ruffle Bar. Between 1914 and 1918, Reid faced competition in the form of Archie Steinhaus, whose line also connected Sheepshead Bay with the Rockaway peninsula. In 1915, Steinhaus had two franchises, both stopping at Plum Beach and Barren Island or "various places" in Jamaica Bay. An earlier Sheepshead Bay-Jamaica Bay ferry lasted only one year.²⁰

The first and only municipal ferry in Jamaica Bay began in 1927 and ran from the now extended Flatbush Avenue to Beach 169th Street, somewhat west of the later Marine Parkway Bridge.²¹ The opening of that

¹⁸ Department of Docks, Annual Report, 1906, 156. The years in which the various ferries operated have been traced in subsequent reports of the docks department and in the Brooklyn Daily Eagle Almanac for the years 1914 to 1928.

¹⁹ Department of Docks, Annual Report, 1915, 99; Annual Report, 1906, 156; Department of Docks, Transactions, 1906, 1001; Department of Docks, Transactions, 1905, 412.

²⁰ Department of Docks, Annual Report, 1906, 156; Annual Report, 1914, 128; Annual Report, 1915, 98-99; Annual Report, 1909, 158-59.

²¹ Brooklyn Eagle Almanac 1927, 63.

bridge in 1937 removed the necessity for the ferry. Indeed by that time access by road to many parts of the bay had eliminated all ferry service.

Between the mid-1870s and World War I, summer excursion steamers, originating in Manhattan and Brooklyn, brought to the Rockaway beaches large numbers of city residents on one-day outings at the seashore. In the last two decades of the nineteenth century, the bulk of the excursion business seems to have been in the hands of R. Cornell White's Iron Steamboat Company, which began operations in the bay around 1882. White's steamers took on passengers in Manhattan at West 23rd Street and at the Battery and then proceeded down New York harbor into the Atlantic, past Coney Island, and cautiously through Rockaway Inlet to one of three piers on the north side of the peninsula.²²

Compared to the Canarsie Line's steamers, White's excursion boats were huge. The **Grand Republic**, with a capacity of 3700, could carry as many passengers as the railroad's largest ferry in four trips. At various times, as many as eight different White ships engaged in the traffic to Rockaway. At least one of them also made its way around the bay to the Idlewild Park Hotel, located on the eastern side, opposite Hell Gate Marsh. In the mid-1890s, the Knickerbocker Steamship Company, which acquired the **Grand Republic**, entered the Rockaway excursion business, either as a competitor to White or a successor.²³

In 1906, Congressman Law, when arguing on behalf of federal funds for the development of Jamaica Bay listed thirteen passenger excursion vessels as then active in the bay.²⁴

In the early twentieth century, those intent on development of Jamaica Bay as a port argued that the piers and facilities at Manhattan were overcrowded. And it does appear that dock space was at a premium. Those seeking to avoid expensive dock fees for vessels temporarily idle turned to Jamaica Bay. During the 1920s and 1930s, Mills Brothers berthed four of its steamers at Mill Basin in the off-season. In 1932, twenty-six deck scows and twenty-nine scows were moored temporarily in Johnson Creek, located in Flatlands Bay.²⁵

The most impressive flotilla ever seen in Jamaica Bay essentially was an inactive fleet. After the United States intervened into World War 1, the federal government created the Emergency Fleet Corporation to acquire through purchase, rental, construction, or other means a large number of merchant ships to transport men and materiel to Europe. Ultimately the government came into possession of 2,000 vessels. Following the armistice, the disposition of this fleet became a political issue. In June 1920 Congress established a system whereby private shippers could purchase these vessels, and eventually the fleet was liquidated.²⁶ In the meantime, a practical problem existed as to the mooring of the ships until purchased. Beginning in March 1921, Jamaica Bay served as anchorage for 156 of these vessels, the largest being the **SS. Kearney**, 9786 tons.²⁷ Apparently, the flotilla did not remain long, but while there it must have affected normal traffic in the bay. Perhaps this explains the interruption in the McAvoy ferry Service between Canarsie and Rockaway during the years 1921-1923.

Because of Jamaica Bay's generally shallow waters; vessels of slight draft have been the most common cargo carriers. Natural channels reached into a few areas of the bay. Beach Channel, for example, could accommodate White's excursion steamers. Dredging opened the way in areas poorly served by natural

²² Seyfried, part V; 5-6. When steamer service from New York to Jamaica Bay began is uncertain. Reference to a scheduled run is found in an 1875 publication: James Miller, *New York as It Is or a Stranger's Guide-Book to the Cities of New York, Brooklyn and Adjacent Places* (New York: James Miller, 1875), 103-4.

²³ Seyfried, part V, 5-6; Law, 6; Long Island Press, September 1947, in Clipping File, JBU; Department of Docks, Minutes 1895, 438; Department of Docks, Annual Report, 1899, 252.

²⁴ Law, 6.

²⁵ Department of Docks, Annual Report, 1923-24, 70-72; Annual Report, 1932, 115.

²⁶ Carl Degler, *Between the Wars: America, 1919-1941* (2nd ed., Dallas: Houghton Mifflin, 1979), 25-26.

²⁷ Henry A. Meyer, *Looking Through Life's Window: Personal Reminiscences* (New York: Coward-McCann, Inc., 1930), 208.

channels. However, only sloops, lighters, scows, and barges were able to move in any general sense around the various sections of the bay.

No comprehensive listing of Jamaica Bay shipping has been located, but it appears that prior to the turn of the century, sailing sloops were in common use within the bay, and sloops as well as schooners came into the bay from the Atlantic. Schooners may not have proceeded any further than Barren Island. For example, in 1879, two schooners from Florida laden with yellow pine timbers for the construction of the railroad trestle anchored at Barren Island. Steam-powered towboats and lighters were numerous by 1906, and one list for that year includes twenty-nine such vessels then operating in the bay.²⁸

Barren Island's industries were responsible for some of the ship traffic in Jamaica Bay. Towboats conducted scows to the island, bearing substances for its fertilizer and rendering factories. The factories' products were also transported by water. The Barren Island firm of E. F. Coe Fertilizer, had at least one vessel of its own. Accounts of wrecks provide some information about shipping in that part of the bay. The **J. R. Brown**, a sloop, sank at Barren Island in 1881; the scow **Franklin**, bound from New York to the island, was wrecked in the inlet in 1887; and in 1899 the schooner **Robert A. Snow**, carrying fertilizers, was also destroyed in the inlet.²⁹

In 1886, the United States Engineering Department studied the channel into Jamaica Bay with an eye to deepening it and decided that the volume of commerce did not warrant the expense of dredging.³⁰ Twenty years later, an effort began to reverse that decision, and in 1910 and 1911 the federal government and the city of New York undertook the dredging of the inlet and of a main channel within the bay. These developments were part of a larger project that involved the development of the bay as a commercial port and an industrial center.

The role of ship traffic in the decision to improve the bay is not clear. However, it would appear from the arguments of Jamaica Bay improvement promoters that the impetus came not from an enlargement of the actual shipping entering the bay, but the anticipation that as a result of dredging, pier construction and other developments traffic would increase. That anticipation never achieved actuality. To be sure, only part of the grand plan for improvement of the bay was realized, but that part included considerable dredging. However, even with deeper channels, large cargo carriers never became common in the bay. Because of that, it was a matter of some interest when, in 1933, a cargo of 500 tons of scrap was loaded on a freighter at Canarsie Pier. Numerous references to barges and tugs suggest that during the twentieth century, the cargo carriers in the bay continued to be craft of slight draft.³¹

Transportation

One post-Civil War perception of Jamaica Bay was as a transportation problem, that is as space separating the mainland from the area's most important attraction, the beaches of Rockaway. Thus, the bay was a place that one went around or crossed over as rapidly as possible. The longest route from the western end of Long Island to the beaches was by land around the eastern side of the bay. This was the way of the pre-Civil War Jamaica turnpike. After the war, more expeditious routes were followed. The first was the Brooklyn and Rockaway Beach or Canarsie Railroad, which carried passengers by rail from East New York to Canarsie Landing and then by steamer across the bay. Fifteen years later, a rival railroad, ultimately absorbed by the Long Island Railroad, built a trestle from Hawtree Creek across the meadows and channels to Hammels. The twentieth century saw the construction of the Cross Bay Boulevard, the Marine Parkway Bridge, and the Shore or Belt Parkway. The bay's transportation history also includes waterborne traffic, discussed in another section, and airborne centering on Floyd Bennett field and Idlewild, later John F. Kennedy, International Airport.

²⁸ Seyfried, part V, 13; Law, 6.

²⁹ Law, 6; Rattray, 275, 262,

³⁰ Levine, 20.

³¹ Law, 6; Rattray, 266, 268.

Since mention has already been made of the Canarsie Line, only a brief summary is needed here. The Brooklyn and Rockaway Railroad, chartered on December 1863, resulted from the efforts of James Remsen, owner of a large tract of land at Rockaway Beach. Remsen sold part of his property to Dr. Richard H. Thompson with the understanding that Thompson would build a railroad linking Brooklyn to the bay and would operate a ferry service to Seaside Park on the peninsula. The three and a half mile long double track railroad opened in October 1865 between East New York and Canarsie Landing, and steamer service began the next season. In 1867, the line carried 122,567 passengers and 4,242 tons of freight. Despite mounting competition in the 1880s, the Canarsie Railroad survived, Canarsie Landing prospered, and the growth of Rockaway further stimulated. However, despite continual improvements in its rolling stock, steamer service, and terminal and station facilities, the railroad's business began to decline at the end of the century. Other railroads as well as White's steamboats offered alternative routes to the beaches. Traffic bound no further than the Landing plus a small share of Rockaway passengers kept the Canarsie Line going. After 1895, patronage declined significantly because of expansion of electric trolley service with its nickel fare to Coney Island. In 1905, the Canarsie Line ceased operating and the Brooklyn Rapid Transit system took over the railroad's property.³²

Fierce competition existed among railroads for the Rockaway trade, and it is surprising that the small Canarsie Line remained as long as it did. On the east side of the bay and on Rockaway Peninsula, the South Side and Long Island railroads engaged in stiff battle. The South Side opened service from Brooklyn to Far Rockaway in 1869 and by 1872 had extended out on to the peninsula. Following the same route was the Long Island Railroad, Law suits however, prevented that company from building down the peninsula.³³

Prior to 1880, White's Iron Steamboats brought more people to Rockaway than did the various railroads. Trains could cover any given distance in less time than an excursion vessel, but a train required ninety minutes for a run from Long Island City, around the eastern side of the bay to the beaches. In the 1870s, James M. Oakley conceived of the idea of a railroad over Jamaica Bay, a route reducing the running time to thirty minutes. In April 1877, the supervisors of the Town of Jamaica granted Oakley and his New York, Woodhaven and Rockaway Railroad a ninety-nine year lease for a right of way at an annual rent of \$250.³⁴ The Jamaica supervisors and the railroad selected the route and the location of drawbridges over channels jointly. That route started at Remsen's Landing at Hawtree Creek and proceeded due south more or less in a straight line to Hammel. The New York, Woodhaven and Rockaway was unique among railroads in the area, since the larger part of its trackage was carried by a trestle over the bay almost five miles long. Work began on the trestle in August 1878, when the construction firm, Swift and Aiken of Brooklyn, drove the first of thousands of piles. By March 1880 the trestle was completed and some of the track laid. Baymen protested at various stages of construction, arguing that the road was an impediment to navigation and that five drawbridges were required not the three planned by the railroad. In May 1880 the last of the three draws was installed and service began on August 26, 1880.³⁵

The trestle carried a double track, resting on ties twenty-two feet long. Beneath the ties were caps, each one foot square and thirty feet in length. The understructure of the trestle consisted of 1719 pile bents, located every twelve to seventeen feet along the route. With the top of the road about nine feet above mean high water, the trestle left the mainland at Hawtree Creek and proceeded 4200 feet across Grassy Bay to Goose Creek station. Immediately south of that station was the first and smallest draw, being a single span. Two hummocks sustained the trestle until near Raunt Station. Below The Raunt, the trestle crossed over Goose Pond to the station at Broad Channel. Broad Channel draw was a fifty-foot iron structure, described as a "two pivot, double opening" bridge. The last station along the trestle was at Beach Channel. Beach Channel had a drawbridge identical to that at Broad Channel. Beyond Beach Channel lay Beach 90th Street on Rockaway peninsula.

32 Fausser.

33 Seyfried, part 111, 64-68.

34 Seyfried, part V, 7-8; Records of Town of Jamaica; vol. V, 288-89, 294.

35 Seyfried, part V, 8-18; Records of Town of Jamaica, vol. V, 404.

On August 26, 1880, the opening day of operations, seventeen trains ran each way, and 65,000 passengers used the New York, Woodhaven and Rockaway during the first week. Initially, tickets cost 35¢ for a one-way trip and 50¢ for the round-trip excursion. Passengers found the long overwater route attractive and patronage increased year after year. However, the company discovered that maintenance of the trestle required constant attention and great expense. In winters, ice jammed against the piles, forcing them out of alignment. In summers, shipworms honeycombed and weakened the piles. Early in 1883, the supervisors of the Town of Jamaica heard renewed complaints from boat captains, who charged that the draws at Goose Creek and Broad Channel had been so poorly maintained that they could not be opened. This required vessels to go great distances so as to pass through the one drawbridge still serviceable. Repair of bridges cost the railroad \$8,000. Heavy seasonable patronage enabled the company to meet the continued expenses, but the line's financial circumstances were shaky. For example, on Sunday, August 24, 1884, eighty-seven trains were required for the beach traffic. Oakley, however, had had enough and in 1886 sold his controlling interest to the Long Island Railroad.

The new owners found themselves continuously replacing piles and other timbers. Fire appeared as a new problem. In August 1887, a twenty-five foot section of the trestle was destroyed by fire, and another blaze in 1892 devastated the Sea Side Station. On the other hand, the number of riders continued to mount. On July 29, 1894, 75,000 people were reported at Rockaway, the bulk of them having been carried by the LIRR's sixty-eight trains. In 1895, the railroad transported a total of 1,514,000 passengers over the trestle.

Probably the height of the beach traffic was achieved in 1902, when ridership was almost three and a half million persons. Thereafter a decline set in. The little fishing stations from Howard's Landing to Beach Channel had already experienced difficulties. Pollution of Jamaica Bay ruined the attractions of the area for fishermen and bathers. Finally the opening of the Cross Bay Boulevard in 1923 seriously cut into the remaining patronage.

The Long Island Railroad continued its cross bay line until a disastrous fire on the trestle in May 1950. Damage was so extensive that the company, then bankrupt, decided against reconstruction. For three years the trestle remained idle and then was purchased by the city of New York for inclusion in its rapid transit system.

Certainly during the first forty years of its history, the trestle carried a rail line essentially seasonal in its operations. During winter months the number of daily trains dropped to one or two. Also, both the New York, Woodhaven and Rockaway and the Long Island Railroad used the trestle almost exclusively for passenger service. Other divisions of the Long Island handled freight, but most of that business was with locales well east of Jamaica Bay.

The absence of rail freight service at Jamaica Bay, especially on its western side contributed to the failure of the general scheme for commercial and industrial development. In the early 1930s, the Department of Docks recognized rail connections as the key to development and optimistically anticipated a line from Brooklyn to the head of Paerdegat Basin.³⁶ That line never materialized, nor did any others which would have provided a rail freight link for the bay's industrial and commercial firms.

During the period the Department of Docks had authority over Jamaica Bay, the major developments for automobile traffic included construction of the Cross Bay Boulevard and the extension of Flatbush Avenue to Rockaway Inlet, both projects being completed in 1923. Shortly thereafter, Robert Moses, later the Park Commissioner, began to influence management of the city lands in and around Jamaica Bay. If the docks department still hoped for railroads and shipping, Moses' thoughts centered on parks and parkways. On February 25, 1930, Moses unveiled his general plan for parkway and bridge construction in New York. That plan included a marginal boulevard along the Brooklyn shore from Brooklyn Bridge south and then east to Jamaica Bay. From the southwest corner of the bay, the boulevard would proceed north and then east to connect with a projected cross island parkway. Moses

³⁶ Department of Docks, Annual Report, 1931, 10; Annual Report, 1932, 8.

also recommended the creation of Jamaica Bay of a large city park, and thereafter he was publicly critical of the scheme, still officially on-the books of the city, for the commercial and development of the bay.³⁷

Moses' tenure in power proved a long one, during which he secured authority over Jamaica Bay and realized his proposals for parkways and bridges. Construction of the Shore or Belt Parkway as far east as Fort Hamilton was completed in 1936. During the next four years, work progressed on the road from both the east and the west, and on June 29, 1940, the new parkway was formally opened. Originally consisting of four lanes, the road was widened to six after World War 11. Another Moses project of the 1930s was the construction of the Marine Parkway Bridge, completed in 1937 and connecting the western tip of Rockaway peninsula with Flatbush Avenue and the Belt Parkway. One of Moses' last accomplishments consisted of replacing the old Cross Island Boulevard drawbridge at Beach Channel with a modern fixed structure, the work being completed in 1970.³⁸

Topographical Changes

In the twentieth century, the topography of Jamaica Bay has experienced significant man-made alteration. Generally, these changes have consisted of the dredging of channels and filling the marshes in the bay and along its periphery. Natural streams flowing into the bay have either disappeared or been turned into bulkheaded basins. Deepening of the channels has increased the volume of water in the bay, while filling has reduced the area of the bay's surface. Islands have been consolidated, and many small ones removed, so that the number of islands has greatly decreased.

Private companies, especially transportation and real estate firms, and hundreds of individuals contributed to the reshaping of Jamaica Bay. Governmental agencies, however, brought about the greater proportion of alterations. Until the 1930s, many of those agencies received general guidance from a plan for the development of Jamaica Bay into an ocean port and a commercial and industrial center. Had that plan been fully implemented, the bay would have seen greater changes than actually did take place.

Essentially, the Jamaica Bay improvement scheme called for elimination of all marshes and meadows within the bay and the creation of two large and entirely bulkheaded islands, West Island and East Island. The low lands on the bay's periphery would also be filled and bulkheaded. Running inland from the bay would be fifteen basins, and West Island would itself have three basins. A series of sixteen or eighteen piers were to be constructed between Shellbank Basin and Paerdegat Basin, and another series between Mill Basin and Barren Island. The bay's waters would be essentially a circular canal between the mainland and the two islands. The existing Rockaway Division of the Long Island Railroad would be retained, running across what was to become West Island. New rail lines would serve the western part of the bay. One was to run from the LIRR Bay Ridge line, starting at Ralph Avenue and branching down both sides of Paerdegat Basin. The eastern branch would extend to the foot of Rockaway Parkway at Canarsie and the western branch would proceed into Mill Basin and further south to the shipping terminal and industrial area. *In the southwest section would also be a municipal airport. Another rail line would connect the eastern side of West Island with the mainland near Fresh- Creek Basin.*³⁹

Embellishments upon this general scheme appeared from time to time. For example, consideration was given to linking Flushing Bay and Jamaica Bay by a canal, perhaps beginning at Cornell Basin. Such a

37 Robert A. Caro, *The Power Broker: Robert Moses and the Fall of New York* (New York: Vintage Books, 1974), 341-43; Robert Moses, *The Future of Jamaica Bay* (New York: Department of Parks, 1938), n.p.

38 Robert Moses, *Statement with Reference to the Proposed Parkway Construction Program in the Metropolitan Area*, (New York: Department of Parks, 1938); Robert Moses, *Commissioners Report: Twenty Years of Progress, 1934-1954* (New York: Department of Parks, 1954), 15; Caro, 1156-57.

39 "Map of Jamaica Bay Showing New York Municipal Airport" (H. V. Penn, February 23, 1928); "Jamaica Bay Improvement Showing Bay Frontage Owned by City of New York in Relation to Mill Basin" (New York: Robert A. Weicke, 1927).

canal would require a tunnel under the highlands in the center of Long Island. Another proposed canal would link Jamaica Bay and the Great South Bay.⁴⁰ Neither of these canal projects was instituted, and by the 1930s it seemed clear that the general scheme itself would not achieve actuality. However, Jamaica Bay improvement promoters persisted. In the years before World War II hopes prevailed that Floyd Bennett Field, by then replaced by LaGuardia as the city's air terminal, would become an immigration reception center or that the site of the 1939 world's fair would be the northern shore of Jamaica Bay.⁴¹

The New York City Department of Docks became committed to the Jamaica Bay improvement scheme in 1910, and its subsequent annual reports frequently described the progress being made. Although only parts of the plan were implemented, its comprehensive scope guided the department's decision. Material produced by dredging was to be used in the marshes of the southwest corner for the municipal airport and the shipping and industrial center. Fill from the middle of the bay went to Rulers Bar Hassock and adjacent marshes which the department determinedly called "West Island." In 1918 the department approved construction of fourteen piers between Barren Island and Mill Basin, each 1,000 feet long and 200 feet in breadth, with slips 300 feet wide between the piers. As an immediate step it was decided to construct a platform at Barren Island at which scows of the Street Cleaning Department could unload ashes and other refuse for filling the marshlands. That platform would ultimately become part of the first 1000-foot pier. A concrete pier was in fact built just north of Barren Island, jutting into Jamaica Bay from a new stretch of upland, but the first 1000 foot pier and the other thirteen remained blueprints.⁴²

The parts of the scheme for developing Jamaica Bay that were in fact carried out consisted of dredging the inlet and a main ship channel, creation of Floyd Bennett Field as the municipal airport, and improvements at Mill Island, including the construction of Mill Basin. In the nineteenth century, private firms had undertaken dredging of channels in Jamaica Bay. The Canarsie Railroad faced a persistent problem in the silting of the mile long steamboat channel from the landing to Big Channel. A map of the early 1870s indicates a channel had been "dug out" between Big Channel and Canarsie and also shows a proposed channel, the "Ludlow Drain," which ran more southerly than the channel then in use.⁴³ No evidence exists that Ludlow Drain was ever developed. It seems likely that prior to 1873 the Canarsie Line had "dug-out" the channel in use and it is known that the company did dredge in 1880. Further dredging occurred in 1892, including a 300 foot canal in the Landing area, with the dredgings used to reclaim three acres of marsh. Dikes were built on either side of the steam boat channel where it joined Big Channel in an effort to slow the silting process. White's Iron Steamboat Company maintained a channel to Idelwild Park, and apparently the Knickerbocker Steamship Company did some dredging of Beach Channel, which ran off the north shore of Rockaway peninsula.⁴⁴

40 State of New York, Report of State Engineer and Surveyor J. A. Bensel on Surveys of Black River Canal Extension, Chemung Canal Reconstruction, Glen Falls Feeder Conversion, Flushing River and Jamaica Bay Canal Construction, and Newton Creek-Flushing Bay Construction, as Directed by Chapter 220, Laws of 1913. (Albany: J. B. Lyon Co., 1914); 9-10; State of New York, Supplemental Report of the Jamaica Bay-Peconic Canal Board Relating to the Construction of the Proposed Canal and the Effect Upon the Present Source of Water furnished to Residents of the Town of Hempstead and the Borough of Queens (Albany: J. B. Lyon, 1920).

41 In 1936, Mayor La Guardia predicted that docks would be built in Jamaica Bay to accommodate large ocean liners. After the outbreak of war in Europe, some hoped the federal government would develop the bay as a defense base. Brooklyn Daily Eagle, May 6, 1936, Clipping File, JBU; Griffith D. Bertholf, "Jamaica Bay as a Defense Base," in Rockaway Review (June 1940), in Clipping File ("Jamaica Bay"), QPL; Article, unknown newspaper, ? , 26, 1936, in Clipping File ("Barren Island"), QPL; Long Island Press, November 9, 1935, in Clipping File ("Jamaica Bay"), QPL.

42 Department of Docks, Annual Report, 1919, 23; Annual Report, 1921, 7.

43 Beers, Atlas of Long Island, 1873.

44 Fausser; USC&GS, Chart 542, 1911; "Jamaica Bay Map Showing Channel and Fishing Holes for Fishermen and Yachtsmen" (Brooklyn: Knowlson & Muller, ca. 1895 ; Long Island Press, September ? , 1947, in Clipping File, JBU.

Public agencies, not private companies, have been responsible for most of the dredging in Jamaica Bay. In 1912, financed by Congressional funds, the city started work on the main ship channel along the westerly and northerly sides of the bay. Since the purpose was to promote the industrial and commercial development of the mainland adjacent to the bay, the ship channel paralleled the shore line rather than following Big Channel. Thus dredging began at Island Channel, just east of the Flatlands Bay area and then created an entirely new channel running northwest from Mill Basin before turning northeast. The work was done in sections and in stages. In 1912 and 1913, a channel 500 feet wide and eighteen deep was dredged from the inlet to Oraloss Creek. Legal complications obstructed further progress until the early 1920s. During the interim, the city financed the dredging from the north end of the new ship channel into Mill Island. This created Mill Basin, 1000 feet wide and fifteen deep. In 1923, work resumed on the main channel, which was extended from Mill Basin to Paerdegat Basin and then from Paerdegat Basin to a point 550 feet southeast of Fresh Creek.⁴⁵

The second stage consisted of redredging the same channel but to a depth of thirty feet and a width of 1000 feet. After a temporary delay owing to a shortage of funds, this stage was completed in the late 1930s. Some dredging was done east of Fresh Creek, but this was not part of the main ship channel.⁴⁶

As a result of the dredging of the ship channel, several island marshes disappeared, such as those at Long Pol Bar. On the other hand, Canarsie Pol was transformed from a tiny marsh to a sizable island of uplands, completely blocking the old Steamboat and Big channels. The pilings still visible on the west side of Canarsie Pol and directly opposite the pier are remnants of the dikes built to keep the channel open.⁴⁷

Filling the meadows adjacent to the mainland accompanied dredging of the ship channel. The first section of the channel produced 1,733,785 cubic yards of material for the creation of a strip of new land approximately 700 feet wide fronting Jamaica Bay and stretching from Barren Island to Oraloss Creek. Fill excavated in the section from Mill Basin to Paerdegat Basin was placed on Bushes Meadows, resulting in 200 acres of uplands. Prior to the construction of Floyd Bennett field, itself involving fourteen million cubic feet of fill, a considerable portion of Flatlands Bay had already been filled in.⁴⁸

The earliest dredging and filling in the Mill Island region resulted from activities of private parties. In 1905, for example, the Department of Docks granted permission to John R. Corbin to dredge and fill at Mill Creek between East 52nd Street and East 56th Street and to T. Curley to construct a bulkhead and to fill behind it at Flatbush Avenue. Shortly thereafter the Atlantic, Gulf and Pacific Company bulkheaded Mill Island, producing 322 acres of upland.⁴⁹ Thereafter, changes came at the hands of the city of New York. An excavation in the Oraloss Creek area between Jamaica Bay and Mill Island produced Mill Basin in 1915, and Flatbush Avenue was extended across Flatlands Bay to Barren Island by 1923.⁵⁰ East Mill Basin appeared in the 1930s and Old Dam Creek and Crooked Creek eliminated.

Topographical changes at Bergen Beach began in the late 1890s, when real estate developers bulkheaded the shore line.⁵¹ Dredging of the main channel left Bergen Beach generally undisturbed. However, fill was deposited in an area immediately to the southeast, and the creek separating it from Bergen Beach filled so as to make a continuous stretch of upland from Paerdegat Basin to Mill Basin. With the construction of the Belt Parkway, the Bergen Beach bay front was filled to accommodate the new roadway.

45 Progress of dredging to 1915 is reviewed in Department of Docks, Annual Report, 1915, 10. See also Annual Report, 1923-24, 6; Annual Report, 1925, 76.

46 Department of Docks, Annual Report, 1915, 10.

47 Compare USC&GS Chart 542, 1911 and 1926.

48 Department of Docks, Annual Report, 1913, 7; Annual Report, 1923-24, 7; Annual Report, 1932, 8.

49 Department of Docks, Annual Report, 1905,, 412-13; Bailey, 68.

50 Department of Docks, Annual Report, 1923-24, 7.

51 Baily, 77.

Canarsie, one of the oldest residential areas of Jamaica Bay, experienced some slight changes in its bay front with the activities of the Canarsie Railroad after 1865. A pier from the landing was constructed into the bay, extending no further than the present Belt Parkway.⁵² In the first decade of the twentieth century, the area southwest of the pier was filled and similar work started on the northeast side, giving the landing approximately 700 yards of pier front. In 1923, the city built a new pier roughly 600 feet into the bay to the edge of the main ship channel.⁵³ Also the entire area from the mouth of Bedford Creek to a point just west of the mouth of Fresh Creek was bulkheaded and filled. Further dredging of the channel-produced fill deposited in the marshes behind the bulkhead, creating 100 acres of uplands.⁵⁴ The building of the Belt Parkway slightly moved the Canarsie bay front further into the bay. Filling meadows north of the Parkway came in the 1950s in connection with such housing developments as Seaview Village.

Until after World War II, the area least affected by man-made topographical changes was the north shore from Fresh Creek eastward into Queens. The ship channel extended no further than Fresh Creek, and the area was relatively remote from other dredging operations. Fill was required to construct a road bed through the meadows for the Belt Parkway. The most dramatic changes in this area consisted of the post-World War II landfill projects at Spring Creek and Pennsylvania Avenues.

The islands in the center of the bay and the mainland shore immediately to the north of those islands were altered by three transportation projects -- the New York, Woodhaven, and Rockaway Railroad; the abortive Flynn turnpike; and the Cross Bay Boulevard. Fire above water and rot below made maintenance of the railroad trestle costly for the LIRR, and the company at least as early as 1888 began depositing fill under its tracks, especially at Hawtrees and Broad Channel. In 1906, rubble from the construction of the Pennsylvania tunnel in Manhattan was used as fill at the trestle at Broad Channel, Goose Creek, and The Raunt. The railroad's efforts were necessarily localized and limited.

More substantial changes in the central area of the bay resulted from the activities of Frederick Dutton, Patrick Flynn and others connected with the projected turnpike from Long Point to Far Rockaway. In 1896, Dutton filled in two or three meadows along the route with an eye to providing home sites for sale. In 1900 and 1901, construction of the causeway for the proposed road included the most extensive dredging and filling ever seen to that time in Jamaica Bay. Flynn acquired a huge dredging machine, 150 feet long and thirty-four wide that required sixteen flat cars to transport it from Boston. Its 460 horsepower steam engine could dredge 20,000 cubic yards a day. In the spring of 1900 ten acres of meadows on the north shore in the vicinity of Old Mill Creek were elevated eight feet, and by the summer of 1901 a plateau had been produced 350 feet in width from Liberty Avenue to Long Point. At the south end of the plateau was a marine section projecting 1500 feet into the bay. Subsequently the dredge filled meadows at Broad Channel and The Raunt, and between three and four miles of solid roadbed for the turnpike was formed.⁵⁵ Successful legal challenges brought a halt to further work and finally caused the project to be abandoned.

Twenty years after the abandonment of the Flynn turnpike project, the city of New York began construction of the Cross Bay Boulevard. The mainland section of the new road was located east of the earlier undertaking, but otherwise the route remained the same, and the Flynn causeway in the islands became part of the new thoroughfare. By 1925, an embankment 11,000 feet long and 550 wide had been created with an elevation in the center of twenty feet above mean low water. The docks department reported that the project had produced 2000 building lots on "West Island." What the department meant by West Island was essentially Rulers Bar Hassock. Raunt Channel had been filled in so as to connect Rulers Bar Hassock with Goose Bay Marsh. Goose Bay Marsh was separated from Big Egg Marsh only by a narrow stream. Subsequent dredging in the 1930s produced 300 additional acres in the area and

52 Fausser.

53 Department of Docks, Annual Report, 1923-24, 5; USC&GS, Chart 542, 1911.

54 Department of Docks, Annual Report, 1932, 8.

55 Seyfried, part V, 98-108.

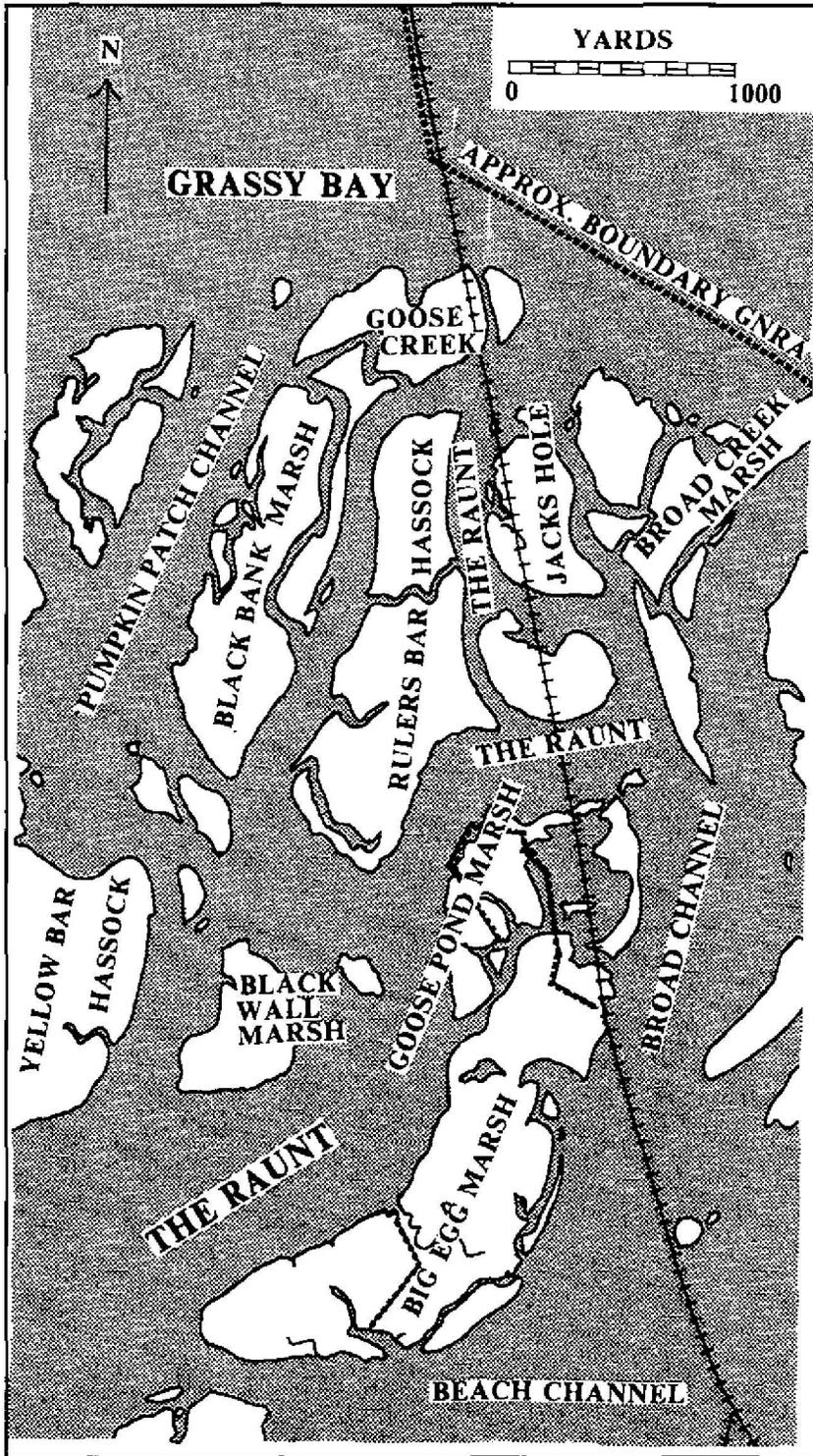
made for a contiguous stretch of upland, which included the formerly separate marshes of Black Bank, Goose Creek, Rulers Bar Hassock, Goose Pond, and Big Egg.⁵⁶

In the 1950s, at the urging of Robert Moses, whose Park Development then had authority over Jamaica Bay, a final change occurred at "West Island." In connection with the takeover by the Transportation Authority of the Long Island Railroad line two fresh water-ponds, East Pond and West Pond, were created. Both East Pond, located between the Cross Bay Boulevard and the subway line, and West Pond, to the west of the Boulevard, are within the confines of the wildlife refuge established at Rulers Bar Hassock.⁵⁷

⁵⁶ Department of Docks, Annual Report, 1923-24, 5, 89; Annual Report, 1925, 72; Annual Report, 1932, 8.

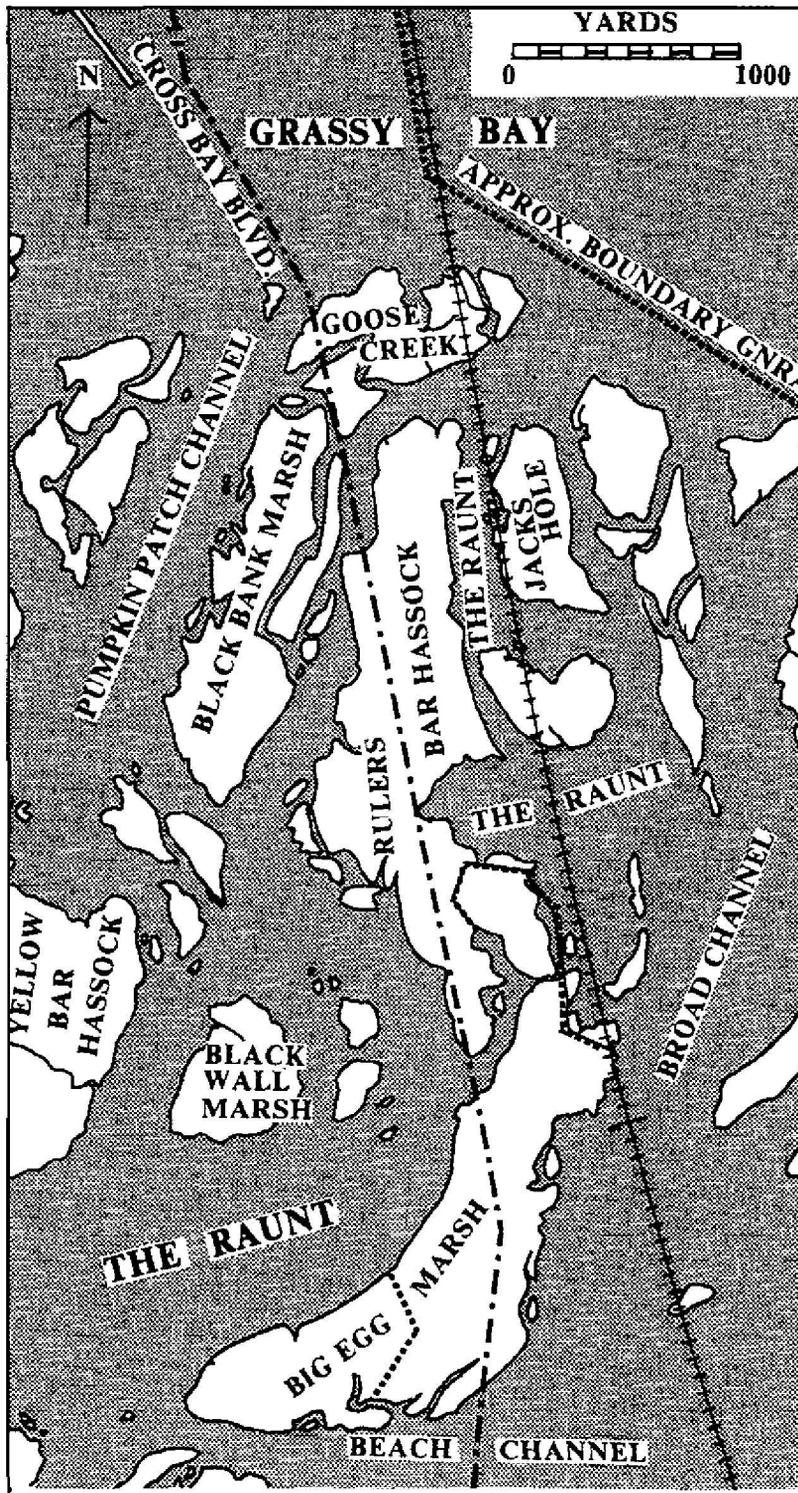
⁵⁷ Michael Harwood, "The 'Black Mayonnaise' at the Bottom of Jamaica Bay," New York Times Magazine, February 7, 1971, in Clipping File, JBU.

Figure 16 Central Islands, 1911



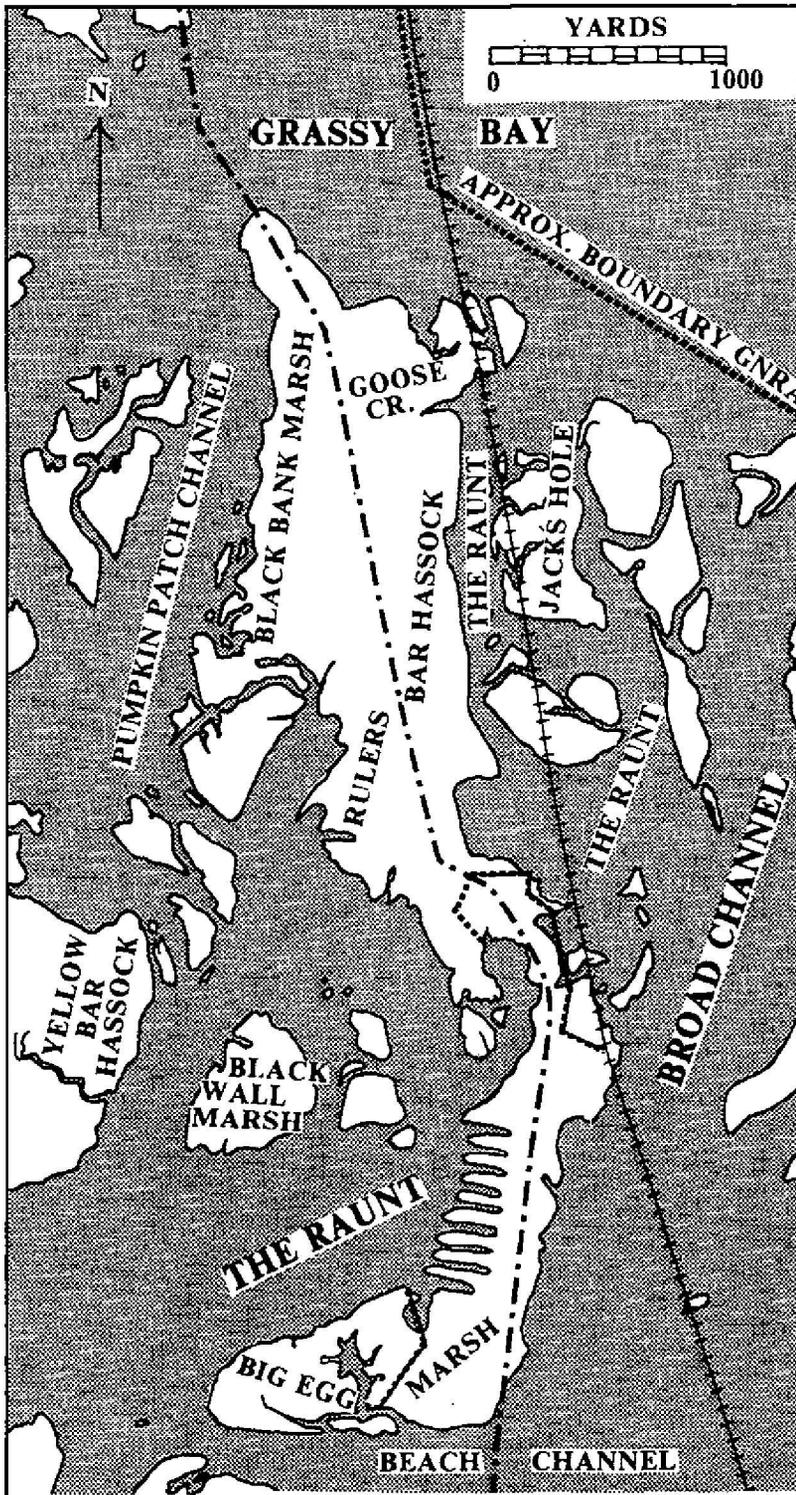
SOURCE: USC & GS, Chart 542, 1911

Figure 17 Central Islands, 1926



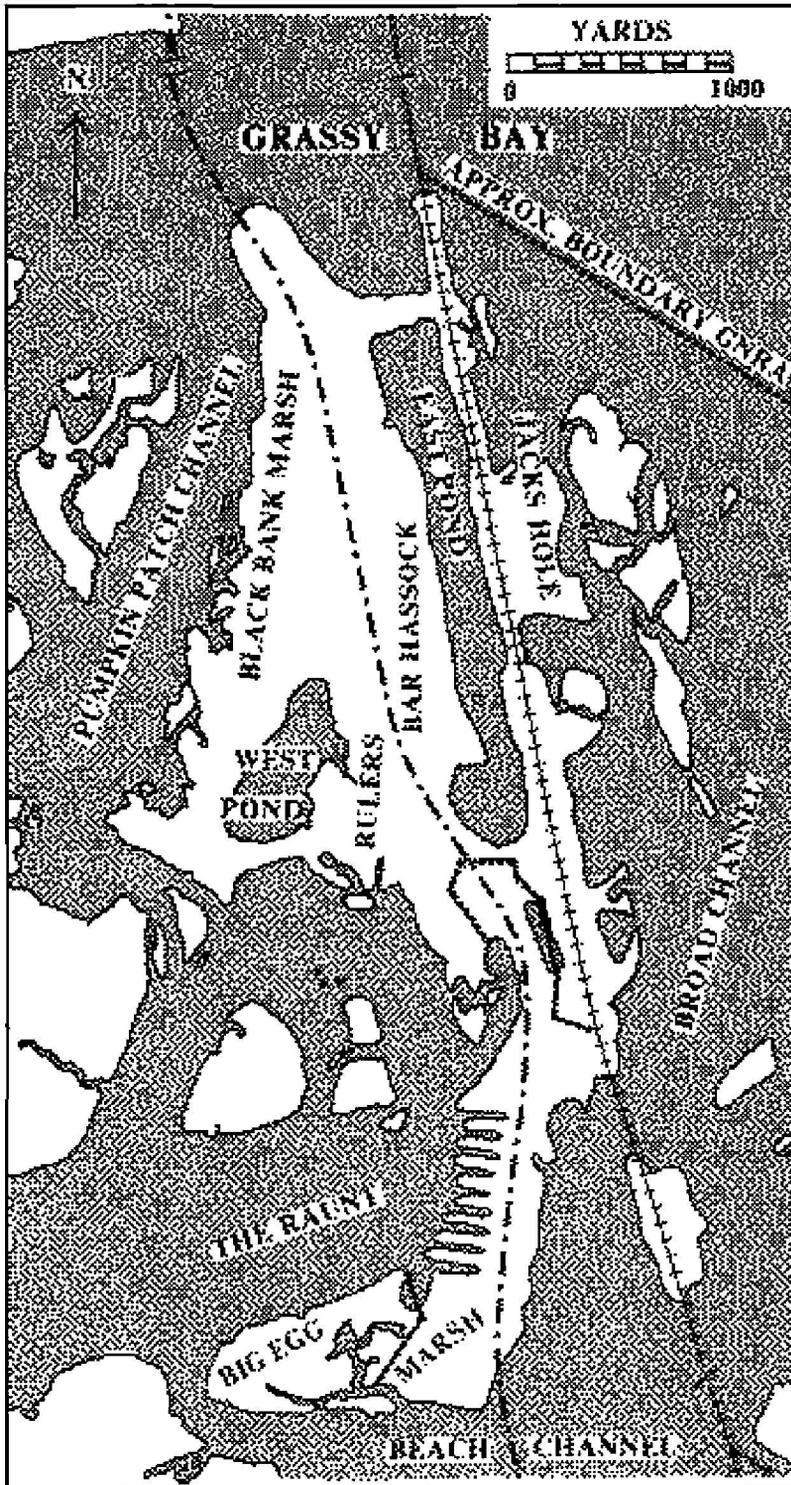
SOURCE: USC & GS, Chart 542, 1926

Figure 18 Central Islands, 1940



SOURCE: USC & GS, Chart 542, 1940

Figure 19 Central Islands, 1977



SOURCE: NOAA 12350, 1977

CONCLUSIONS AND RECOMMENDATIONS

The history of any geographic area of the United States, especially one located in one of the thirteen colonies, will to a greater or lesser degree reflect the history of America as a whole. A view of Jamaica Bay's past affords a panorama of three hundred and fifty years of the American experience. During that time, successive generations perceived the bay, its marshlands and shoreline in different and conflicting ways.

From the very beginning of European settlement near Jamaica Bay in the 1630s, the area has reflected the image of the United States as a nation of nations. The Dutch founders shared the bay with the indigenous Canarsie Indians and with the English who arrived somewhat later. During the first two centuries, agriculture conditioned perceptions of the bay, its borders valued as a source of salt hay for livestock. Secondly, the bay's fin and shellfish provided food for human consumption. Probably the relationship between the bay and early Americans was the most satisfying. Doubtless this resulted from the agriculturists' limited expectations and restricted technology. Dutch and English farmers wanted little from and did little to the bay.

At some time prior to the Civil War, Jamaica Bay became important to men who abandoned or never followed the life of farmers, but who turned to commercial exploitation of the abundant shellfish. That industry came into its prime in the second half of the nineteenth century. Involved in the bay's continuation as a fishery was the use of seed oysters and hard clams. This marked the first perception of the bay as inadequate in its natural state and led to artificial endeavors to make it more serviceable. Still, even with the preparation of oyster beds and increased use of dredges in harvesting, shellfishing did not greatly alter the bay. What remains conspicuous about the oyster and clam industry is its relative brief existence. Termination of commercial fishing resulted from other uses of the bay.

With the development of Rockaway peninsula as a place popular among the urban population for a day's outing at the seashore, Jamaica Bay was perceived as a transportation problem, as an obstruction between the inviting ocean beach and the city throng: This created something of an adversary relationship. That relationship included minor tinkering with the bay by the Canarsie Railroad to keep a channel open for the line's small ferries. More substantial changes, still hardly matching later alterations, came with the construction of the trestle for the New York, Woodhaven and Rockaway Railroad. If the bay was an obstruction to the railroad, the railroad became an obstruction in the bay, at least according to oyster boat captains and others seeing the bay in a different light. That ice and shipworm ravaged the trestle pilings led to the earliest filling of the bay's marshes. The Flynn cross-bay trolley, bicycle and carriage roadway occasioned more filling, so much so as to eliminate some of the creeks and waterways and to produce further protests by baymen.

The Canarsie Line and the trestle encouraged another, subordinate perception, that is the bay itself as a recreational site and a place to enjoy. Canarsie developed as a small resort, and a number of fishing stations sprang up along the trestle from Hawtree Creek to Beach Channel. That on a summer Sunday a thousand fishermen could be found in boats and numerous other anglers fishing from the trestle suggests that the bay might have been overfished. However, the mounting pollution more significantly contributed to the decline of sport fishing and to the deterioration of Canarsie Landing as a pleasure spot. Another manifestation of the bay as a recreation site was the hundreds of fishing shacks, club houses, bathhouses, bungalows and cottages that dotted streams flowing into the bay from flatlands Bay to Hawtree Creek and that appeared on several of the marshes in the bay's center.

The pollution caused from sewage indicates the perception of Jamaica Bay as a place to dispose of the unwanted. That use is evident in the appearance at Barren Island of fertilizer and fish oil industries. Fertilizer factories were found on the mainland, but only at Jamaica Bay was there a concentration of such plants. No denial can be registered against the necessity to rid heavily populated areas of dead horses and other animals, but the point remains that it was to the bay that the carcasses were sent. The accessibility of Barren Island to ocean traffic in part explains the presence of both fertilizer and fish oil

plants. These industries, however, gave off obnoxious odors, and their location at Jamaica Bay suggests that the bay was held in low esteem. The ethnic composition of the Barren Island factories reinforces the image of the bay as appropriate for society's least desirable elements, black Americans and first generation immigrants. The twentieth century continued to regard the bay as a site for dumping of refuse from the city and sewage from the communities adjacent to the bay.

Of course the perception of the bay as a dump site conflicted with its view as a fishing ground and pleasure spot. Another expectation that seemed to write off the bay as a fishery and recreational area came in the early twentieth century. Shortly after Jamaica Bay became part of Greater New York, an image arose of the bay as an international port and as a commercial and industrial center. That image gained sufficient political backing to secure funds. Those funds were needed since the shallow waters and the absence of uplands bordering on the bay required substantial changes in topography. If the bay in its natural state offered a poor setting for modern commercial and industrial activity, that state could be altered. Alterations were initiated in the form of dredging of channels, the creation of Floyd Bennett field, and the development of Mill Basin. Perhaps the real dynamic behind this perception of the bay never involved an actual port and industrial complex, but was merely a pork barrel proceeding, combined with efforts of real estate speculators. Had shipping and manufacturing interests strenuously supported the project, it might have been less of a failure.

One who appreciated the failure of that image and offered an alternative in 1930 was Robert Moses. Yet the realization of Moses' perception of the bay as a park eluded his powerful grasp in the years following, except for the construction of the Shore Parkway and the development of a wildlife refuge north of Broad Channel. However, the idea of the bay as a park endured and constitutes the current guiding image.

Seventeenth-century settlement and communities, Indian-white relations, early American agriculture, ethnic variety, urbanization, industrialization, business enterprise, America at play these and other elements in Jamaica Bay's past form a national historic panorama. If that panorama seems blurred, it is because the National Park Service apparently is the first to endeavor to explore the bay as a historical unit. However, even the separate entities composing the bay area have been largely ignored as matters of serious historical inquiry. Certainly only a minority of communities in America have been the subjects of competent local histories. But that Flatlands, Gravesend and Jamaica have been neglected constitutes a problem in understanding the history of the bay. Should the opportunity arise, encouragement should be given to historians and Ph.D. candidates in American history to study the communities in the vicinity of the bay.

As to further specific work that can be undertaken, there are several aspects of the uses of the bay's waters that could profitably be investigated. The rapid rise and decline of the shellfishing industry is a topic of some importance. This study makes use of several reports produced by agencies of the state of New York. Additional reports and further information are probably available in the State Museum and Library in Albany. Census reports provide information about fishermen, so that a history of shellfishing in Jamaica Bay could be produced which would include technical, economic and social aspects.

Vessel traffic in Jamaica Bay merits a closer look. It is the intention of this report that contrary to the repeated suggestion by local historians, no colonial trade by ship prevailed between Jamaica Bay and Manhattan and other ports. The conclusion that such a trade existed is undocumented. However, there is no easy way to decide the issue one way or the other. At least the matter should be kept in mind, and same subsequent investigator might stumble upon further evidence.

Respecting vessel activity in the bay after the Civil War, a listing of boats could be assembled. Documents used during the preparation of this report provide the names of seventy vessels that at one time or another were to be found in Jamaica Bay, not counting the flotilla of the World War I Emergency Fleet Corporation. An authoritative listing of American merchant vessels, including larger fishing boats, is found in **Merchant Vessels of the United States**, published annually since 1867. Vessels are identified by name, size, where and when built, home port, and owner. The current volume designates the port of all vessels in the metropolitan area as simply New York. However, prior to the consolidation of New York at the end of the nineteenth century, the independent towns were named.

Barren Island's fertilizer and fish factories form an unusual part of Jamaica Bay's past. There are gaps in the mere narrative of the rise and fall of the island's industry, and it is not yet clear when the various companies had facilities on the island, where they were located, or, in several instances, what it was they manufactured. Information about these matters may be buried somewhere in the Flatlands town records, in collections of nineteenth-century Kings County deeds and conveyances, or in the **Proceedings of Jamaica Bay**. In addition there remain the intriguing social aspects of the islands labor force, where and how it was recruited, the wage scales used, and particulars about housing and conditions.

FOOTNOTES

Chapter I. Jamaica Bay, 1600-1865

1. Reginald Pelham Bolton, Indian Life Long Ago in the City of New York (Port Washington, N.Y.: Ira J. Friedman, 1971; originally published 1934), 144-51.
2. Carlyle Shreeve Smith, The Archaeology of Coastal New York (vol. 45, part 2, Anthropological Papers of the Museum of Natural History (New York: American Museum of Natural History, 1950); Lynn Ceci, "The Effect of European Contact and Trade on the Settlement Patterns of Indians in Coastal New York, 1524-1665: The Archaeological and Documentary Evidence," diss. City University of New York, 1977.
3. Julius Lopez and Stanley Wisniewski, "The Ryders Pond Site, Kings County, New York," The Coastal Archaeological Reader: Selections from the New York State Archaeological Bulletin, 1954-1977: Readings in Long Island Archaeology and Ethnic History, vol. II (Stony Brook, N.Y.: Suffolk County Archeological Association, 1978), 206-27, 233-47.
4. William A. Ritchie, The Archaeology of New York State (Garden City, N.Y.: The Natural History Press, 1965), 269-71; Smith, 101, 158.
5. William A. Ritchie and Robert F. Funk, Aboriginal Settlement Patterns in the Northeast (Memor 20, New York State Museum and Science Service; Albany: University of the State of New York, 1973), 178; Ritchie, 270; Ceci, 1-3, 191.
6. Allen W. Trelease, Indian Affairs in Colonial New York (Port Washington, N.Y.: Ira J. Friedman, 1977; originally published 1960), 7-9.
7. F. M. Ruttenber, History of the Indian Tribes of Hudson's River (Port Washington, N.Y.: Ira J. Friedman, 1971; originally published 1872), 73; William Wallace Tooker, The Indian Place-Names of Long Island and Islands Adjacent (Port Washington, N.Y.: Ira J. Friedman, 1962; originally published 1911), 31-33; John O'Halloran, "Canarsie Indian Sites," Long Island Forum, vol. XIII, number 4 (April 1950), 63-64, 66, 75; Arthur C. Parker, The Archeological History of New York (Albany: University of the State of New York, 1920), 582; Bolton, 148.
8. Bolton, 146; O'Halloran, 63; Frederick Van Wyck, Keshachague or the First White Settlement on Long Island (New York: G. P. Putnams Sons 1924) 108.
9. Lopez and Wisniewski, 209; Bolton, 146; Indian Deed, May 13, 1664, to John Tilton and Samuel Spicer, in Abstract of the Title of the Southern part of Barren Island. . . . (unpublished typescript, no date), Long Island Room, Queensborough Public Library (hereafter cited as QPL).
10. Smith, 170-71; Bolton, 151.
11. Indian Deed for Land on Long Island, Called Sewanhacky (for the middle "flat"); Indian Deed for Land on Long Island (western "flat"); Indian Deed for Land on Long Island (eastern "flat"), in Edmund B. O'Callaghan (ed.), Documents Relating to the Colonial History of the State of New York (15 vols., Albany: Weed, Parsons and Company, 1856-87), vol. XIV, 2-4
12. Indian Deed, April 23, 1665, quoted in Anson DuBois, "History of the Town of Flatlands," in Henry R. Stiles (ed.), The Civil, Political, Professional and Ecclesiastical History and Commercial and Industrial Record of the County of Kings and City of Brooklyn, N. Y. from 1683 to 1884 (3 vols., New York: W. W. Munsell & Co., 1884), vol. I, 71.

13. Ceci, 36-44,
14. Jaspar Dankers and Peter Sluyter, Journal of a Voyage to New York and a Tour in Several American Colonies in 1679-80. Translated and edited by Henry C. Murphy. (Brooklyn: Long Island Historical Society, 1867; reprinted by University Microfilms, Ann Arbor, 1966), 124-26.
15. David P. DeVries, Voyages from Holland to America, A.D. 1632 to 1644, in Cornell Jaray (ed.), Historic Chronicles of New Amsterdam, Colonial New York and Early Long Island. First Series (Port Washington, N.Y.; Ira J. Friedman, no date), 117-19; Ruttenber, 73.
16. Ritchie, 270; Ceci, 230, 242.
17. Ceci, 36-44; Bolton, 149; Trelease, 44.
18. Daniel Denton, A Brief Description of New York, Formerly Called the New Netherlands, in Cornell Jaray (ed.), Historic Chronicles of New Amsterdam, Colonial New York and Early Long Island. Second Series (Port Washington N. Y.: Ira J. Friedman, no date; originally published 1670), 7.
19. Dubois, 65; Van Wyck, xiii.
20. Confirmation of Governor Dongan, March 11, 1685, in Abstract of Title. . . of Barren Island. . .
21. R. G. Strong, "History of the Town of Flatbush," in Stiles, vol. 1, 216-17; Alter F. Landesman, A History of New Lots, Brooklyn to 1887 Including, the Villages of East New York, Cyprus Hills, and Brownsville (Port Washington, N.Y.: Kennikat Press, 1977), 14-15.
22. Map of the Town of Flatbush, November 10, 1797, by Jeremiah Lott, in Landesman, 42; Map of New Lots, in F. W. Beers, Atlas of Long Island (New York: F. W. Beers, 1873).
23. Dankers, 130-31.
24. Census of Kings County about 1698, in E. B. O'Callaghan (ed.), The Documentary History of the State of New York. (4 vols., Albany: Weed, Parsons & Co., 1850), vol. III, 88.
25. Dubois, p. 71.
26. Bureau of the Census, A Century of Population Growth: From the First Census of the United States to the Twelfth, 1790-1900 (Washington, D. C.: Government Printing Office, 1909), 194-95.
27. A List of Inhabitants, October 1, 1796, as reprinted in Dubois, 69-70.
28. M. Dripps, Map of Kings County and Part of Queens County, Long Island, New York. (n.d., 1852-3), in QPL.
29. Will of Wilhelmus Stoothoff, February 1, 1781, in William S. Pelletreau (compiler), Abstracts of Wills on File in the Surrogate's Office, City of New York, 1665-1801, in Collections of the New York Historical Society (17 vols., New York: New York Historical Society, 1893-1909), vol. XII, 44-45; Will of Elbert Elbertse, December 18, 1686, in Abstract of Title . . . Barren Island.
30. Will of Wilhelmus Stoothoff, February 1, 1787.
31. Dripps, 1852; Federal Census, 1850, New York, Kings County (Part), Flatlands, on microfilm, M-432, Roll 521.

32. Harold Donaldson Eberlein, Manor Houses and Historic Homes of Long Island and Staten Island (Port Washington, N.Y.: Ira J. Friedman, Inc., 1956; originally published in 1928), 198.

33. Long Island Press, May 10, 1970, in Clipping File ("Bergen Beach"), QPL.

34. George Dudley Seymour, Documentary Life of Nathan Hale (New Haven: privately published, 1941), pp. 437, 452.

35. Article from unknown newspaper, October 16, 1905, in Clipping File, Jamaica Bay Unit, Gateway National Recreation Area (hereafter cited as JBU).

36. Teunis G. Bergen, Register in Alphabetical Order of the Early Settlers of Kings County, Long Island, N. Y. From Its First Settlement by Europeans to 1790 (New York: S. W. Green, 1881), 250. A typographical error in Bergen's text results in the date erroneously reading "1657."

37. Amesfort Rate Lists for 1676 and 1683, in Documentary History. . . New York, vol. 11, 283-286, 288-89.

38. Will of John Martense Schenck, January 28, 1689, in Abstract of Wills, vol. 11, 239.'

39. List of Inhabitants of Flatlands, 1796, in Dubois, 69.

40. Deed from Indians to Samuel Spicer and John Tilton, Senior, May 13, 1664, in Abstract of Title . . . of Barren Island. . . ; Dankers, 119.

41. Van Wyck, 207-8.

42. Van Wyck, 711.

43. Van Wyck, 207-8.

44. Dubois, 78; Map, Dripps, 1852-3.

45. Federal Census 1850, Flatlands.

46. L. B. Brockett, "The Manufacturing Interests of Kings County," in Stiles, II, 756-57.

47. Abstract of Title . . . of Barren Island. . .

48. Strong, "History of the Town of Flatbush," 215-16.

49. Landesman, 92.

50. Petition of Robert Jackson, Daniel Denton and Others of Hempstead, March 10, 1656, in Documents Relating . . . New York, vol. XIV, 339-40.

51. History of Queens County, New York, with Illustrations, Portraits, and Sketches of Prominent Families and Individuals (New York: W. W. Munsell & Co., 1882), 196; Leland Fiedler (copier), Records of the Town of Jamaica 1749-1897 (4 volume typescript; WPA, 1939), vol. IV, 59-62, 93-95. The WPA volumes are in QPL and are a continuation of the publication of the earlier records, Josephine Frost (ed.), Records of the Town of Jamaica, Long Island, 1658-1751 (3 vols., Brooklyn: Long Island Historical Society, 1914).

52. Map of the Borough of Queens, City of New York, Office of the President, Topographical Bureau, Showing Ownership as of the Year 1800, dated August 19, 1935 (QPL); Map, Dripps, 1852-3.

53. History of Queens, 201; Map, Dripps, 1852-3.
54. Cornelis Van Tienhoven, "Information Relative to Taking up Land in New Netherlands . . . , 1650," in Documentary History . . . New York, vol. IV, 31; Dankers, 130, 133.
55. Amesfort Rate Lists for 1675, 1676, 1683, in Documentary History . . . New York, vol. IV, 100-2; vol. II, 283-86, 288-89; Census of Kings County about 1698, in Documentary History . . . New York, vol. III, 87-88.
56. As quoted in Landesman, 79.
57. Thomas M. Strong, The History of Flatbush in Kings County, Long Island (New York: Thomas R. Merceen, Jr., 1842), p. 17.
58. Landesman, 79.
59. Dankers, 131; Amesfort Rate Lists for 1675, 1676, 1683; Midwout Rate List for 1676, in Documentary History . . . New York, vol. IV, 100-2; vol. II, 269-72, 283-86, 288-89, 293-94.
60. Dankers, 130-31; Van Wyck, 711; Landesman, 79.
61. See Table No. 1.
62. Van Tienhoven, "Information Relative to Taking up Land in New Netherlands . . . , 1650."
63. Nicasius de Sille, "Description of the Founding or the Beginning of New Utrecht, for the Information of Our Successors . . . 1657, 1658, 1659, 1660, in Documentary History . . . New York, vol. I, 413-25.
64. As quoted in History of Queens, 199.
65. Records of . . . Jamaica, vol. IV, 8.
66. As quoted in History of Queens, 199.
67. The Mercury article is reprinted in History of Queens, 199.
68. Abstract of Wills, vol. VII, 257-59; vol. IX, 19, 104-5.
69. As quoted in Landesman, 87.
70. Dankers, .131.
71. Federal Census 1850, Flatlands.
72. Eberlein, 247; Rosalie Fellows Bailey, Pre-Revolutionary Dutch Houses and Families in Northern New Jersey and Southern New York (New York: William Morrow and Company, 1936), 66-67; Charles J. Werner, Historical Miscellanies Relating to Long Island (Huntington, N.Y.: Privately published, 1917), 12.
73. "Answers of Gov. Andross to Enquiries About New York, 1678"; Governor Dongan, "To the Committee of Trade on the Province of New York," 22 February 1687; William Tryon, "Report of His Excellency William Tryon . . . 11 June 1774," all in Documentary History . . . New York, vol. 1, 60-62, 102, 509-10.
74. Dankers, 120-33, 333-36.

75. Claude Sauthier, "A Chronological Map of the Province of New York . . . 1779," in Documentary History . . . New York, vol. 1, 526; George Taylor and Andrew Skinner, "Map of New York and Staten Island and Part of Long Island . . . 1781," in Van Wyck, 120; Dripps, 1852.

76. "Inventory of the Effects and Goods at Achtervelt belonging to Andries Hudde and Wolfert Gerritsen," in Documents Relating . . . New York, vol. XIV, 10.

77. Brockett, 756-57; DuBois, 78.

78. As quoted in Landesman, 78.

79. Jeanette Edwards Rattray, Perils of the Port of New York: Maritime Disasters from Sandy Hook to Execution Rocks (New York: Dodd, Mead & Company, 1973) p. 242; Alfred H. Bellot, History of the Rockaways from the Year 1685 1917 (Far Rockaway, N. Y.: Bellot's Histories, Inc., 1917), 30.

80. The Courant article is reprinted in History of Queens, 197-98.

Chapter II. Jamaica Bay After 1865: Islands, Landings, and Mainland

1. Brooklyn Daily Eagle, August 6, 1905, Clipping File ("Fishing Industry," Folder No. 2), QPL; Dubois, 78-79; Clarence Ashton Woods, "Try Pots and Fish Factories," in Long Island Forum (February 1946), 23-24, 37; (March 1946), 49, 52-53.

2. Flatlands Town Records, Assessment Rolls, 1849-1872, 62.

3. DuBois, 78.

4. Flatlands Town Records, Assessment Rolls, 1849-1872, 270.

5. Federal Census 1870, Flatlands, M-593, Roll 963.

6. Flatlands Town Records, Assessment Rolls, 1849-1872, 270.

7. Flatlands Town Records, Assessment Rolls, 1873-1879, 100-101, 172, 251, 350-51.

8. Federal Census 1880, Flatlands, T-9, Roll 917.

9. Flatlands Town Records, Assessment Roll, 1880, 46.

10. Dubois, 79.

11. Flatlands Town Records, Assessment Roll, 1880, 46, 110-11; Assessment Roll 1881, 55-56, 122-23; Assessment Roll, 1884, 75, 136, 140; Assessment Roll, 1886, 30-32; Assessment, 1887, 30-32; Assessment Roll, 1888, 36-37; Assessment Roll, 1889, 34; Assessment Roll, 1890, 36; Assessment Roll, 1894, 32; Assessment Roll, 1895, 34, 37.

12. Woods, "Try Pots and Fish Factories"; "Landed Catches of Principal Species by Region, 1876 to 1970, Middle Atlantic States," in Bureau of Census, Historical Statistics of the United States: Colonial Times to 1970 (Washington, D. C.: Government Printing Office, 1975), 556-57.

13. Department of Docks and Ferries, New York City, Thirty-Ninth Annual Report of the Department of Docks and Ferries for the Year Ending December 31, 1910. (New York: n.p., 1911), 152,

334, 339, 344, 380, 477; 493, 676, 764. The docks department published an annual accounting of its activities. In years before 1910, frequently two reports were issued, the Annual Report and another volume entitled Minutes, Transactions, or Proceedings. Starting in 1910, only the Annual Report was published. In subsequent citation of these documents, a shorter form has been used.

14. Brooklyn Daily Eagle, November 10, 1921, Clipping File, JBU.
15. Article, unknown newspaper, December 7, 1904, Clipping File ("Barren Island"), QPL.
16. See Table No. 5, 70; Department of Docks, Annual Report, 1906, 145 46, 155.
17. Rattray, 262.
18. Charles B. Law, Speech of Hon. Charles B. Law of New York in the House of Representatives, June 29, 1906 (Washington, D. C.: 1906), 7.
19. Map, Dripps, 1852; U.S. Coast Survey, Chart 540, "Rockaway Inlet and Western Park of Jamaica Bay," 1878; U.S. Geological Survey, Brooklyn Quad, 1900; U.S. Coast and Geodetic Survey (USC&GS), Chart 542, "Jamaica Bay and Rockaway Inlet," 1911; 1926; 1940.
20. DuBois, 78; Brooklyn Daily Eagle, April 29, 1907, Clipping File ("Barren Island"), QPL.
21. Brooklyn Daily Eagle, December 3, 1905; December 12, 1905; April 29, 1907, all in Clipping File ("Barren Island"), QPL; Article, Unknown newspaper, December ?, 1905, Clipping File, JBU.
22. Brooklyn Daily Eagle, December 12, 1905; April 29, 1907; USC&GS, Chart-No. 542, 1911; Department of Docks, Annual Report, 1910, 334, 477, 676.
23. "Around the Peconics," Harpers New Monthly Magazine (October 1878), excerpts in John Beard (ed.), Blue Water Views of Old New York; Including Long Island and the Jersey Shore (Barre, Mass.: Scrimshaw Press, 1970), 83; Dubois, 78.
24. Article, unknown newspaper, April 28, 1899, Clipping File, JBU; Brooklyn Daily Eagle, May 8, 1899; May 26, 1899, Clipping File ("Barren Island"), QPL; Brooklyn Daily Eagle, January 16, 1919, Clipping File, JBU.
25. Brooklyn Daily Eagle, October 26, 1918; January 12, 1919; February 14, 1919; October 26, 1919, in Clipping File, JBU.
26. World Telegram, September 17, 1935, Clipping File, JBU.
27. New York State Census, 1855, "Flatlands," in Office of County Clerk, Kings County Supreme Court; Federal Census, 1870, Flatlands.
28. Federal Census, 1870, Flatlands.
29. New York State Census, 1892, "Flatlands," in Office of County Clerk, Kings County Supreme Court. The manuscript returns for the 1890 federal census for Kings and Queens Counties were destroyed by fire.
30. Federal Census 1900, Flatlands, T-623, Roll 1069.
31. Brooklyn Daily Eagle, November 3, 1912, Clipping File ("Barren Island"), QPL; Article, unknown newspaper, December ??, 1904, Clipping File ("Barren Island"), QPL.

32. New York Sunday News, March 3, 1957; Article, unknown newspaper, February 19, 1939; Article, unknown newspaper, 1936; New York Times, January 18, 1942; Brooklyn Daily Eagle, March 13, 1936; New York Daily News, November 7, 1940, all in Clipping File ("Barren Island"), QPL.

33. E. Robinson, E. Robinson's Atlas of Kings County, New York (New York: E. Robinson, 1890), plate 31.

34. Bailey, 68; Law, 9.

35. Department of Docks, Annual Report, 1912, 3; Annual Report, 1915, 10, 158.

36. Article, unknown newspaper, February 16, 1919, Pamphlet File ("Jamaica Bay"), Brooklyn Collection, Brooklyn Public Library.

37. Other firms renting space at Mill Basin-Flatbush Avenue were N. Ryan Company, Wholesale and Retail Sand, Gravel, and Broken Stone; J. P. Duffy Building Materials; Burns Brothers, apparently a shipping company with a main office in Manhattan; Mahoney and Busch; and J. J. Kehoe. They are listed in the rent rolls of the various annual reports of the Department of Docks. The nature of the business activity of some of them has been identified through city directories, such as The Brooklyn City Directory, vol. (1913) (Brooklyn: Brooklyn Directory Co., 1913) and Polk's Brooklyn (NY) City Directory 1933-4 (vol. 90, Brooklyn: R. L. Polk & Co., 1933).

38. Bailey, 77.

39. Trow Business Directory of Greater New York ..(Five Boroughs Combined) 1905 (vol. VIII, New York: Trow Directory, Printing and Bookbinding Co., 1905), 34, 39, 381-82; Trow Business Directory of Greater New York (five Boroughs Combined) 1912 (vol. XV, New York: Trow Directory, Printing and Bookbinding Co., 1912), 27, 28, 273.

40. See various annual reports of the Department of Docks. Holders of ferry franchises were to pay to the Department of Docks five percent of gross receipts. For 1906, one Bergen Beach ferry operator paid \$25.00 to the department, indicative of only \$500.00 in gross receipts. In 1911, two companies made no payments. Department of Docks, Annual Report, 1906, 156; Annual Report, 1911, 197-98. USC&GS, Chart 542, 1926.

41. Department of Docks, Annual Report, 1930, 62-66.

42. Department of Docks, Annual Report, 1909, 176; Annual Report, 1913, 154; Annual Reports, 1917, 67.

43. USC&GS, Chart 542, 1926, 1940.

44. The best authority on the Canarsie Line and its impact on the landing is William W. Fausser, "The Brooklyn and Rockaway Beach Railroad: The Canarsie Railroad" (typescript with no pagination, 1976, QPL); George T. Lain, Lain's Directory of Long Island Including a Business Directory of Brooklyn, Long Island City, and the Towns of Kings County . . . for 1878-79 New York Lain and Co., 1878).

45. Fausser.

46. Fausser.

47. Fausser; George T. Lain, Lain's Elite Directory of Brooklyn (New York: Lain and Co., 1888), 344.

48. Federal Census 1850 Flatlands; Federal Census 1880 Flatlands; Law, 7.

49. Lain's Directory . . . 1878-79; George T. Lain, Lain's Business Directory of Brooklyn, Kings County, Long Island City, Jamaica for 1889-90 (New York: Lain and Co., 1889), 352-54; John M. Kochiss, Oystering from New York to Boston (Middletown, Conn.: Wesleyan University Press, 1974), 215.

50. Fausser. Department of Docks, Annual Report, 1906, 155-56. In the picture file, JBU, are photographs of Canarsie in the early twentieth century, including Max Casey's several establishments, fishing boats, and Boegel's Oriental Bar and Dance Hall.

51. Fausser; U.S. Coast Survey, Chart 540, 1878.

52. USC&GS, Chart 542, 1911, 1926.

53. Department of Docks, Annual Report, 1925, 60-62,

54. Department of Docks, Annual Report, 1928, 57; Annual Report, 1929, 69; Annual Report, 1936, 105; Leonard Levine, "Canarsie," (unpublished typescript, 1972, Long Island Historical Society.

55. As quoted in Levine,

56. Landesman, 99, 217.

57. New York State Census 1855, "New Lots," in office of County Clerk Kings County Supreme Court; Curtin's Directory of Long Island . . . 1868-69 (Brooklyn: Curtin Directory Co., 1868).¹

58. Beers, Atlas of Long Island; William C. Dripps, Atlas of the Townships of New Utrecht, Gravesend, Flatbush, Flatlands and New Lots, Kings County, New York (New York: W.C. Dripps, 1878); J. B. Beers, "New Map of Kings and Queens Counties," (New York: J. B. Beers & Co., 1886); Robinson, Atlas of Kings County, plate 32; "Guide Map of the Borough of Brooklyn, Kings County, New York Compiled from the Latest Official Maps and Other Sources" (Brooklyn: Eagle Almanac, 1898).

59. Vincent F. Seyfried, The Long Island Rail Road: A Comprehensive History (six parts, Garden City, N. Y.: V. F. Seyfried, 1961-1975) part V, 98-105. Only one map has been found showing the route of the "proposed" road; "Map of Jamaica Bay," (Jamaica Bay Improvement Commission, 1907).

60. USC&GS, Chart 542, 1911, 1926, 1940.

61. Department of Docks, Annual Report, 1906, 930; Annual Report, 1936, 117, 204.

62. Department of City Planning, From Landfill to Park: An Experiment in Construction Waste Management at the Pennsylvania Avenue Landfill Site (New York: Department of City Planning, 1974). 5-11.

63. New York Herald Tribune, December 6, 1964, Clipping File ("Howard Beach: General Miscellaneous"), QPL.

64. Department of Docks, Annual Report, 1899, 198; Annual Report, 1902, 287; Seyfried, part V, p. 124.

65. E. Belcher Hyde, Atlas of Borough of Queens (New York: Hyde & Co., 1907). Department of Docks, Annual Report, 1923 & 1924, 70-72; 146-48; Annual Report, 1926, 69; Seyfried, part VI, 169-70.

66. Long Island Railroad, Long Island: Sunrise Homeland (1923), in Clipping File ("Hamilton Beach: General, Miscellaneous"), QPL; New York Daily News, March 8, 1979, in Clipping File ("Hamilton Beach: General, Miscellaneous"), QPL; Department of Docks, Annual Report, 1923 & 1924, 146-48; Annual Report, 1929, 69-80. USC&GS, Chart 542, 1926, 1933, 1977.

67. Long Island Press, July 10, 1973, Clipping File ("Hamilton Beach: General, Miscellaneous"), QPL.

68. New York Herald Tribune, December 6, 1964.

69. Records of the Town of Jamaica, vol. V, 288-94, 429-30; Seyfried, part V, 7-10.

70. Records of the Town of Jamaica, vol. VI, 494-95, 487; vol. VII, 284; Seyfried, part V, 106-7.

71. Seyfried, part V, 109-11.

72. Department of Docks, Annual Report, 1905, 135, 257; Annual Report, 1907, 241; Annual Report, 1912, 209; Annual Report, 1916, 106.

73. Department of Docks, Annual Report, 1914, 92, 94; Annual Report, 1918, 76; Annual Report, 1919, 106.

74. Seyfried, part VI, 170; Department of Docks, Annual Report, 1914, 93-123; Annual Report, 1915, 94; Annual Report, 1919, 106; USC&GS, Chart 542, 1926, 1933, 1940.

75. Two other channels were also called the Raunt. One was off the east edge of the northern end of Rulers Bar Hassock; the second ran southeast of Ruffle Bar. USC&GS, Chart 542, 1911.

76. Seyfried, part VI, 170; Department of Docks 1913, 100; USC&GS, Chart 542, 1911, 1926, 1940.

77. Seyfried, part VI, 170-71; US Geological Survey, Brooklyn Quad, 1900; Department of Docks, Annual Report, 1914, 92-123. The Wave of Long Island, July 24, 1909, Clipping File ("Broad Channel"), QPL.

78. USC&GS, Chart 542, 1926, 1940; Rockaway Review, June 1946, Clipping File ("Broad Channel"), QPL.

79. Seyfried, part VI, 171.

80. Leases for some of these sites were issued by the Department of Docks. For example, see Annual Report, 1909, 126-52. At others, structures are indicated on maps. US Coast and Geodetic Survey, Chart 542, 1926, 1933, 1940.

81. Fausser; Flatlands Town Records, Oyster Board License Board Minutes, 1891-1894, 48-59.

82. Department of Docks, Annual Report, 1914, p. 92; Annual Report, 1917, 55; USC&GS, Chart 542, 1926, 1940. Picture File, JBU.

Chapter III. Jamaica Bay After 1865: Fishing, Transportation, Topographical Change

1. New York Daily News, April 1, 1956, Clipping File ("Fishing"), QPL.

2. One authority suggests that Jamaica Bay may never have had beds of natural oysters. However, abundant references in seventeenth and eighteenth century documents refute that conclusion. Kochiss, 29-30.

3. Report of the Commissioner of Fisheries of the State of New York in Charge of the Oyster Investigation (Assembly Document No. 85, February 26, 1885), 29-30. Flatlands Town Records, Oyster Board License Board Minutes, 1891-1894.
4. Records of the Town of Jamaica, vol. VI, 40 348, 438, 442; vol. VII, 204-5, 207.
5. Flatlands Town Records, Oyster Board License Board Minutes, 1891-1894 , 2-4, 29-30, 33, 35-36; Commissioner of Fisheries (1885), 29.
6. Department of Docks, Annual Report, 1905, 186, 539-40, 766-68; B Frank Wood, New York State Shellfisheries Superintendent, "Shellfish Culture in New York State," in Annual Reports of the Forest, Fish and Game Commissioners of the State of New York for 1904-1905-1906 (Albany: J. B. Lyon Company, 1907), 119.
7. Wood, 115, 127, 131-33; Jenny L. Hopkins, "An Oyster Village," Cosmopolitan, (October 1891), 720.
8. Wood, 131-33.
9. Wood, 118; Department of Docks, Annual Report, 1915, 539-40.
10. Hopkins, 720.
11. S. M. Ostrander, "Long Island Fisheries, Past and Present," Brooklyn Advance (August 1882), 238, in Clipping File ("Fishing"), QPL.
12. Wood, 131-33; Law, 7; New York City, Board of Estimate and Apportionment, Report on the Main Drainage and Sewage Disposal of the Area Tributary to Jamaica Bay (New York: Parsons, 1917), 14-15.
13. Report on the Main Drainage, 14-15; photograph of clam fishing boats in Picture File, JBU.
14. Commissioner of Fisheries(1885), 26-27.
15. "Landed Catches of Principal Species by Region 1876 to 1970, Middle Atlantic States," in Bureau of Census, Historical Statistics of the United States: Colonial Times to 1970 (Washington, D.C.: Government Printing Office, 1975), 556-57.
16. Report on the Main Drainage, 14-15; Long Island Daily Press, November 14, 1954, in Clipping File (Shellfish Industry"), QPL.
17. Fausser.
18. Department of Docks, Annual Report, 1906, 156. The years in which the various ferries operated have been traced in subsequent reports of the docks department and in the Brooklyn Daily Eagle Almanac for the years 1914 to 1928.
19. Department of Docks, Annual Report, 1915, 99; Annual Report, 1906, 156; Department of Docks, Transactions, 1906, 1001; Department of Docks, Transactions, 1905, 412.
20. Department of Docks, Annual Report, 1906, 156; Annual Report, 1914, 128; Annual Report, 1915, 98-99; Annual Report, 1909, 158-59.
21. Brooklyn Eagle Almanac 1927, 63.

22. Seyfried, part V, 5-6. When steamer service from New York to Jamaica Bay began is uncertain. Reference to a scheduled run is found in an 1875 publication: James Miller, New York as It Is or a Stranger's Guide-Book to the Cities of New York, Brooklyn and Adjacent Places (New York: James Miller, 1875), 103-4.

23. Seyfried, part V, 5-6; Law, 6; Long Island Press, September 1947, in Clipping File, JBU; Department of Docks, Minutes 1895, 438; Department of Docks, Annual Report, 1899, 252.

24. Law, 6.

25. Department of Docks, Annual Report, 1923-24, 70-72; Annual Report, 1932, 115.

26. Carl Degler, Between the Wars: America, 1919-1941 (2nd ed., Dallas: Houghton Mifflin, 1979), 25-26.

27. Henry A. Meyer, Looking Through Life's Window: Personal Reminiscences (New York: Coward-McCann, Inc., 1930), 208.

28. Seyfried, part V, 13; Law, 6.

29. Law, 6; Rattray, 275, 262,

30. Levine, 20.

31. Law, 6; Rattray, 266, 268.

32. Fausser.

33. Seyfried, part 111, 64-68.

34. Seyfried, part V, 7-8; Records of Town of Jamaica; vol. V, 288-89, 294.

35. Seyfried, part V, 8-18; Records of Town of Jamaica, vol. V, 404.

36. Department of Docks, Annual Report, 1931, 10; Annual Report, 1932, 8.

37. Robert A. Caro, The Power Broker: Robert Moses and the Fall of New York (New York: Vintage Books, 1974), 341-43; Robert Moses, The Future of Jamaica Bay (New York: Department of Parks, 1938), n.p.

38. Robert Moses, Statement with Reference to the Proposed Parkway Construction Program in the Metropolitan Area, (New York: Department of Parks, 1938); Robert Moses, Commissioners Report: Twenty Years of Progress, 1934-1954 (New York: Department of Parks, 1954), 15; Caro, 1156-57.

39. "Map of Jamaica Bay Showing New York Municipal Airport" (H. V. Penn, February 23, 1928); "Jamaica Bay Improvement Showing Bay Frontage Owned by City of New York in Relation to Mill Basin" (New York: Robert A. Weicke, 1927).

40. State of New York, Report of State Engineer and Surveyor J. A. Bensel on Surveys of Black River Canal Extension, Chemung Canal Reconstruction, Glen Falls Feeder Conversion, Flushing River and Jamaica Bay Canal Construction, and Newton Creek-Flushing Bay Construction, as Directed by Chapter 220, Laws of 1913. (Albany: J. B. Lyon Co., 1914); 9-10; State of New York, Supplemental Report of the Jamaica Bay-Peconic Canal Board Relating to the Construction of the Proposed Canal and the Effect Upon the Present Source of Water furnished to Residents of the Town of Hempstead and the Borough of Queens (Albany: J. B. Lyon, 1920).

41. In 1936, Mayor La Guardia predicted that docks would be built in Jamaica Bay to accommodate large ocean liners. After the outbreak of war in Europe, some hoped the federal government would develop the bay as a defense base. Brooklyn Daily Eagle, May 6, 1936, Clipping File, JBU; Griffith D. Bertholf, "Jamaica Bay as a Defense Base," in Rockaway Review (June 1940), in Clipping File ("Jamaica Bay"), QPL; Article, unknown newspaper, ? , 26, 1936, in Clipping File ("Barren Island"), QPL; Long Island Press, November 9, 1935, in Clipping File ("Jamaica Bay"), QPL.

42. Department of Docks, Annual Report, 1919, 23; Annual Report, 1921, 7.

43. Beers, Atlas of Long Island, 1873.

44. Fausser; USC&GS, Chart 542, 1911; "Jamaica Bay Map Showing Channel and Fishing Holes for Fishermen and Yachtsmen" (Brooklyn: Knowlson & Muller, ca. 1895 ; Long Island Press, September ? , 1947, in Clipping File, JBU.

45. Progress of dredging to 1915 is reviewed in Department of Docks, Annual Report, 1915, 10. See also Annual Report, 1923-24, 6; Annual Report, 1925, 76.

46. Department of Docks, Annual Report, 1915, 10.

47. Compare USC&GS Chart 542, 1911 and 1926.

48. Department of Docks, Annual Report, 1913, 7; Annual Report, 1923-24, 7; Annual Report, 1932, 8.

49. Department of Docks, Annual Report, 1905, 412-13; Bailey, 68.

50. Department of Docks, Annual Report, 1923-24, 7.

51. Baily, 77.

52. Fausser.

53. Department of Docks, Annual Report, 1923-24, 5; USC&GS, Chart 542, 1911.

54. Department of Docks, Annual Report, 1932, 8.

55. Seyfried, part V, 98-108.

56. Department of Docks, Annual Report, 1923-24, 5, 89; Annual Report, 1925, 72; Annual Report, 1932, 8.

57. Michael Harwood, "The 'Black Mayonnaise' at the Bottom of Jamaica Bay," New York Times Magazine, February 7, 1971, in Clipping File, JBU.

ANNOTATED BIBLIOGRAPHY

For less common items, the depository is named. Location abbreviations used are: Long Island Room, Queensborough Public Library (QPL); Map Division, New York Public Library (NYPL); Long Island Historical Society (LIHS); and New York City Municipal Archives (MA).

I. Published Historical Sources

Abstract of the Southern Part of Barren Island Belonging to the Heirs and Descendants of Hendrick I. Lott and Johannes H. Lott and Other Grantees," Clipping File ("Barren Island") (QPL). An anonymously prepared, undated typescript composed of copies of twenty deeds, wills and other documents pertaining to ownership of Barren Island. Title to that island and other parts of the lands and marshes of the southwest corner of Jamaica Bay was the issue in a series of legal suits and court cases in the early twentieth century, and this useful abstract may have been assembled in connection with those proceedings.

Abstracts of Wills on File in the Surrogate's Office, City of New York, 1665-1801 Compiled by William S. Pelletreau. 17 vols. In Collections of the New York Historical Society. New York: New York State Historical Society, 1893-1909. These are the Society's annual volumes for these years. They have been used primarily to determine the occupations of those living in the vicinity of the bay during the colonial period.

Dankers, Jaspar, and Peter Sluyter. Journal of a Voyage to New York and a Tour in Several of the American Colonies in 1678-80. Translated and edited by Henry C. Murphy. Brooklyn: Long Island Historical Society, 1867. Reprinted, Ann Arbor, Michigan: University Microfilms, 1966. The two Dutchmen visited Jamaica Bay twice during their stay in America and provide the only first hand travelers' account of that area during the seventeenth century.

Denton, Daniel. A Brief Description of New York, Formerly Called the New Netherlands. Reprinted in Jaray, Cornell (ed.), Historic Chronicles of New Amsterdam, Colonial New York and Early Long Island. Second Series. Port Washington, N.Y.: Ira J. Friedman, no date; originally published 1670. Indeed a brief and highly general account by an original settler of Jamaica.

DeVries, David P. Voyages from Holland to America, A.D. 1632 to 1644. Reprinted in Jaray, Cornell (ed.), Historic Chronicles of New Amsterdam, Colonial New York and Early Long Island. First Series. Port Washington, N.Y.: Ira J. Friedman, no date. Provides information about Indians of the coastal area.

The Documentary History of the State of New York. Edited by E. B. O'Callaghan. 4 vols. Albany: Weed, Parsons & Co., 1850. One of two collections of early New York documents produced by O'Callaghan, this does not cover the Dutch era. Arrangement is somewhat haphazard, but contains important items, such as rate lists for Long Island towns. The amounts of land and livestock owned by each head of household is valuable in determining agricultural activity.

Documents Relating to the Colonial History of the State of New York. Edited by E. B. O'Callaghan and B. Fernow. 15 vols. Albany: Weed, Parsons and Company, 1856-1887. The second O'Callaghan collection, this set is systematically arranged by chronology and according to the origins of the documents. Volume XIV is especially useful because of the inclusion of various documents dealing with developments of Long Island towns in the seventeenth century.

II. Census Reports

National Archives and Records Service. General Services Administration Federal Censuses. (QPL). These are microfilms of the actual returns, listing the population by households. For the years prior to 1850, they gave only the name of the head of household and do not indicate occupations. Beginning in 1850, all names are recorded as well as occupation and place of birth. As such, highly useful information is provided about the economy and sociology of communities. For this report, the censuses were consulted mainly for Flatlands, specifically:

1840 M-704 Roll 289 New York, Kings County
1850 M-432 Roll 521 New York, Kings County (Part)
1860 M-653 Roll 776 New York, Kings County (Part)
1870 M-593 Roll 963 New York, Kings County (Excluding City of Brooklyn)
1880 T-9 Roll 857 New York, Kings County (Excluding City of Brooklyn)
1900 T-623 Roll 1069 New York, Wards 30-32

New York State. Censuses for 1855 and 1892. These are the manuscript census returns, bound in large volumes and located in the office of the County Clerk, Kings County Supreme Court. They have been consulted for Flatlands in 1892, since the federal returns have been destroyed. Also checked were the 1855 returns for Flatlands and New Lots. They contain the same type of information as the federal returns but do not list race.

New York State. Census of the State of New York for 1865. Albany: Charles Van Benthuysen & Sons, 1867. (QPL). A report and analysis of the census of 1865. Gives population and agricultural statistics for local communities.

New York State. Census of the State of New York for 1875. Albany: Weed, Parson & Co., 1877. (QPL).

U. S. Department of Commerce, Bureau of Census. Historical Statistics of the United States: Colonial Times to 1970. Washington, D. C.: Government Printing Office, 1975.

U. S. Department of Commerce and Labor. Bureau of the Census. A Century of Population Growth: From the First Census of the United States to the Twelfth, 1790-1900. Washington, D. C.: Government Printing Office, 1909.

III. Town and Municipal Records and Reports

Flatlands Town Records. This is a collection of some twenty bound volumes containing the original handwritten records of the government of Flatlands. Particularly useful are the assessment rolls, for the years after 1880, there is one volume for each year. Since the factories at Barren Island were taxed, the assessment rolls inform us of what new plants had opened and which existing ones closed. Minutes of the Oyster Board relate the leasing of oyster beds in the Flatlands section of Jamaica Bay. These records are in the James E. Kelly Institute for Local Historical Studies, St. Francis College, Brooklyn.

Records of the Town of Jamaica, 1658-1751. edited by Josephine Frost. 3 vols. Brooklyn: Long Island Historical Society, 1914.

Records of the Town of Jamaica, 1749-1897. Copied by Leland Fiedler. 4 volume typescript. Works Progress Administration, 1939. This is a continuation of the work started by Frost. The two sets include proceedings of the town government of Jamaica and also, for the period before 1800, land deeds and similar types of documents. The early volumes are difficult to work with because of the mixing of minutes and documents dealing with real estate transactions. The WPA volumes are indexed and consist mainly of records of the town government.

New York City, Department of City Planning. From Landfill to Park: An Experiment in Construction Waste Management at the Pennsylvania Avenue Landfill Site. New York: Department of City Planning, 1974.

New York City, Department of Docks and Ferries. Annual Reports. (MA). These yearly publications include descriptions of work performed by the department, work done by others and supervised by the department, the issuance of ferry franchises and yearly payments due from the ferry operators, and requests for permission to build on, dredge, fill in, or otherwise use property under the authority of the department. Most valuable are the rent and wharfage rolls, which list all of those parties entering into a lease with the department. Since the bulk of the lands and marshes in and bordering Jamaica Bay came under this department, the Annual Reports provide a means of determining what use was being made of the bay.

New York City, Board of Estimate and Apportionment, Bureau of Improvements. Report on the Main Drainage and Sewage Disposal of the Area Tributary to Jamaica Bay. New York: Parsons, 1917.

New York City Department of Parks (Robert Moses), The Future of Jamaica Bay. New York: Department of Parks, 1938. Moses notes failure of plan to bring about commercial and industrial development of Jamaica Bay.

New York City Department of Parks (Robert Moses), Statement with Reference to the Proposed Parkway Construction Program in the Metropolitan Area. n.p., February 10, 1938. Commissioner Moses presents his case for funds from the state legislature. Includes map of Shore Parkway.

New York City Department of Parks (Robert Moses), Twenty Years of Progress, 1934-1954. New York: Department of Parks, 1954.

IV. New York State Reports and Publications

Dickenson, Charles L. "Commercial Fisheries: Historical Development." In Salt-Water Survey: A Biological Survey of the Salt Waters of Long Island. State of New York Conservation Department. No. XIV (1938), 15-39. Jamaica Bay and Sheepshead Bay were designated as an area in the survey, but were not included in charts of catches.

Kellogg, James L. "Clam and Scallop Industries of New York State " Bulletin of the New York State Museum (April 1901).

New York State. Report of the Commissioner of Fisheries of the State of New York in Charge of the Oyster Investigation. Assembly Document No 85. February 26, 1885: Includes a section on Jamaica and Hempstead bays that describes generally favorable conditions for oystering.

New York State, Report of State Engineer and Surveyor J. A. BenseL on Surveys of Black River Canal Extension, Chemung Canal Reconstruction, Glen Falls Feeder Conversion, Flushing River and Jamaica Bay Canal Construction, and Newtown Creek-Flushing Bay Canal Construction, as directed by Chapter 220, Laws of 1913. Albany: J B Lyon Co., 1914.

New York State , Supplemental Report of the Jamaica Bay Peconic Canal Board Relating to the Construction of the Proposed Canal and the Effect Upon the Present Source of Water Furnished to the Residents of the Town of Hempstead and the Borough of Queens. Albany: J. B. Lyon, 1920.

Twentieth Annual Report of the Commissioners of Fisheries of the State of New York. Albany: James B. Lyon, 1892. A 346 page report containing nothing about Jamaica Bay.

Wood, B. Frank. "Shellfish Culture in New York State." In Annual Reports of the Forest, Fish and Game Commissioners of the State of New York for 1904-1905-1906. Albany: J. B. Lyon Company, 1907. Wood was Superintendent of the state shellfisheries, and his report includes some useful statistics.

V. Cartographic Sources

Beers, F. W. Atlas of Long Island. New York: F. W. Beers 1873. Contains highly informative maps of the towns of Gravesend, Flatlands, Flatbush, and New Lots.'

Beers, J. B. "New Map of Kings and Queens Counties." New York: J. B. Beers & Co., 1886. A large map, showing land ownership, and useful since, unlike other maps, it does not include streets yet unopened. It clearly demonstrates that only at Canarsie Landing was there much in the way of buildings close to the bay.

Dripps, M. "Map of Kings County and Parts of Queens County, Long Island, New York," n.d., n.p. (QPL). A large map, identified as prepared in 1852 or 1853. Unlike most maps of the period, this shows Jamaica Bay in its entirety,

Dripps, William C. Atlas of the Townships of New Utrecht, Gravesend, Flatbush, Flatlands and New Lots, Kings County, New York. New York: W. C. Dripps. 1878.

"Existing and Proposed Arterial Highways, Parks and Airports, Manhattan, Bronx, Brooklyn & Queens," New York: Consolidated Edison, 1937.

"Guide Map of the Borough of Brooklyn, Kings County, New York, Compiled from the Latest Official Maps and Other Sources," Brooklyn: Brooklyn Eagle Almanac, 1898. A 24 inch by 19 inch map, showing ward lines and also indicating Canarsie Beach Park, west of Canarsie Pier,

Hyde, E. Belcher, Atlas of Borough of Queens, New York: Hyde & Co., 1907,

"Jamaica Bay Improvement Showing Bay Frontage owned by City of New York in Relation to Mill Basin," New York: Robert A. Weicke, 1927, Shows proposed rail connection from Bay Ridge Division of LIRR to bay and across to West Island.

"Jamaica Bay Map Showing Channels and Fishing Holes for Fishermen and Yachtsmen." Brooklyn: Knowlson & Muller, n.d. Probably published around 1895. (QPL).

Map of the Borough of Queens, City of New York, Office of the President, Topographical Bureau, Showing Ownership as of the Year, dated August 19, 1935, (QPL). A large, four foot by four foot, map showing property owners, acreage of plots, and dates of deeds, Number refer to deeds filed in the Topographical Bureau of the Borough of Queens.

"Map of the City of Brooklyn, Kings County, Compiled from the Latest Official City Surveys-Private Maps on Record by Leading City Engineers—and Valuable Information furnished by the Department of City Works," New York: Hyde & Co., 1895.

"Map of Jamaica Bay," n.p.: Jamaica Bay Improvement Commission, 1907, Apparently, this map was contained in a report of the commission. It is the only map showing the abortive Flynn cross-bay thoroughfare.

"Map of Jamaica Bay Showing New York Municipal Airport," H. V. Penn, February 23, 1928. Another view of proposed changes in bay.

"Quarantine Chart of New York Harbor." New York: Fern Meyer & Sons, 1873. (MA).

Robinson, E. E. Robinson's Atlas of Kings County, New York. New York: E. Robinson, 1890. Plate numbers 26, 27, 31, 32 cover the Kings County towns near the bay.

Sauthier, Claude. A Chronological Map of the Province of New York in North America. . . . London: William Fadden, 1779. Reprinted in Documentary History of the State of New York, vol. 1, opposite p. 526. A 40 inch by 30 inch map of the entire province, depicting Jamaica Bay with no islands other than Barren Island, incorrectly labeled as Plumb Island.

U.S. Coast and Geodetic Survey. Chart 542 "Jamaica Bay and Rockaway Inlet." A series of nautical maps showing the bay and its periphery. Primarily used in this study are the maps for the years 1911, 1926, 1940. An earlier map of part of the bay is U.S. Coast Survey, Chart 540 "Rockaway Inlet and Western Part of Jamaica Bay." 1878. Copies of these charts are in the Map Division, New York Public library. The current map issued in December 1977 by the successor agency, the National Ocean and Atmospheric Administration, is numbered 12350. These maps are invaluable in indicating changes in the topography of Jamaica Bay.

U.S. Geological Survey. Brooklyn Quadrangle. 1900 (reprinted 1916).

VI. Newspapers

Information from newspapers has been gathered from the following clipping files:

Brooklyn Collection, Brooklyn Public Library
Jamaica Bay

Jamaica Bay Unit, Gateway National Recreation Area

Long Island Room, Queensborough Public Library

Barren Island
Bergen Beach
Broad Channel
Canarsie
Fishing
Fishing Industry
Hamilton Beach
Howard Beach
Jamaica Bay
Mill Island
Shell Fishing

VII. Secondary

Bailey, Rosalie Fellows. Pre-Revolutionary Dutch Houses and Families in Northern New Jersey and Southern New York. New York: William Morrow and Company, 1936. This is the best of numerous books on historic houses and contains excellent photographs. The author avoids many of the unsubstantiated conclusions appearing in other works. Especially useful for Mill Island and Bergen Beach.

- Bellot, Alfred H. History of the Rockaways from the Year 1685 to 1917. Far Rockaway, N.Y.: Bellot's Histories, Inc., 19@7. A fairly good work by a local historian relating the past of an area important in the history of Jamaica Bay.
- Bergen, Teunis G. Register in Alphabetical Order of the Early Settlers of Kings County, Long Island, N. Y. From Its First Settlement by European to 1790. New York: S. W. Green, 1881. Mainly useful for genealogy, this work has some information about early residents in the bay area.
- Bolton, Reginald Pelham. Indian Life Long Ago in the City of New York. Port Washington: N.Y.: Ira J. Friedman; 1971; originally published 1934.
- Brockett, L. B. "The Manufacturing Interests of Kings Co." In The Civil, Political, Professional and Ecclesiastical History and Commercial and Industrial Record of the County of Kings and the City of Brooklyn, N. Y., From 1683 to 1884. Edited by Henry R. Stiles. 3 vols. New York: W. W. Munsell & Co., 1884. Vol. II, 668-824. Provides information about Barren Island's fertilizer factories in the post-Civil War decades.
- Caro, Robert A. The Power Broker: Robert Moses and the Fall of New York. New York: Vintage Books, 1974.
- Ceci, Lynn. "The Effect of European Contact and Trade on the Settlement Patterns of Indians in Coastal New York, 1524-1665: The Archaeological and Documentary Evidence." diss. City University of New York, 1977.
- Degler, Carl. Between the Wars: America, 1919-1941. 2nd ed. Dallas: Houghton Mifflin, 1979.
- Dubois, Anson. "History of the Town of Flatlands." In Stiles, vol. I, 64-79. Similar to the rest of the Stiles undertaking, this article demonstrates a filiopietistic view of early Flatlands. It is useful for its reprinting of such primary documents as a list of inhabitants in October 1796. Dubois also provides a contemporary description of Barren Island industries.
- Eberlein, Harold Donaldson. Manor Houses and Historic Homes of Long Island and Staten Island. Port Washington, N.Y.: Ira J. Friedman, Inc., 1956. Originally published in 1928, this work makes the dubious assertion that Jan Martense Schenck conducted a commerce with Holland from Mill Island.
- Edsall, Thomas Henry. "Something about Fish, Fisheries and Fishermen in New York in the Seventeenth Century," in New York Genealogical and Biographical Record. (October 1882), 181-99. Makes no mention of Jamaica Bay.
- Fausser, William. "The Brooklyn and Rockaway Beach Railroad: The Canarsie Railroad." Mimeographed typescript, 1976. (QPL). This is a well done work on the Canarsie Line and the impact of the railroad on the Landing. In competence it matches Seyfried's study of the Long Island Railroad.
- Fisher, Edmund D. Flatbush Past & Present. Brooklyn: Flatbush Trust Co., 1901.
- Hazelton, Henry Isham. The Boroughs of Brooklyn and Queens, Counties of Nassau and Suffolk, long Island, New York, 1609-1924. 2 vols. New York: Lewis Historical Publishing Co., 1925.
- History of Queens County, New York, With Illustrations, Portraits, and Sketches of Prominent Families and Individuals. New York: W. W. Munsell & Co., 1882. A smaller Queens version of Stiles work on Kings, the sections on the early town of Jamaica contain one of the few efforts to describe fishing in Jamaica Bay during the colonial period.

- Hopkins, Jenny L. "An Oyster Village." Cosmopolitan (October 1891), 718-22. This article describes oystering at Inwood, located on the east side of Jamaica Bay.
- Jaffe, Herman J. "The Canarsie Indians: The Original Inhabitants." In Brooklyn USA: The Fourth Largest City in America. Edited by Rita S. Miller. Brooklyn: Brooklyn College Press, 1979. 45-68. For location of Indian villages, relies on Van Wyck.
- Kochiss, John M. Oystering from New York to Boston. Middletown, Conn.: Wesleyan University Press, 1974. A reliable work, Kochiss' study does not cover the Jamaica Bay oyster industry with any detail. His work includes a listing of powered oyster boats that mentions several Jamaica Bay vessels.
- Landesman, Alter F. A History of New Lots, Brooklyn to 1887 Including the Villages of East New York, Cyprus Hills, and Brownsville. Port Washington, N.Y.: Kennikat Press, 1977. This is the only reasonably adequate history for any of the communities bordering on Jamaica Bay. It includes useful maps and several lengthy extracts from the journal kept by the Flatlands farmer John Baxter during the early national period.
- Law, Charles B. Speech of Hon. Charles B. Law of New York in the House of Representatives, June 29, 1906. Washington D. C.: 1906. An address in which Congressman Law argues on behalf of federal assistance in the improvement of Jamaica Bay. He attached statistics of economy activity at the bay.
- Levine, Leonard. "Canarsie." Unpublished typescript, 1972 (LIHS) A forty-six-page study of Canarsie written for a course at Yale University.
- Lopez, Julius and Stanley Wisniewski. "The Ryders Pond Site Kings County, New York," The Coastal Archaeological Reader: Selections from the New York State Archaeological Bulletin, 1954-1977: Readings in Long Island Archaeology and Ethnic History, volume II, Stony Brook, N.Y.: Suffolk County Archaeological Association, 1978 An important study since it centers on the only collection of artifacts from a site in close proximity to Jamaica Bay.
- O'Halloran, John. "Canarsie Indian Sites," Long Island Forum, vol. XIII, number 4 (April 1950) 63-64, 66, 75. A brief discussion based on older authorities, such as Bolton, Tooker and Parker.
- Parker, Arthur C. The Archaeological History of New York. Albany: University of the State of New York, 1920. An older work now replaced by Ritchie.
- Rattray, Jeanette Edwards. Perils of the Port of New York: Maritime Disasters from Sandy Hook to Execution Rocks. New York: Dodd, Mead & Company, 1973. Contains a lengthy list of ship wrecks, including several occurring in Jamaica Bay and Rockaway Inlet.
- Ritchie, William A. The Archaeology of New York State. Garden City, N.Y.: The Natural History Press, 1965.
- Ritchie, William A. and Robert E. Funk. Aboriginal Settlement Patterns in the Northeast. Memoir 20, New York State Museum and Science Service; Albany: University of the State of New York, 1973.
- Ruttenber, E. M. History of the Indian Tribes of Hudson's Rivers. Port Washington, N.Y.: Ira J. Friedman, 1971; originally published 1872.'
- Seyfried, Vincent F. The Long Island Rail Road: A Comprehensive History. 6 parts or volumes. Garden City, N.Y.: V. F. Seyfried, 1961-1975. A study of the LIRR to the end of the nineteenth century, this work offers the only authoritative study of railroads throughout the bay. It covers all railroads in the Jamaica Bay area, not only the LIRR.

- Seymour, George Dudley. Documentary Life of Nathan Hale. New Haven: Privately published, 1941. This work was used to refute the assertion that the patriot spy, Nathan Hale, was hanged at Bergen Island.
- Smith, Carlyle Shreeve. The Archaeology of Coastal New York. Vol. 45, part 2, Anthropological Papers of the Museum of Natural History. New York: American Museum of Natural History, 1950.
- Strong, R. G. "History of the Town of Flatbush." In Stiles, vol. 1, 212-230. Reprints the entire Dongan Charter to Flatbush in 1685.
- Strong, Thomas. The History of Flatbush in Kings County, Long Island. New York: Thomas R. Merceen, Jr., 1842.
- Tooker, William Wallace. The Indian Place-Names of Long Island and Islands Adjacent. Port Washington, N.Y.: Ira J. Friedman, 1962; originally published 1911. An alphabetical listing of place names of the contact period with discussions of location and meaning.
- Trelease, Allen W. Indian Affairs in Colonial New York. Port Washington, N.Y.: Ira J. Friedman, 1977; originally published 1960.
- Van Wyck, Frederick. Keshachague or the First White Settlement on Long Island. New York: G. P. Putnam's Sons, 1974. Often cited in subsequent works, this local history is highly conjectural in certain parts of its reconstruction of early Flatlands, especially the location of particular tracts of land.
- Werner, Charles J. Historical Miscellanies Relating to Long Island. Huntington N.Y.: Privately published, 1917. Includes an essay on the Schenck mill and house, Mill Island.
- Woods, Clarence Ashton. "Try Pits and Fish Factories." Long Island Forum (February 1946), 23-24, 37; (March 1946), 49, 52-53. Provides a general description of the bunker fish industry on Long Island at end of the nineteenth century.

VIII. Directories

- The Brooklyn City Directory, vol. LXXXIX (1913). Brooklyn: Brooklyn Directory Co., 1913.
- Curtin's Directory of Long Island . . . 1868-69. Brooklyn: Curtin Directory Co., 1868.
- Lain, George T. Lain's Directory of Long Island Including a Business Directory of Brooklyn, Long Island City and the Towns of Kings County. . . for 1878-79. New York: Lain and Co., 1878. Also consulted was the volume for 1889-90.
- Lain, George T. Lain's Elite Directory of Brooklyn. New York: Lain and Co., 1888.
- Polk's Brooklyn (NY) City Directory, 1933-4. vol. XC. Brooklyn: P L Polk & Co., 1933.
- Trow Business Directory of Greater New York(Five Boroughs Combined) 1905. vol. VtII, New York: Trow Directory, Printing and Bookbinding Co., 1905. Also consulted was the volume for 1912.
- Uppington's General Directory of Brooklyn, New York City. vol. LXXX (1903. Brooklyn: George Uppington, 1903.'

IX. Miscellaneous

Blue Water Views of Old New York, Including Long Island and the Jersey Shore. Edited by John Beard. Barre, Mass.: Scrimshaw Press, 1970. A collection of drawings originally appearing in periodicals after the Civil War with a text made up of excerpts from articles in similar journals. Contains some information specifically about Jamaica Bay, but more useful for pictures of boats, nets, and other equipment in general use at that time.

Brearley, Harry Chase. The Problem of Greater New York and Its Solution. New York: Search Light Book Corp., 1914.

Brooklyn Daily Eagle Almanac. Brooklyn: Daily Eagle, 1914-1929. An annual publication, useful in that it provides such information as municipal and private ferry lines in operation.

Grout, Edward M. Improvement and Development of Jamaica Bay and the Water Front of the City of New York other than that of Manhattan Island, Being a Communication Addressed to the Commissioners of the Sinking Fund of the City of New York. New York: Martin C. Brown Press, 1905. Grout was Comptroller of the City of New York, and his short pamphlet seeks to advance the development of Jamaica Bay.

John Miler Associates. A Cultural Resources Inventory of the Gateway National Recreation Area. Typescript, February 1978. A report prepared for the National Park Service. Chapter 7 covers the Jamaica Bay Unit and proved a useful starting place for the present report.

Meyers, Henry A. Looking Through Life's Window: Personal Reminiscences. New York: Coward-McCann, Inc., 1930. Describes attraction of Bergen Island to real estate interests in 1890s and offers promotional view of development of Jamaica Bay.

Miller, James. New York as It Is or a Stranger's Guide-Book to the Cities of New York, Brooklyn and Adjacent Places. New York: James Miller, 1875. Indicates that steam boats left for Rockaway from Pier No. 30 on the North River.

New York State Supreme Court. Proceedings of Jamaica Bay. 5 vols. Between 1923 and 1937, a group of cases were tried involving the city of New York's effort to gain legal title to Jamaica Bay. The records of those cases have been bound together and given the name Proceedings of Jamaica Bay. At issue was the southwest section of the bay, and contained in the records are copies of historical documents, excerpts from histories, and maps. Copies consulted are in Kelly Institute, St. Francis College, Brooklyn.

Palmer, Noyes F. "History of Jamaica Bay." In Jamaica Bay Improvement: A New Gateway to America. Brooklyn: Brooklyn Daily Eagle, 1910. This is the only known work bearing this title. The article serves as an introduction to a promotional statement.

Park Association of New York City. Jamaica Bay and the Rockaways: A Report by the Park Association of New York on the Interagency Conference Held May 28, 1968. New York: Park Association of New York City, no date.

Picture files, Jamaica Bay Unit, Gateway National Recreation Area.

Wrenn, Tony P. General History of the Jamaica Bay, Breezy Point, and Staten Island Units, Gateway National Recreation Area, New York, N.Y. Typescript, October 1975. A report prepared for the National Park Service.

As the Nation's principal conservation agency, the Department of the Interior has the responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under the United States administration.